THE USE OF BEHAVIOR SKILLS TRAINING AND SAFMEDS TO TEACH ROUTINE-BASED BEHAVIOR SUPPORT PLANS TO PARENTS USING TELEHEALTH IN THE HOME SETTING

by

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A DISSERTATION

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DISSERTATION ABSTRACT

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Title: The Use of Behavior Skills Training and SAFMEDS to Teach Routine-Based Behavior Support Plans to Parents Using Telehealth in the Home Setting.

Challenging behaviors are the most impactful factor in parent stress (Davis & Carter, 2008) and prevalence of challenging behaviors are especially high for those with a developmental delay (Dunlap et al., 2006). Currently, there is an escalating need for early intervention services and trained professionals (Hine et al., 2018); however, specific barriers make it difficult for parents to access services. Some of these barriers include; lack of resources, geographical location, and COVID-19 pandemic. Parents are left to serve as the primary interventionist and behavior change agent to their child's behaviors (Cluver et al., 2020; Unholz-Bowden et al., 2020). The current investigation aimed to reduced these barriers by using a concurrent multiple baseline across dyads design to investigate a treatment package comprised of Behavioral Skills Training and Say All Fast A Minute Each Day Shuffled (SAFMEDS) flashcards. The study included parents with children with mild to moderated challenging behaviors and a developmental delay. All trainings and observations took place using two-way videoconferencing technology.

Results of the interventions found a functional relation for increased parent treatment fidelity; however, a clinical significant change in child challenging behavior was not detected. Parents also rated the intervention as acceptable, efficient, and effective.

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CHAPTER I

LITERATURE REVIEW

This chapter will present the statement of purpose for this study and a review of the literature around the research on Behavioral Skills Training (BST), Say All Fast A Minute Every Day (SAFMEDS), and telehealth. This literature review is broken down into: (a) challenging behavior and educational delays, (b) telehealth, (c) parent training, (d) Behavioral Skills Training (BST), and (e) fluency and SAFMEDS. At the conclusion of this chapter, the study's aims and research questions will be presented.

Statement of Purpose

Challenging behaviors are the most impactful factor in parent stress (Davis & Carter, 2008). Specially, challenging behaviors such as aggression, property destruction and self-injury lead to high levels of parental stress (Lecavalier et al., 2006). Prevalence rates of children with delays who exhibit challenging behavior are high: 10%- 40% (Dunlap et al., 2006). Additionally, within the United States, there is an increase in children diagnosed with Autism Spectrum Disorder (Center of Disease Control and Prevention [CDC] 2019). This increase in diagnosis and challenging behavior has resulted in an escalating need for early intervention services and trained professionals (Hine et al., 2018). Children with ASD and other delays are at a higher risk of exhibiting challenging behavior than their typically developing peers (Jang, Dixon, Tarbox, & Granpeesheh, 2011; Kozlowski & Matson, 2012; Mazzucchelli & Sanders, 2011). Challenging behavior interventions based on the results of a functional behavior assessment (FBA) have demonstrated to significantly decrease such challenging behavior

(e.g., aggression, tantrums) (Wood, Ferro, Umbreit, & Liaupson, 2011); however, due to the lack of resources (finances, time), geographical location, or the recent COVID-19 pandemic, barriers such as distance learning and early intervention replacing face to face instruction and services, parents are left to serve as primary interventionists and behavior change agents (Cluver et al., 2020; Unholz-Bowden et al., 2020). The current parent as teacher and interventionist model is concerning since the majority of parents have little to no specialized training, are attempting to work remotely, and have no clarification on when the effects of the COVID-19 pandemic will end (Cluver et al., 2020). When training and knowledge is lacking, ineffective practices and poor instruction may contribute to worsened challenging behavior (Brock, Seaman, & Downing, 2017).

An effective method that has been used to train parents in individualized behavior support plans for children with ASD and other neurodevelopmental disabilities is BST. BST is a treatment package which incorporates 4 main components (a) instructions, (b) modeling, (c) guided rehearsal, and (d) feedback on implementation (Bornstein, Bellack, & Hersen, 1977; Miltenberger et al., 2004; Ward-Horner & Sturmey, 2017). BST has been used to train a variety of individuals on a large array of skills (Hanratty, Miltenberger, & Florentino, 2016; Speelman, Whiting, & Dixon, 2015; Thomas, Lafasakis, & Spector, 2016). Although BST is documented as an effective training method, the treatment package is not without limitations. Many have found BST labor intensive and there is a lack of research supporting the maintenance of the skills taught during training (Drifke, Tiger, & Wierzba, 2017; Himle, Miltenberger, Gatheridge, & Flessner, 2004). Possible solutions to decrease the costs associated with training include

(a) incorporating fluency-based instruction prior to implementation of BST, and (b) delivering BST via two-way audio visual communication (i.e., telehealth). Fluency-based instruction is high accuracy and quick responding (Weiss et al 2010). One common practice within fluency-based instruction is SAFMEDS, an intervention designed to increase the rate of correct responding with key facts (Graf & Lindsley, 2002). The intervention allows learners to practice key facts for a minute each day and develop cumulative knowledge (Johnson & Layng, 1996). A recent literature review of SAFMEDS found the intervention has promising results in terms of effectiveness of knowledge gains and retention of skills; however, the review included 27 articles with a mere 3 assessing skill retention (Quigley, Peterson, Frieder, & Peck, 2018).

Telehealth has been documented as a cost-effective way to provide education and coaching to others who are implementing behavioral interventions (e.g., Wacker et al., 2013). Moreover, telehealth for the treatment of challenging behavior costs three to six times less than in vivo service delivery (Lindgren et al., 2016). In 2020, Unholz-Bowden et al., conducted a systematic review of caregiver training using telehealth for behavioral procedures. They found that telehealth is an effective medium for delivering ABA-services for child and caregiver participants. Although these findings are encouraging, the authors identified that more than half of the child participants included in the review had a diagnosis of ASD and almost half of the participants had other diagnoses. More research is needed to support the efficacy and effectiveness of using telehealth to support implementation of evidence-based interventions addressing challenging behavior by parents with children with additional developmental disabilities and delays.

The proposed study will expand the literature by training parents in an individualized routine-based behavioral support plan for children with ASD and other developmental delays in the home setting by using a telehealth delivered package consisting of fluency-based instruction intervention (SAFMEDS) and BST.

Autism Spectrum Disorder and Developmental Delays

ASD is a neurodevelopmental disorder characterized by delays in social communication and restricted, repetitive behaviors and interests (American Psychological Association [APA], 2013). A recent increase for children diagnosed with autism (i.e., 1 in 58 children in the United States) (Center for Disease Control and Prevention [CDC], 2019) has resulted in a higher need for intensive early intervention (Hine et al., 2018). In addition, many children with autism and other developmental delays exhibit challenging behaviors (Jang, Dixon, Tarbox, & Granpeesheh, 2011; Kozlowski & Matson, 2012). To assist in decreasing challenging behaviors and increase adaptive skills, research has demonstrated Applied Behavior Analysis (ABA) principles can be used effectively to prevent and decrease such challenging behavior for those with intellectual and developmental disability (e.g., Cannella-Malone et al., 2006) including ASD (e.g., Shipley-Benamou, Lutzker, & Taubman, 2002). Parents are responsible for carrying out individualized, function-based behavior plans for children with and without disabilities at home.

Telehealth

Within recent years and even more so in the current pandemic, a service- need gap continues to be a problem that must be addressed (Nelson & Palsbo, 2006). For many

decades other fields have been using teleconferencing technology to reach other providers (Augestad & Lindsetmo, 2009); however, only in the last 10 years has the practice emerged for ABA services (Neely et al., 2017; Boisvert et al., 2010). Although services in urban communities have increased in the United States, the reach continues to be geographically limiting (Traub et al., 2017). Additionally, some communities experience shortages of specialists who can provide consultation to parents using BST.

Telehealth is one way to combat the geographic barrier for many communities. Telehealth includes the use of two way audio-visual technology to allow trainers to provide consultation and services in real time over any distance where broadband Internet exists (Sump et al., 2018). It has also been documented as a cost-effective way to train others to implement behavioral interventions (e.g., Wacker at al., 2013) such as descriptive assessments (Barretto, Wacker, Harding, Lee, & Berg, 2006), systematic preference assessments (Machalicek et al. 2009b), functional analysis (Frieder, Peterson, Woodward, Carane, & Garner, 2009; Machalicek et al., 2009a; 2010;2016), classroom management (Knowles, Massar, Raulston, & Machalicek, 2017), and functional communication training (FCT) (Lindgren at al., 2016; Machalicek et al., 2016). Moreover, telehealth cost can be three to six times less than direct, in-person service delivery (Lindgran et al., 2016); however, many studies have not looked at efficacy and efficiency of telehealth (Sump et al., 2018).

In 2018, Sump, Richman, Schaeffer, Grubb, and Brewer compared the effects of telehealth training to in vivo training on adult delivery of the components of discrete trail training. Two skills were trained via telehealth and two skills were trained in-person

using BST. Training via telehealth and in-person was scheduled for a maximum of 30 minutes per session or until the participant reached mastery. Results of the intervention found telehealth was as effective and efficient as in-person training for all participants. In addition, 5 of the 6 participant's fidelity maintained 1-month following the training. The total number of training sessions needed per participant across the two modalities was a mean of 4 sessions. Similarly, Higgins, Luczynskil, Carroll, and Fisher (2017), used BST and telehealth to train staff to conduct preference assessments. Results of the intervention found training effects maintained 2-months after implementation and all participants reported high satisfaction with the telehealth experience.

Parent Training Via Telehealth

One ABA model that has recently increased due to demand and the covid-19 pandemic is parent training via telehealth (Unholz-Bowden et al., 2020). A recent literature review by Unholz-Bowden et al. (2020) on caregiver training found the emerging practice to be effective at training caregivers to deliver ABA practices and procedures to children with ASD and other developmental disabilities. The review found that of the 30 studies included, the most common procedures used to coach parents were performance feedback (n = 26), within-session instruction (n = 25), and modeling (n = 18). Some other strategies that were less common were pre-session instruction (n = 15), written instruction (n = 12) and prompting (n = 11). Results of the review found majority of articles resulted in positive behavior change for parent fidelity and child challenging behavior. An interesting finding from the review is the diagnoses across participants.

More than half of child participants had a diagnosis of ASD; less than half had a variety of other disabilities.

Another recent review of parent training via telehealth for autism-focused interventions (Neely et al., 2017) found similar results to the Unholz-Bowden et al. (2020) review, all studies (n = 19) reported increased fidelity following a training program. Just over half (11 of the 19 studies) reported social acceptability measures. Of the studies that reported social acceptability, majority of the participants rated the procedures highly acceptable with only one study having mixed reviews (Alnemary, Wallace, Symon, & Barry, 2015).

Although promising results are demonstrated by these past reviews on parent training via telehealth, more studies and research are needed on a developed treatment approach (rather than list of common practices) and the effectiveness of the approach with varying diagnoses.

Behavioral Skills Training

BST is one of the most widely used training packages in the behavior interventions and teaching literature (Dart, Radley, Furlow, and Murphy, 2017). The BST treatment packages has been used to train many differing types of people and professions such as parents, teachers, students, caregivers, and support staff (Alaimo, Seiverling, Sarubbi, & Sturmey, 2018; Belisle, Rowsey, & Dixon, 2016; Clayton & Headley, 2018; Ward- Horner & Sturmey, 2010), and a large variety of skills, such as: social skills, safety skills, and leisure skills (Hanratty, Miltenberger, & Florentino, 2016; Whiting & Dixon, 2015; Thomas, Lafasakis, & Spector, 2016). BST includes (a) instructions, (b)

modeling, (c) guided rehearsal, and (d) feedback on implementation (Bornstein, Bellack, & Hersen, 1977; Miltenberger et al., 2004; Ward-Horner & Sturmey, 2012). However, some researchers have broken down the four main elements of BST even further into six elements: (a) describing the skill, (b) providing written description, (c) modeling, (d) rehearsal (e) feedback to trainee on rehearsal, and (f) repeating the rehearsal and feedback until the trainee has reached mastery (Parsons & Reid, 1995; Sarokoff & Sturmey, 2004). During the instructions component of BST, participants are typically provided a task analysis or written instructions on how to deliver the targeted task. After instructions are provided, the trainer will model the targeted skill while also referencing the written instructions. Once the trainer has modeled the skill, the participant will then be provided opportunities to practice the skill in a rehearsal or role-play scenario. During role-play, feedback is provided to the participant on skills they are implementing correctly and incorrectly. Once the participant meets the agreed upon mastery criterion, the participant is then complete with the training and may go deliver the task analysis in the natural environment.

Components of BST. Since BST is a packaged and relatively costly intervention, researchers have sought to identify the "active components" of the treatment package (Ward-Horner & Sturmey, 2010) using a component analysis. A component analysis is a way to systematically evaluate two or more independent variables to determine which component leads to behavior change (Baer, Wolf, & Risley, 1968). To my knowledge, six component analyses have been conducted for BST (Feldman, Case, Rincover, Towns, & Betel, 1989; Kornacki, Ringdahl, Sjostrom, & Neurnberger, 2013; Drifke, Tiger, &

Wierzba, 2017; Ward- Horner & Sturmey, 2012; Labrot, Radley, Dart, Moore, & Cavell, 2018; Davis, Thomson, & Connolly, 2019). Of the small number of component analyses that have been conducted, findings on the active components have been mixed. Feldman, Case, Rincover, Towns, and Betel (1989) found modeling, rehearsal, and feedback to be the necessary components when training parents with intellectual and developmental disability. Ward-Horner and Sturmey (2012) found feedback and modeling to be the active components of BST and rehearsal alone as ineffective in increasing teacher performance in conducting an experimental functional analysis. LaBrot, Radley, Dart, Moore, and Cavell (2018) found similar results to Ward-Horner and Sturmey (2012) that feedback is the active component of BST when training caregivers to deliver instruction to children with ASD. Nevertheless, Kornacki, Ringdahl, Sjostrom, and Neurnberger (2013), Drifka, Tiger, and Wierzba (2017) and, Davis, Thomson, and Connolly (2019) found the full BST treatment package was needed to teach social skills, behavior-specific interventions, and teaching motor skills with young adults with ASD, caregivers, and college student volunteers. Similarly to Ward-Horner and Sturmey (2012), Davis, Thomson, and Connelly (2019) found rehearsal alone to be the least effective component.

Maintenance. Research supports using BST to train direct care staff (Parsons, Rollyson, & Reid, 2012; Rosales, Stone, & Rehfeldt, 2009; Sarokoff & Sturmey, 2004); however, currently there is limited research on the maintenance of skills acquired during BST (Aherne & Beaulieu, 2019). Of the studies which have included maintenance, the skills are usually evaluated up to 1-month post BST (Davis, Thomson, & Connolly, 2019). In 2004, Sarokoff and Sturmey (2004) investigated BST with special education

teachers to use DTT with students with ASD. In baseline, teachers were provided written instructions to implement DTT program and told to try to the best of their ability. Following baseline, the BST package was delivered in succession (e.g., instruction, modeling, rehearsal, and feedback). Results of the study found correct responding in teachers increased after the delivering of the BST package. A limitation of this study was long-term (i.e., 1-month) maintenance was not assessed.

Rosales et al. (2009) investigated the limitation of the Sarokoff and Sturmey (2004) study by assessing skills taught using BST. The investigation included teaching three college students using a multiple baseline design to implement picture exchange communication systems (PECS). Results of the study found implementation of PECS maintained 1-month following posttraining for one participant; the other two participants were not assessed for maintenance of skills. These findings pose a couple limitations: (1) Only one participant was assessed for maintenance, and (2) it is unknown if the skill would maintain past one-month. Conversely, Davis, Thomson, and Connolly (2019) identified a pattern in their results from the component analysis which found that the skills which were taught using all BST components positively impacted skill maintenance at 1-month follow up.

BST and Didactic Training. Providing instructions alone has not been supported as an effective method of training (Feldman et al., 1989; Gardner, 1972; Himle et al., 2004). Studies have compared BST to didactic training to determine if the intensity of the training lead to increased skill acquisition (St. Lawrence, Jefferson, Alleyne, & Brasfield, 1995; Goldstein, Niaura, Follick, & Adrams, 1989). Sarokoff and Sturmey (2004)

compared didactic training to BST when teaching DTT to three teachers of children with ASD. The results of the study found with didactic training the mean level of performance was 45%, once BST was introduced, levels of implementation increased to a mean level of performance of 98%.

Dart, Radely, Furlow, and Murphy (2017) used a multiple baseline across dyads comprised of high school and special education students to implement DTT after BST. A typically developing high school student was paired with a special education student. Two phases were included in the study: didactic training and BST. During baseline, high school students were provided with the National Professional Development Center on Autism Spectrum Disorder's Evidence-Based Practice model on DTT (National Professional Development Center on Autism Spectrum Disorder, 2010). The models included four separate lessons on DTT, steps for implementing DTT, an implementation checklist, a brief summary of DTT support, and a sample of DTT data. After a week to review information, the students were required to complete a brief exam to determine understanding of DTT. Students were required to earn a score of 80% before they would be given the opportunity to meet with the special education students. All students met the exam criterion following the review of the informational packet. Students were provided with a data sheet which included space for 10 trials, the task analysis and discriminative stimulus specific to the child's target skill, and coding for correct or incorrect responding. No corrective feedback was programmed. During the BST phase, students were provided with a review of the written instructions, modeling of the DTT procedures, and behavioral rehearsal with a graduate student assistant. Performance feedback was

provided as needed with mastery criteria set at 80% correct across three trials. All student interventionists met this criterion within two 30-min training sessions over two days. Following BST, if student overall fidelity fell below 80%, retraining was provided. Retraining consisted of a verbal review of the DTT component and a rehearsal of the missed components with performance feedback. Results of the study found that following didactic training, no student demonstrated mastery of the DTT procedures. After the implementation of BST, immediate improvements were found across all students. Overall these findings suggest BST to be more effective in promoting accurate implementation of DTT than didactic training. A limitation of the study is only one student demonstrated mastery of all components of DTT. Future research may want to look to a stringent criterion for mastery (e.g., 90% to 100%) than the 80% which was used in this investigation. In addition, maintenance data were not collected.

Drifke, Tiger, and Wierzba (2017) conducted a study using a multiple baseline across three parents and two child participant-dyads using BST to teach 3-step prompting and differential reinforcer of alternative (DRA) behaviors. During baseline, each parent presented their child with ASD with 20 instructions. Each instruction was considered one trial. The experimenter asked parents to complete the instructions with their child but did not provide any feedback, instruction or modeling. Based on baseline stability for each dependent variable, one task was selected for each parent and the rest of the tasks were considered generalization tasks. During training, researchers introduced components of BST sequentially and cumulatively until the parent met mastery levels with their child. Mastery criteria was set to three out of four consecutive sessions with (a) 100% accuracy

of implementation for both instruction delivery and reinforcer delivery and (b) no session with less than 80% accuracy of implementation for either measure. Moreover, across four consecutive sessions, parents were required to demonstrate 19/20 trials with correct responding in order to be considered mastered. Advanced next training steps were implemented if parent performance did not indicate an increase in trend. The first phase of training was written instructions. Parents were provided with a one-page written description of how to conduct the three-step prompting and DRA procedure. The documents included definitions of the problem behavior and compliance, as well as directions to follow the three-step prompting and DRA procedures. The second phase of training was written instruction and modeling. During this phase, sessions were similar to the written instructions; however, the researcher modeled the three-step prompting and DRA for five instructions with the target child before the training session. After the models, trials with the parent participants began immediately (e.g., instruction with their child in the target task for five consecutive trials). The last phase of training was written instruction, modeling, and feedback. During this final phase of training, sessions were similar to the previous phases; however, the researchers provided praise for correct responding and corrective feedback for incorrect responding after each trial of the target task. Feedback was withheld following generalization tasks. Results of the study found, written instructions and written instructions with modeling lead to improved implementation; however, mastery levels were not achieved. Mastery in both instruction delivery and reinforcement delivery were achieved only when parents experienced the entire BST package of written instructions, modeling, and feedback. In addition, all

parents achieved high levels of fidelity in all the generalization tasks only when mastery of the targeted task was achieved. Interestingly, findings from this study demonstrated the performance enhancing ability of written instructions and models; however, not to mastery levels. Providing the written instructions and models may assist in lessening the labor and time needed to provide performance feedback.

In 2012, Gianoumis, Seiverling, and Sturmey investigated the use of BST in teacher implementation of Natural Language Paradigm (NLP). The researchers used a multiple baseline across three teacher-child dyads. All staff had a bachelor degree and child participants were three to four years old with a diagnosis of ASD. During pre-training (baseline), 15 NLP trials were presented. The researchers provided the staff with a written task analysis for trials. Each task analysis provided instructions on how to conduct the trials, the child expected response, and prompting procedures. The teachers were instruction to do the teaching to the best of their ability. During training, researchers used instruction, role play, modeling, and feedback to train teachers on the task analysis. During role-play, the researcher provided the teacher with 10-min individualized training sessions with one of the children paired with the teacher. Teachers were paired with an additional probe child to assess generalization. Mastery criterion for training was 90% or more correct across two consecutive assessment probes. Post-training probes were conducted and were implemented the same as pre-training (baseline) probes. Generalization probes with the probe child was administered in both pre-training and post-training. Results of the study found all teachers showed a systematic increase in correct implementation once BST was implemented. All teachers met mastery criteria

during training within 20-30 minutes. Additionally, teacher behavior maintained post-training conditions without additional training needed and generalized to probe children. Although staff behavior maintained, the exact amount of time post-training for maintenance of skill was not reported.

Combinations of BST. BST has been combined with differing interventions such as video modeling, observational learning (Ervin, Wilson, Maynard, & Bramblett, 2018) and self-evaluation. Aherne and Beauliu (2018) used a multiple baseline across participants design to investigate the effects of BST on implementation of DTT by three therapist. Additionally, the researchers evaluated the long-term maintenance of the skills. During baseline, therapists were provided with written instructions to specific DTT programs and instructed to review the instructions for 15 minutes and then implement the procedure to the best of their ability. The researcher acted as the client and no feedback was provided during trials. Consecutive trial sessions totaled in 2 to 6 minutes. During BST, researchers first provided instructions in a conference room and explained each step of the procedures, next the researchers modeled the procedure, then the staff member and the researcher role played until the staff member met mastery criterion. Last, the researcher provided feedback on the staff member performance and answered any questions from the staff members. In addition, the staff members also received a 30-minute phone call with a Board Certified Behavior Analyst who was assigned to the case. After the training, staff were asked to videotape themselves at 2-, 4-, 6-, and 8-weeks following the BST. Additionally, they were trained using BST to self-evaluate their performance on their videotaped sessions. Each staff member was instructed to view their

DTT trials and collect procedural integrity data on their implementation. Videos ranged from 5 to 10 minutes in duration. After viewing the video, the staff member was to upload their self evaluation data sheet. If the staff member's integrity increased for two consecutive sessions of the 100% mastery criterion, a follow-session was conducted 2-weeks later. If the staff member did not maintain mastery criterion, they were to continue the self-evaluation condition. Findings of the investigation support the use of BST to train staff members. Implementation of DTT delivery maintained for 2-weeks post BST for one participants and 8 weeks post BST for two participants. Once self-evaluation was implemented, procedural integrity increased and maintained up to 6-weeks for one staff member and 7-weeks for another. Overall, the study found that effects of BST did not maintain for some staff members and self-evaluation could assist in maintaining high levels of integrity.

Researchers have used video modeling in combination with BST to train staff on behavior analytic procedures (Catania et al., 2009; Moore & Fisher, 2007). Video modeling may decrease the costs and labor associated with BST (Aherne & Beaulie, 2018). In 2010, Pelletier, McNamara, Braga-Kenyon, & Ahearn used video self-evaluation with three staff's implementation of a child's behavior support plan. The researchers used BST to train the staff members on how to use the data sheet and how to collect the procedural data. In baseline, videos were collected on the staff with no programmed consequences. During the treatment phase, staff viewed their videos during baseline sessions and were asked to score their performance using the data sheet they were trained to use. At the end of each video, the researcher provided feedback on the

items that were not in agreement with the researcher's score. Within 2 hours of the self-evaluation, the staff was recorded again with the child. Results of the study found an increase in performance for all three staff. The researchers also conducted a 1-month follow up; there was a slight decrease for one participant in procedural integrity and follow-up was not conducted for the third participant. Limitations of this study were not all members were evaluated for maintenance and the skills were not assessed past the 1-month.

BST Limitations. Limitations of the BST approach includes that it can be labor intensive and only minimally effective when delivered to a large group (Drifke, Tiger, & Wierzba, 2017; Himle, Miltenberger, Gatheridge, & Flessner, 2004). Since BST is based on each individual's progress, a consultant using the BST approach may only be able to train one person at a time (Drifke, Tiger, & Wierzbra, 2017). Training per each individual has been reported in research in differing ranges, for example 20 minutes (Gianoumis, Seiverling, and Sturmey, 2012) and 110 minutes (Davis, Thomson, Connolly, 2019). Moreover, BST is based on mastery of skill rather than fluency of the skill taught.

Fluency

A fluent response includes accurate and quick responding with minimal effort to a specific stimulus which allows the individual to function effectively in the natural environment (Axtell et al. 2009; Binder 1996; Cates and Rhymer 2003; Green, Tiernan, & Holloway, 2018). A person who has achieved fluency in performance typically retains and maintains the skill for longer periods of time, even when faced with distractions and can apply the skill to novel situations (Binder 1996; Brady & Kubina 2016; Green,

Tiernan, & Holloway, 2018; Johnson & Street 2013). To train fluent responding, fluency-based instruction is encouraged**.** Fluency-based instruction targets high accuracy and quick responding (Weiss et al 2010). The key aspect of fluency-based instruction is the utilization of practice (Burns 2005; Codding et al., 2011; Fuchs et al., 2008; Green, Tiernan, & Holloway, 2018). With practice is the concept of explicit timing. Explicit timing (ET) is a method typically incorporated in fluency-based instruction designed to increase the speed of responding to a targeted stimulus. The method involves presenting a task that needs to be accurately completed in a specific amount of time (Schutte et al., 2015; Green, Tiernan, & Holloway, 2018). ET has been shown to be most effective when paired with consequence-based procedures such as feedback, self-correction, and goal-setting (Gross et al., 2015; Miller et al., 1995; Green, Tiernan, & Holloway, 2018). ET is typically paired with frequency-building procedures. Frequency-building procedures include timed repetition of performance with feedback to increase fluent component skills (Kubina at al., 2016; Green, Tiernan, & Holloway, 2018). One procedure that includes fluency-based instruction with ET and frequency-building procedures is SAFMEDS (Kubina et al. 2016).

Say All Fast Minute Each Day Shuffled (SAFMEDS)

SAFMEDS first emerged in the 1970s and 1980s from Ogden Lindsley (Potts, Eshleman, & Cooper, 1993). SAFMEDS is an intervention designed to increase the rate of correct responding with key facts (Graf & Lindsley, 2002). The intervention focuses on a "see-say" learning channel (Johnson & Layng, 1996); the learner is seeing the stimulus and says the corresponding answer (Quigley, Peterson, Frieder, & Peck, 2017).

Other learning channels have been utilized with SAFMEDS as well (e.g., see/sort, hear/write, hear/say, see/write). SAFMEDS are flashcards that were used during timed practice in a free operant arrangement; however, Lindsley (1996) historically discriminates the SAFMEDS procedure from the regularly used flashcards. First, within SAFMEDS, the learner must produce a response. When viewing regular flashcards, the learner is typically silent. Second, accuracy of "knowing" the card is not enough and the learner must be able to provide a response fast. Third, Lindsley did not want learners to study for long periods of time but rather for "a minute each day" so their practice would cumulate over time. Last, all the cards must be shuffled before practice to avoid serial learning.

The procedure of SAFMEDS can be broken down into nine steps (Quigley, Peterson, Frieder, & Peck, 2018). First, have the complete deck present. Second, shuffle the cards. Third, start a 1-minute timer. Fourth, in a quick fashion, "see" and "say" the corresponding information. Fifth, flip the cards to determine if the answer provided was correct. Sixth, sort correct and incorrects into separate piles. Seventh, count the number of cards (i.e., correct and incorrects) after the timing had ended. Eighth, chart the performance and make any decision for intervention if necessary. Ninth, repeat the steps on a daily basis.

Some other research studies have made alterations to the basic procedure to assist learners in gaining fluency (Quigley, Peterson, Frieder, & Peck, 2018). Some of these alterations include (a) another person manipulating the deck of cards (Kubina, Ward, & Mozzoni, 2000), (b) digitally formatting the flashcards (Cuzzocrea, Murdaca, & Oliva,

2011), (c) changing the duration of the timing (Meindl et al., 2013), (d) engaging in multiple timings a day (Nam & Spruill, 2005), and (e) including additional error correction procedures (Beverly, Hughes, & Hastings, 2009).

Aside from just focusing on accuracy, SAFMEDS has other benefits which are captured within a fluency-based instruction approach. Haughton (1980, 1981) uses the acronym REAPS (Retention, Endurance, Application of Performance Standards) to describe these other benefits. Retention refers to the relation between behavior frequencies at two time points in which the learner has not had the opportunity to emit the behavior, Endurance refers to maintaining the behavior during extended periods of time in the face of distractions, and Application of Performance Standards refers to ensuring application of the skill practiced is met (Binder, 1996).

In 2018, Quigley, Peterson, Frieder, and Peck conducted a literature review of SAFMEDS. Of the 27 articles reviewed, none of the empirical articles followed the basic SAFMEDS procedure (Lindsley 1996). Eleven of the articles did not provide a detailed description and the remaining articles altered one or more components (e.g., error correction, durations of practice). The authors found the most common alteration was multiple timings a day. The authors also reported that of the 27 articles, 23 of the articles aimed to increase a specific behavior in an applied setting. The learning channel most used was the see-say channel (i.e., 23 of 27). Only 3 articles tested for retention of skill (Togade, Ormandy, & Stockwell, 2012; Stockwell & Eshleman, 2010; Hughes et al., 2007; Olander et al., 1986). Retention tests ranges from 3-weeks to 8-months with all studies showing minimal decreases in rates of correct responses. Olander and colleagues

(1986) also compared students who used SAFMEDS with students using a non-fluency method. Results of their study found students using SAFMEDS performed much better on retention probes than those who did not. Only 2 articles assessed endurance and stability. Endurance was tested using extended timing durations and stability was tested by playing the radio during 1-minute timings. Application was assessed by 3 articles in differing ways (i.e., switching learning channels and generalization sets of similar reading passages). Overall, the literature review revealed there is limited data of SAFMEDS, but fluency-building exercise appears to produce high rates of skill retention over time. Additionally, the review found that few studies compared SAFMEDS to traditional nonfluency-based methods.

Study Purpose and Research Questions

The proposed study aimed to determine (a) if SAFMEDS and BST via telehealth leads to increased fidelity of parent implementation of a routine-based behavior support plan and decreased frequency of child challenging behavior, (b) if SAFMEDS and BST telehealth consultation is an efficient way to train parents in the home setting, and (c) if parents positively perceive the goals, intervention components, and outcomes of the SAFMEDS + BST telehealth consultation.

The logic model for the current study is illustrated in Figure 1. Beginning with setting conditions of the experiment, which provides a rationale for the parent training and explicates some common barriers to delivering effective training and implementation of behavior support plans by parents in home settings. Contextual variables describe individual characteristics that may vary with each parent, and influence the effectiveness

of the intervention on their acquisition and implementation of targeted behavior support strategies. The research study plans to control for core variables which more directly impact the targeted dependent variables. The dependent variables described in the logic model will be measured using individually determined event coding according to the behavior demonstrated by the participating child.

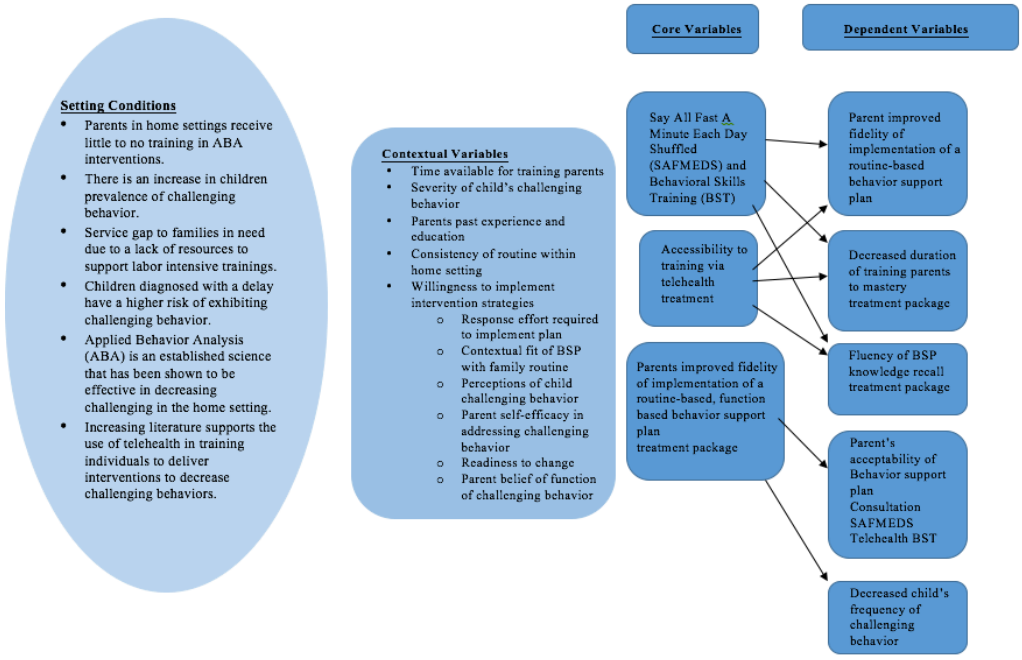


Figure 1. Logic Model for SAFMEDS + BST Consultation Model via Telehealth

The current study addressed the following research questions:

Experimental Research Questions

1. Is there a functional relation between SAFMEDS and BST via telehealth and an increase in level of parent fidelity of a routine-based behavior support plan?
2. Is there a functional relation between SAFMEDS and BST via telehealth and decreased frequency of child target challenging behavior?

Non-Experimental Research Questions

3. Do the parents perceive the intervention as
   (a) effective
   (b) time efficient
   (c) acceptable

CHAPTER II

METHODOLOGY

The purpose for this chapter is to detail the methods associated with the current investigation. This chapter provides information about participants, settings, materials, variables under investigation, observer agreement, and research design. Measures include direct and indirect forms of functional assessment, behavioral observation, procedural fidelity, and treatment acceptability. Descriptions of the routine-based behavior support plans are is presented. Finally, data analysis of each measure is described.

Inclusion Criteria, Recruitment Procedures, Attrition

Inclusion Criteria

Children. This investigation involved children ranging in age from 5-6 years old (exited preschool and kindergarten) who are reported by parents as having a school diagnosed delay, eligible for an IEP, and mild to moderate challenging behavior in their home. Examples of mild to moderate challenging behavior include disruptive frequency, physical aggression, and or intensity of crying, not following instructions, using toys or instructional materials inappropriately, and wandering around the room during instruction. No children exhibiting more intense or severe behavior (e.g., posing a risk to hurting themselves or others) were referred to the present study. Children who had a clear primary function of challenging behavior were included in the study (e.g., all direct observation patterns identify one function of behavior). If a clear primary function of challenging behavior was not identified, the author was to conduct more observations or

refer the child to another specialist. No consented families were recruited to other specialists.

Qualifying children had to (a) have an identified delay or disability (e.g., autism spectrum disorder), (b) be between the ages of 3 - 6 years of age at time of consent, (c) receive educational services through an IEP, (d) have been rated by their parents as having challenging behavior in the home setting at an unacceptable level, intensity, frequency, or variability (as shown by the researcher adapted form, Acceptability of Current Levels of Challenging Behavior (ACLCB) scale (Tarnowski & Simonian,1992), (e) have a history of challenging behavior in the home setting of at least 1 calendar month in duration, and (f) not also be involved in other individualized behavior-specific intervention plans in the targeted routine.

Parents. Four parents across four homes were invited to participate in the study. Parents could be biological, adoptive, or foster parents and mothers or father. The age of parents was not restricted for this study. Qualifying parents must have reported less than a bachelor's degree or have a bachelor's degree in an unrelated field to behavior analysis, early childhood education, or special education.

Recruitment Procedures

The recruitment for this study used social media platforms such as, Facebook, Twitter, and Instagram with a flyer describing the study. First, parents interested in the study would email or call the investigator. Next, the investigator would provide a short script which outlined the study's aims, procedures, and risks and benefits. If the parent agreed, the investigator would arrange a time for the parent and investigator to review

informed consent. During the initial telehealth session (pre-intervention), the consent documents were shared across secure video (e.g., Vsee). The parent then printed or electronically signed the consent document. Once consent was gained from the parent, pre-intervention assessment appointments were scheduled.

Participants and Settings

Participants

During the first meeting with the researcher, parents provided informed consent and intake information, and assessment information. Child intake information included the child's age at the time of the study, medical diagnosis and educational classification as relevant, and race/ethnicity. Intake information requested from parents included, highest level of education and in what field, age, and knowledge of behavior analysis. Each mother was female, identified as a woman and spoke fluent English. Each child was male and identified as a boy. Three of the four dyads were White (i.e., Kim and Logan; Taylor and Matthew, and Angelika and Dominic), and Danielle and William were Black. Additionally, three of the four dyads had siblings participate in the routine; Logan's younger 2 year old sister, Taylor's two 5 year old sisters, and Dominic's younger 2 year old brother. All siblings are Neuro Typical (NT).

Parent demographics survey. Parents were assessed prior to the study in using an open-ended survey asking the following questions: 1) What is the highest level of education? 2) What is your current knowledge of behavior analysis and challenging behavior interventions? and 3) What is your view of behavior analysis?

Dyad 1. Kim and Logan. Kim and Logan lived in the Midwest region of the United States. Kim has a high school diploma and some familiarity with ABA. Logan is a 6-year-old with 2 siblings, speaks fluent English, and can speak in full sentences (i.e., 5-7 words). He qualifies for an IEP for emotional and educational delays with an additional diagnoses of Attention Deficit Hyperactivity Disorder (ADHD), Oppositional Defiant Disorder (ODD), and anxiety.

Dyad 2. Taylor and Matthew. Dyad 2 consisted of Taylor and Matthew and they lived in the Midwest region of the United States. Taylor has a bachelor's in teaching and some familiarity with ABA. Matthew is a 6-year-old with 2 siblings, speaks fluent English, and can speak in full sentences (i.e., 5-7 words). He qualifies for an IEP for educational delay and has no additional diagnoses. Matthew is also a foster child.

Dyad 3. Angelika and Dominic. Dyad 3 consisted of Angelika and Dominic and they lived in the West region of the United States. Angelika has a bachelor's degree in accounting and has no familiarity with ABA. Dominic is a 5-year-old white male with 1 sibling, speaks fluent English, and can speak in full sentences (i.e., 5-7 words). He qualifies for an IEP for educational delays and has an additional diagnosis of ADHD.

Dyad 4. Danielle and William. Dyad 4 consisted of Danielle and William and they lived in the Midwest region of the United States. Danielle speaks fluent English, has an associate's degree in business management, and has a lot of familiarity of ABA. William is a 6-year-old with 2 siblings. William communicates using an Augmentative Alternative Communication (AAC) device which includes a software programmed on an iPad. William's AAC software is programmed in English and he communicates using 1-3

word sentences (e.g., “I want T.V.”). He qualifies for an IEP for Autism Spectrum Disorder (ASD) and educational delay and has an additional diagnosis of sensory processing disorder.

Settings

All sessions were conducted using synchronous videoconference. The researcher was located 590 miles from Kim and Logan, 1,056 miles from Taylor and Matthew, 4,240 miles from Angelika and Dominic, and 96 miles from Danielle and William. All trainings and routine observations took place using an online platform (Vsee or Zoom). Each intervention session occurred in the participating family’s home setting. For example, in the living room, dining room, bedroom. During these sessions, the researcher was in a private office without others able to enter during sessions. In addition, the researcher posted a sign outside of the office door which states “Please do not enter. Private session in progress.”

Researcher Roles

Researcher. The researcher fulfilled the role of interventionist and met with the parents and child from the beginning to the end of the study. The researcher has been working in schools, clinics, and in homes as a Board Certified Behavior Analyst (BCBA) for four years and has a master’s degree in Behavior Analysis and is a doctoral candidate for a PhD in Special Education. In this role, the researcher (a) consented each parents, (b) conducted all assessments, (c) provided all trainings, (d) conducted the initial behavioral observations, (e) created the routine-based functional behavior support plans, (f)

reviewed home-routine session videos daily, and (g) managed schedule for sessions and trainings.

Research assistants. Research assistants reviewed videos from sessions and input data collected from videos. Research assistants consisted of 1 bachelor degreed Family Human Studies (FHS) major and 3 doctoral-level Special Education graduate students. Interoberver Agreement (IOA) was also affirmed by research assistants (see data analysis section). All data collectors were trained to mastery by the investigator before conducting observations. Mastery criterion was considered 80% or higher. The author would review the behavioral definitions with each assistant, provide examples and nonexamples, and give the assistant 1 video to code before moving on. If the assistant's code was 80% or higher IOA with the primary coder, they could continue coding the rest of the videos needed. No additional training was needed for research assistants beyond the first training.

Materials

Telehealth Equipment and Intervention Materials

Hardware. Tele-conferencing and session recording was achieved using (a) one university-issued Apple MacBook Pro™ laptop 2.0GHz dual-core Intel Core i5 with an internal camera and speakers, and (b) one Apple MacBook Air™ 1.6GHz Intel i5 with internal camera and speaker system and (c) QuickTime Player®. Vsee and Zoom videoconferencing sessions were used for data collection purposes. Audio communication used the microphone and speakers of the university laptop computer for routine observation and for training the parent. The researcher used the MacBook Air™

with a built-in microphone. Laptop computers were connected to a broadband internet wireless connection. The Internet service was provided by the researcher and the participating families.

The MacBook Pro™ built in camera has a 720 pixel HD video graphics array. The MacBook Pro™ was used by the researcher to view the parents. All forms were viewed through Zoom video conferencing which is an encrypted software and HIPAA compliant.

All parents used their personal laptops or smart phones to log in and access their SAFMEDS, observations, and trainings. Kim, Taylor, and Danielle used their personal laptops for session observation and smart phone for SAFMEDS. Angelika used her smartphone for both session observations and SAFMEDS. Information was not collected on the exact models of hardware used by the parents.

The QuickTime Player® captures laptop screen recordings. For each session, the research assistant used QuickTime Player® to screen record the video conferenced sessions. After the routine was recorded the research assistant uploaded the routine video to OneDrive and deleted the recording from the laptop computer.

Software. The researcher used Vsee and Zoom for observations and trainings. Using a free version of Vsee, http://vsee.com, and Zoom, http://zoom.us, the researcher used the basic messenger application which includes screen and file sharing, and the ability to send text and pictures. Vsee is an approved software platform by the federal Health Insurance Portability and Accountability Act of 1996 (HIPAA). All communication through Vsee is encrypted (both audio and video) and Vsee requires

lower bandwidth internet connection than other software (e.g., google hangout) which improves the communication during training sessions. Zoom is also an approved software platform by the federal Health Insurance Portability and Accountability Act of 1996 (HIPAA). All communication through the university issued Zoom is encrypted (both audio and video). If there were connection issues with one software (e.g., Vsee), then the other software would be utilized (e.g., Zoom). No sessions were canceled or rescheduled due to connecting issues.

Parents would log into the video conferencing application using their home computer or smart phone device. Each child routine was video recorded to capture both parent and child and uploaded to OneDrive by the researcher within 24 hours of the targeted routine. Parent training during BST was not video recorded.

All storage platforms are cloud-based secure information sites and meet the compliance standards for Health Insurance Portability and Accountability Act (HIPAA) based on data encryption at rest and during transfer. Video recordings were used for IOA and data collection purposes only. Only the author granted access to the videos. The videos are not for download, but can be viewed from OneDrive. For each video, no identifying information was linked (e.g., age, name).

SAFMEDS. All SAFMEDS flashcard decks were available at http://quizlet.com. Each parent had an account created by the researcher. Quizlet App is a web based application and can be accessed on any smart devices (e.g., laptop, smartphone). All flashcards included relevant information from each routine-based behavior support plan. Flashcard decks ranged from 20-30 cards (AIM is 20) and followed the following

guidelines (Graf., & Zero Brother Software, 2001) 1) keep cards front and back short and simple, 2) use only one blank to signal (e.g., _____ as opposed to _____ _____), 3) put the blank at the end of the phrase, 4) use boldface, underlining or italics to discriminate similar wording, 5) have answers larger and dark, and 6) omit different key wording. See Appendix BB for flashcard example.

Printed materials. For each parent-child dyad, the following materials were used and shared via video conferencing: 1) assessment materials including: (a) Questions About Behavioral Function (QABF) (Paclawskyj, Rush, Smalls, & Vollmer, 2000), Consultation Model Treatment Acceptability Rating Form (CM-TARF), Behavior Support Plan Treatment Acceptability Rating Form (BSP-TARF), (b) reinforcer checklist, data sheets, and 2) written instructions to be used during the Behavioral Skills Training (BST). For individualized behavior support plan materials, materials were already owned by the parent or mailed by the researcher, for example: (a) laminated pictures, and (b) choice board.

Standardized Measures

During consent, parents were interviewed using the Questions About Behavioral Function (QABF) (Paclawskyj, Rush, Smalls, & Vollmer, 2000). Prior to treatment and post treatment, parents completed three researcher-created abbreviated forms based on Tarnowski & Simonian (1992) Abbreviated Acceptability Rating Profile (AARP). These forms were created and used during a past dissertation (Mahon, 2017). The first form is the Consultation Model Treatment Acceptability Rating Form (CM-TARF). The CM-TARF consists of sixteen items, using a five-point Likert rating scale. The higher the

score, indicates the higher treatment acceptability. The second form is the Behavior Support Plan Treatment Acceptability Rating Form (BSP-TARF). Like the CM-TARF, the BSP- TARF is based on the AARP, five-point Likert scale, and was be delivered both pre and post intervention. The third form is the Acceptability of Current Levels of Challenging Behavior (ACLCB) form. This form consists of nine items on a six-point Likert scale and asks questions pertaining to target child behavior and perceptions of appropriateness.

Study Procedures

The overall study lasted approximately 1.5 months (6 weeks) and consisted of the 3 phases; (1) pre-intervention assessment, (2) written instructions (baseline), (3) Say All Fast A Minute Each Day Shuffled (SAFMEDS), Behavioral Skills Training, and coaching (if needed). Each dyad received approximately 21 sessions (Dyad 1 22 sessions, Dyad 2 21 sessions, Dyad 3 24 sessions, and Dyad 4 17 sessions). Dyad 4 (i.e., Danielle and William) had the least amount of session due to being sick for one week. Video observation session durations ranged from 8 minutes to 20 minutes with majority of the sessions at 20 minutes in duration for 5 days a week. Shorter sessions (less than 15-20 minutes), only occurred for Dyad 1 (i.e., Kim and Logan). The variation in session duration was due to how many items Logan had to clean up during the routine. Phase 1: Pre-intervention assessment and Phases 2 through 3 are detailed in Table 1.

Table 1. Study Timeline

Study Phase	Focus	Length of time	Attendees and Mode
Phase 1: Pre-Intervention and Assessment	1. Informed Consent, Intake and Assessment 2. Telehealth tutorial 3. Direct observations to confirm QABF hypothesis and create BSP	Up to 1 week Individual call: approximately 15 minutes Observation: 1 sessions per day 15-25 minutes each	Researcher, Child and Family: Telephone and Telehealth
Phase 2: (Written Instructions (Baseline)	1. Parent is provided written plan (BSP) without training or feedback	1 session per day 15-20 minutes each	Researcher, Child and Parent: Telehealth
Phase 3: Online SAFMEDS, Behavioral Skills Training, and Coaching if needed	1. Parent provided SAFMEDS login and asked to practice once a day for 30 seconds each	1 sessions per day 15-20 minutes each ; SAFMEDS (one 30 second timings)	Researcher, Child and Parent: Telehealth
Telehealth BST	Parent was trained using BST (instructions, model, rehearsal, feedback) until skill was demonstrated with 100% mastery for 2 consecutive sessions.	1 training 60 minutes; home setting	Researcher and Parent: Telehealth
Telehealth Coaching (if needed)	If parent fidelity fell below 70% for 2 consecutive sessions, researcher reached out via SMS text message and informed parent of steps missed and asked if they would like in person coaching.	*Training session contingent on parent behavior. 1 sessions per day 15-20 minutes each	Researcher, Child and Parent: Telehealth
	Total Duration of Dyad Commitment	25 to 30 sessions (6 weeks)	
	Total Duration of Study	1.5 months	

Phase 1. Pre-Intervention and Assessment

During this phase, the researcher provided a short tutorial on how to login and use the video conferencing app. Next, the author conducted a Questions About Behavioral Function (QABF) (Paclawskyj, Rush, Smalls, & Vollmer, 2000) interview to identify (a) the target routine (b) operational definitions of the challenging behavior, and (c) a hypothesis for environmental factors that maintain the challenging behavior in the target routine. Directly after the interview, an independent observer conducted six to eight direct routine observations (i.e., 15 to 20 minute observations each; total 90 to 160 minutes) to confirm the hypothesis. Once a clear primary function of challenging behavior was identified, a behavior support plan for the targeted routine was developed. After the behavior support plan was developed, the researcher shared the plan with parent via email and asked if they found the plan feasible and contextually fitting for the routine. If the parent replied yes, the plan was used for the study. No parent replied no and required further behavior plan revisions.

Phase 2. Baseline (Written Behavior Support Plan Only)

During this phase, parents were each emailed written instructions on the routine-based behavior support plan. The researcher asked the parent to review the written instructions and implement the plan to the best of their abilities. The plans included (a) the function of the child's behavior; (b) steps of the plan which included preventative antecedent strategies, teaching strategies, and consequence-based strategies; and (c) operational definitions of the child's target challenging behavior. No feedback or researcher-delivered reinforcement were provided during this phase.

Phase 3. SAFMEDS, Behavior Skills Trainings, and Coaching

Following the written plan delivery phase, parent and researcher scheduled a time for BST via videoconferencing. The BST was broken into two parts. During part 1, the researcher provided an overview of the consultation process. In part 2, the researcher implemented all of the steps of BST. First, the researcher provided the same written plan which was provided during phase 2 (written instruction delivery). Second, the researcher modeled the routine-based plan once. Third, the researcher role-played implementation of the plan with the parent with the researcher playing the role of the child. Fourth, the researcher provided feedback and praise to the parent until they demonstrated the plan with 100% accuracy. After 100% accuracy was demonstrated in the simulated role play via video conferencing, the parent then went on to implement the plan independently in the actual setting during the next scheduled observation. No feedback or researcher-delivered reinforcement was provided after BST implementation unless the parent met the pre-determined criteria for receipt of coaching via videoconferencing (see requirements below). BST training lasted 60 minutes for each parent training. Training sessions with parents were not video recorded. Following the training, parents were provided an email with a login account to https://quizlet.com. The researcher provided instruction on how to use the website and interact with the readied deck of cards. This only took an additional 5 minutes. During the meeting, the researcher demonstrated the first timing. Parents were instructed to text or email their scores to the researcher daily. If two days passed without the parent sending the score, the researcher sent a reminder SMS text and email. In order for the parent to discontinue SAFMEDS practice sessions, they needed to complete 1 timing a day for 30 seconds until they achieve their aim (e.g., 20 to

30 correct per 30 seconds) and zero errors for 3 consecutive days. No parents met SAFMEDS aims during the study.

Practice Sessions. Prior to independent practice, during a videoconferencing call, parents observed the researcher, via screen share function, completing a timing as a model with the same deck of cards parents would be using based on their child's BSP. Following the researcher model, parents were asked to daily review the deck of cards for 30 seconds. Each deck of cards had information from the routine-based behavior support plan. After the SAFMEDS training, no feedback or researcher-delivered reinforcement was provided during this phase. For an example of the SAFMEDS deck of cards see Appendix BB.

If a parent's fidelity of implementation fell below 70% for two consecutive sessions, the researcher would text the parent and inform them of the steps they were missing during the behavior support plan implementation and a coaching session for 15-20 minutes via telehealth was offered to the parent. No parents requested an additional coaching session.

Measurement

Independent Variables

The independent variable (IV) for the current study is a treatment package designed to support parents during a targeted routine for a child with challenging behavior. The treatment package is comprised of a training based on mastery, fluency-building exercise based on the behavior support plan, and coaching contingent on fidelity of implementation and plan effectiveness and child challenging behavior. Specifically, the treatment package included the use of Say All Fast a Minute Every Day Shuffled

(SAFMEDS) based on critical features of the routine-based plan, and parents trained on the routine-based behavior plan using Behavioral Skills Training (BST). In addition, if parent fidelity of implementation remained low (i.e., 2 consecutive days below 70% accuracy), an additional level of support in the form of feedback and coaching was provided. See procedures for a more detailed account of the treatment package and decision rules.

Dependent Variables

The primary dependent variable (DV) for the current study is the parent treatment fidelity to the routine-based behavioral plan in the home setting. The treatment fidelity checklist was comprised of each step in the child's routine-based behavior support plan. Each checklist consisted of 8 steps, with the exception of Dyad 4 which had 5 steps. See Appendix U for each participant's fidelity checklist. The development of the checklist was based on results from the child's FBA. For each step within the routine-based plan were opportunities for observers to make a frequency tally of correct or incorrect. Two secondary DVs for this study included the decreased frequency of child challenging behavior during the targeted routine and parent increase accuracy of knowledge with the SAFMEDS. Challenging behavior was operationally defined for each child and included all behaviors in a response class. Frequency data were collected in 1 minute intervals and reported as percentage of intervals with challenging behavior. Session routines lasted between 8 min - 20 min with majority of session lasting 20 minutes. No session observation took longer than 20 minutes.

Logan's challenging behavior included: Elopement, vocal refusal, name calling, physical aggression, and property destruction. Elopement was defined as any attempt of leaving the clean up area without permission. Vocal refusal was defined as yelling "no", screaming, vocally expressing "this isn't my stuff", "this sucks", "are we almost done" and other equivalent statement. Name calling was defined as labeling others in inappropriate ways such as "cry baby". Physical aggression was defined as any attempt or instance of forcefully contacting another person's body with own body or another item (e.g., throwing something at someone, hitting another person). Property destruction was defined as any attempt or instance of forcefully contacting another tangible item (e.g., throwing something at the wall with high magnitude).

Matthew's challenging behavior consisted of physical aggression, property destruction, and elopement. Physical aggression was defined as any attempt or instance of hitting, kicking or throwing objects at another person with force. Property destruction was defined as any attempts or instance of throwing objects or hitting objects with force. Elopement was defined as any instance or attempt of leaving the play area without permission.

Dominic's challenging behavior consisted of physical aggression and sharing refusal. Physical aggression was defined as any attempts or instance of kicking, hitting, pushing, pulling, laying on top of, or throwing objects forcefully at another person. Sharing refusal was defined as any attempt to take away toys from another person or block access to toys.

William's challenging behavior consisted of physical aggression and tantrums. Physical aggression was defined as any attempt or instance of kicking, hitting, scratching, choking, or throwing objects forcefully at another person. Tantrums were defined as any instance of dropping to the floor, screaming, and crying.

Routine and Behavior Support Plans. Each parent-child dyad had a behavior support plan individualized to fit the function of the child's challenging behavior while operating within the home context and routine. All BSPs consisted of 5 to 8 primary steps and were broken down into two timeframes: Before the routine and during the routine. Kim and Logan's BSP took place during the evening clean-up time routine with siblings present. The plan consisted of the "You-Me" game with a mystery number (National Center on Intensive Interventions, 2015). Prior to clean up time, the parent was to review expectations of how to earn points throughout cleaning up. Points could be earned by "being kind and being on time". To be kind was defined as having a positive attitude and using people's names. To be on time was defined cleaning up items right away, and asking clarifying questions if needed. Before each clean up time, the parent was to select a "mystery" number; this number would be what the child would have to beat with their points in order to select the reinforcer at the end of the routine. After expectations were reviewed, the mystery number was chosen, and the child was able to list examples of being kind and being on time, the parent would signal the clean up. During clean up, the parent was to praise and give a point for every 3rd on task response (i.e., being kind and on time). If the child exhibited challenging behavior, the parent was to praise nearby siblings and remind the child of behaviors they can engage in to continue earning points.

At the end of the routine, if the child beat the mystery number, they would be able to select an item or activity (e.g., go outside to ride bike). If the child did not beat the mystery number, the parent was able to choose the item or activity.

Taylor and Matthew's BSP took place during the morning play routine between siblings. The plan consisted of a dependent group contingency. A group contingency was selected because even though Matthew exhibited challenging behaviors, his two other siblings exhibited similar challenging behaviors which influenced the function and occurrence of Matthew's target behaviors. Prior to starting playtime, the parent was to review expectations of "being safe and being kind". Being safe was defined as playing gently with toys and watching out for the body of others to avoid injury. Being kind was defined as sharing toys or materials with another sibling and asking another sibling to play or for help. During the practice review, the child was to give examples of being safe and kind. Additionally, the parent would conduct a brief, informal preference assessment by asking the children what they should earn for being safe and kind. Matthew and his siblings all selected a dime for each point they earned. After the parent presented the verbal vocal signal to play, a 2-min audio timer on the parent's smartphone was set. After each 2-min timer, one child's name would be pulled from a bowl. If that child had been safe and kind during the past 2-mins, all siblings each earned one point. If the child had not been safe and kind during the past 2-mins, the parent would deliver a verbal vocal reminder for being safe and kind. If challenging behavior occurred during the play session, the parent was to praise nearby siblings and remind the children of behaviors demonstrating safety and kindness. At the end of playtime, the child and siblings were

shown all the dimes they earned for a gift (e.g., trip to the store, preferred snack) they could get later on as a family.

Angelika and Dominic's routine took place during afternoon playtime between the target child and their sibling. The plan consisted of differential reinforcement for alternative behaviors (DRA; Vollmer et al., 2020). Prior to verbally vocally signaling play time, the parent would review the expectations for "my turn", "help please", and "space please". The parent reviewed times when each statement should be used, and then provided a practice session with a toy and the target child. During the practice session, the child was to practice each statement (i.e., "my turn", "help please", and "space please") with the parent playing the role of the sibling before beginning play. During play time, the parent provided descriptive praise and prompted the NT sibling to follow through with the request each time the target child used one of the target alternative responses. If the child exhibited challenging behavior, the parent was to immediately physically block the behavior, verbally vocally prompt the child to use one of the appropriate alternative responses, and ensure that the NT sibling continued to have access to the preferred item until the child used the prompted alternative response.

Danielle and William's routine took place during afternoon choice time. The plan consisted of the use of an 8.5 x 11. 0 inch laminated paper with four boxes; 3 boxes demonstrated the icons of the items that were available, 1 box demonstrated the item that was no longer available. The choice board showed the child what was available after iPad time was all done. Choices were represented using 2 x 2 inch icons of photos of the item. Items used as choices were selected by the consultant based on their observations of child

duration and quality of play with these items and their putative ability to compete with the iPad. Prior to the parent verbally vocally signaling choice time, the child was provided with pre-session access to their iPad for 3 min. Once the 3 min. ended, the parent said, “iPad is all done. Let’s make a choice”. The child was then presented with pictures of 3 other preferred items available for play. If the child made a selection by pointing at or saying the name of the item, the parent was to praise the child for making a choice and deliver the item immediately. If the child did not make a selection, the parent used least to most prompting to assist the child in selecting an item. The least intrusive prompt was a verbal statement reminding the child to make a choice, and the most intrusive prompt was hand over hand. If the child exhibited challenging behavior, the parent was to physically block the behaviors and redirect the child to the choice board. Once the child was redirected, the parent was to use least to most prompting hierarchy to help the child select an activity. If the child failed to select one of the choice activity items following the most intrusive prompt, the parent would remove their attention and the board for 3 seconds by physically turning away from the child. Following the brief removal of the board and parent attention, the parent would re-present the board with a new array of 3 preferred items as options.

Treatment fidelity. The degree to which the plan was implemented by the parent as written was measured using a routine-based fidelity checklist. The routine-based BSP was developed by the researcher based on the results from the FBA. The form was filled out by independent data collectors during direct and recorded observations. The checklist listed each step of the aforementioned routine-based plan. The dimension of behavior

being assessed during the routine was frequency of correct steps divided by total opportunity and multiplied by 100 to obtain a percentage of steps completed correctly, since steps within the plan were opportunity-bound. Parents had access to the checklist (written instructions) throughout experimental phases 2 and 3.

Treatment acceptability. Pre-assessment surveys were delivered immediately prior to the BST. Post assessment surveys were delivered 1 day to 1 week following the last session observation (flexibility of post survey time was given to parents due to study ending right before the beginning of school starting). To assess the acceptability of the treatment package, an adapted version of the Abbreviated Acceptability Rating Profile (AARP) (Tarnowski & Simonian, 1992) was used, Consultation Model Treatment Acceptability Form (CM-TARF). The AARP was adapted for a past dissertation (Mahon, 2017) and consists of sixteen items which was rated by the parents using a six-point Likert rating scale. A high score of five indicates high treatment acceptability (i.e., 0-6).

To assess the acceptability of the routine-based behavior plans for the target child, the Behavior Support Plan Treatment Acceptability Rating Form (BSP-TARF) (also adapted from AARP; Tarnowski & Simonian, 1992) (Mahon, 2017) was administered. The BSP-TARF consists of sixteen items, rated by the parents using a six-point Likert scale.

Functional behavior assessment (FBA). Both direct and indirect measures were used during the FBA process. First, the parent was interviewed to help identify the target routine, operational definitions of the challenging behavior(s), and possible environmental contingencies maintaining the challenging behavior. After the interview,

direct observations were implemented to evaluate the hypotheses created during the indirect assessment.

Indirect measurement. An adapted Questions About Behavioral Function (QABF) (Paclawskyj, Rush, Smalls, & Vollmer, 2000) was used to interview the parent. Since the assessment is comprised of only Likert scales options, the researcher asked additional questions based on parent rating to better prepare for direct observations and creation of the BSP. During the interview, the challenging behavior (e.g., hitting sibling) or suspected single response class (e.g., physical aggression) was selected for intervention for each child. The researcher asked questions to assist in identifying the possible antecedent conditions that precede the challenging behavior, as well as the consequences following the behavior. In addition, settings events were hypothesized. At the end of the interview, the investigator concluded with a summary statement hypothesis which included possible maintaining contingencies. If the parent agreed that the summary statement was accurate, the information served as the hypothesis to direct the home observations.

Direct measurement. During direct observations, videos of the routine were uploaded by the researcher or research assistant at the end of each session. Observations of participants varied between the lead researcher and research assistant based on family scheduling. During session only one observer was present. IOA sessions were viewed by recording of the sessions at a later time. During the video observations, individualized operational definitions were created. Operational definitions were explicit, objective, clear, and complete (Sattler, 2002) and included the relevant pinpoint of the behavior.

Behavioral pinpoints include the behavior's learning channel and movement cycle. A learning channel is the behavior's environmental input and output. For example, if a child hears a demand and immediately elopes from the table, the learning channel would be "hear-run" or "hear-do". A movement cycle is the behavior's action relation to the item (i.e., verb-noun relation). For example, if a child demonstrates aggressive behaviors, such as kicking, a movement cycle would be kicks-body part. All definitions and pinpoints were written with sufficient detail so data collectors could attain high levels of agreement with minimal training needed. All data collectors were trained to mastery by the investigator before conducting observations (i.e., 80% or higher). During the observation, frequency data were used to record target child challenging behavior. The number of instances of challenging behavior were recorded within 1 minute intervals and then calculated for percentages of intervals with challenging behaviors.

Experimental Design

An experimental single-case research design was used to assess 1) a functional relation between SAFMEDS and BST via telehealth and increase level of parent fidelity of a routine-based behavior support plan, and 2) a functional relation between use of the treatment package and decreased frequency of child challenging behavior. To investigate this intervention and the active components, a concurrent multiple baseline design (MBD) across four participants-dyads was used. A multiple baseline design requires a minimum of three opportunities at three points in time to assess a basic relation between introduction of the intervention and the DVs and introduces intervention in a time-lagged fashion with at least 5 data points in each condition (Ledford & Gast, 2018). This design

(i.e., MBD across dyads) has the advantage of not requiring a withdrawal of the intervention to demonstrate experimental control, and the time-lagged fashion of the design allows for clear opportunities to demonstrate a basic effect across participant dyads (Kratochwill et al., 2013). The researcher used a response-guided approach of visual inspection to determine when to intervene with each participant dyads (Kazdin, 2011). See visual analysis subsection to review experimenter visual inspection criteria.

Data Analysis

Assessment and study-specific measures were used in the current investigation. **Assessment measures**, pre and post, were used to assess research question 3 (perceived effectiveness and acceptability). **Study-specific measures** were collected data on research questions 1 SAFMEDS and BST via telehealth and increase parent fidelity; research questions 2, parent fidelity and decreased child challenging behavior. Table 2 describes each measure, the frequency of occurrence during the study, and the research question it will address.

Visual Analysis, Interobserver Agreement and Social Acceptability

Visual analysis. Within the MBL design, level, trend, overlap, and variability of the two primary dependent variables were assessed within and across dyads (Ledford & Gast, 2018; Kratochwill et al., 2013). The author also investigated the non-overlap indices using Tau- U. Tau-U is not affected by ceiling effect and performs well in the presence of data trends (Tarlow, 2016). Tau-U was calculated using a calculator for single-case research (http://www.singlecaseresearch.org/calculators/tau-u). The effect sizes

Table 2. Study Measures, Justification, Type, and Time Point

Research Question	Area of Measurement	Justification for Measurement	Type of Measurement and Tool	Time point of Measurement
1, 2, 3	Parent fidelity	To determine if the parent is implementing the plan at written.	Frequency of correct step implemented on fidelity checklist.	Phases 2-3
2	Child Challenging Behavior	To determine the relationship between parent treatment implementation and child challenging behavior.	Frequency of challenging behavior per observation period.	Phases 2-3
3	Perceived intervention effectiveness, time efficiency, and acceptability	To assess if the participants find the consultant effective and acceptable.	Consultant Model Treatment Acceptability Rating Form (CM-TARF), Behavior Support Plan Treatment Acceptability Rating Form BSP-TARF, and Acceptability of Levels of Challenging Behavior Form. All forms are a 5 and 6-point Likert scale.	Pre and Post Intervention

were compared to Vannest & Ninci (2015). A Tau-U of 1 or -1 indicated there were no overlapping data between phases. All visual analysis components were visually inspected by the researcher and reported. The researcher assessed the following criteria during visual inspection: (a) changes in means across phases (i.e., changes in average rate of performance per condition, (b) changes in level of phases (i.e., shift from the end of one phase to the beginning of the next phase), (c) change in trend and slope (i.e., the line that

characterize the data within each condition), (d) latency to change (i.e., the amount of time or immediacy of a change in data from each phase), (e) nonoverlapping data across phases (i.e., the data points in one phase do not share same values in another phase), and (f) vertical analysis (i.e., changes in the DV for one tier after intervention are associated with no changes in the other dyads where the IV is not being manipulated) (Horner, Swaminathan, Sugai, & Smolkowski, 2012; Kazdin, 2011).

Interobserver agreement. Interobserver agreement (IOA) were collected for: 1) parent treatment fidelity and 2) target child challenging behavior. A minimum of 32% of baseline and intervention sessions had IOA collected for each dyad. Each challenging behavior checklist had total session observation times divided into 1 minute intervals. Observers were able to take a frequency count within each interval. Agreements were defined as each observer having the same frequency within each interval. IOA was computed by total number of intervals with agreements divided by total number of intervals of agreement plus disagreement. Percentage of agreement was then calculated by multiplying the found number of intervals by 100. Each fidelity checklist had total frequency divided into each step within plan. Agreements defined as each observer having the same frequency within each step. IOA was computed by total number of steps with agreement divided by total number of steps with agreement plus disagreement. Percentage of agreement was then calculated by multiplying the found number by 100. For challenging behavior IOA was scored as: Logan 91.8% (range 66.6%- 100%), Matthew 95.8% (85%-100%), Dominic 90.7% (range 75 %- 100%), and William 92.7% (range 75%- 100%). For treatment fidelity, Kim 87.8% (range 72.7%- 100%), Taylor

89.6% (range 50%-100%), Angelika 93.2% (range 63%- 100%), and Danielle 90.4% (range 50%- 100%). Sessions with low fidelity were due to the mismatch of exact frequencies during the step (e.g., if observer 1 recorded the behavior occurred 7 times and observer 2 recorded the behavior occurred 8 times, the step was scored as no agreement).

Social acceptability measurement. Pre and Post intervention, parents were asked to complete the CM-TARF and BSP-TARF. Both abbreviated documents are based on the Abbreviated Acceptability Rating Profile (AARP; Tarnowski & Simonian, 1992) and used using a past dissertation (Mahon, 2017). Based off a factor analyses, the unitary factor of the AARP accounts for 84.9% of the variance with items ranging from .89 to .96 which indicate strong internal validity. In addition, parents completed an Acceptability of Current Levels of Challenging Behavior (ACLCB) form and a short questionnaire about the telehealth procedures (Mahon, 2017).

CHAPTER III

RESULTS

This section describes the results of the study, including assessment (i.e., parent FBA interviews), parent fidelity of behavior support plan, and child challenging behavior data. The results are presented in term of effectiveness of establishing a functional relation and acceptability of the consultation model. Dyad 1 consisted of Kim and Logan, Dyad 2 consisted on Taylor and Matthew, Dyad 3 consisted of Angelika and Dominic, and Dyad 4 consisted of Danielle and William.

Assessment

Indirect assessment: Parent FBA interview. Results from the indirect assessment (i.e., parent FBA interview) for each child are present in Appendix CC. Home routines were determined for each child based on parent report of the setting with the most concerning and consistently occurring challenging behavior. Target routines for parent child dyads consisted of clean up time (i.e., Dyad 1), play time (i.e., Dyad 2 and Dyad 3), and choice time (Dyad 4). Functions of behavior varied for one child (i.e., Logan); however, the rest of the child participants (i.e., Dyad 2, 3, 4) had a hypothesized function of access to tangible items. For dyad 1, Logan's hypothesized function for challenging behaviors was escape from demand.

Direct assessment: Routine behavior observations. Target challenging behaviors for each child, as well as the home routine, were confirmed in baseline conditions. The average percent of intervals in baseline with challenging behavior for target children ranged from 3.5% to 16%.

Research Question 1: Is there a functional relation between SAFMEDS and BST via telehealth and an increase in level of parent fidelity of a routine-based behavior support plan?

During baseline, parents were observed on their fidelity of implementing the behavior support plan after it had been delivered via email.

Parent 1: Kim. Based on direct observations, Kim implemented the behavior plan in baseline at consistently low levels (M = 5%; range 0%- 9.1%) across 6 baseline sessions. Following behavioral skills training and daily SAFMEDS, a drastic immediacy effect was observed (M = 92%; range 60%- 100%). Data during baseline and intervention were stable with little to no variability with a range from 82% to 100% with expectation of 1 data point at 60%. No trend or overlapping data points were detected in both baseline and intervention conditions. Kim did not need additional coaching or support; thus no further intervention was provided.

Parent 2: Taylor. Based on direct observations, Taylor implemented the behavior plan in baseline at consistently low levels (M = 2%; range 0%- 7.7%) across 11 baseline sessions. Following behavioral skills training and daily SAFMEDS, a strong immediacy effect was observed (M = 71%; range 45%- 100%). Data were moderately variable during intervention with no overlapping data points or trends detected in both baseline and intervention conditions. Taylor did meet additional coaching criteria. The researcher text messaged her feedback on steps she was missing during implementation and offered a one on one coaching session. Taylor declined the additional session. After the text message, fidelity returned to 75%.

Parent 3. Angelika. Based on direct observations, Angelika implemented the behavior plan in baseline at consistently low levels (*M* = 6%; range 0%- 29.2%) across 18 baseline sessions with moderate variability. Following behavioral skills training and daily SAFMEDS, an immediacy effect was observed (*M* = 55%; range 40%- 75%). Data during intervention were stable with an ascending trend. No overlapping data points were detected between baseline and intervention conditions. Angelika did meet additional coaching criteria. The researcher text messaged her feedback on steps she was missing during implementation and offered a one on one coaching session. Angelika declined the additional session. After the text message, fidelity continued at 50%, then increased to 75% and 64%.

Parent 4. Danielle. Based on direct observations, Danielle implemented the behavior plan in baseline at consistently moderate levels (*M* = 25%; range 8.3%- 33.3%) with moderate variability and a slight decreasing trend near the end of baseline sessions. Baseline consisted of 12 sessions (6 sessions were canceled due to sickness). Following behavioral skills training and daily SAFMEDS, a drastic immediacy effect was observed (*M* = 96%; range 80%- 100%). No overlapping data points or trends were detected during intervention conditions. Data during intervention were stable with a range from 80% to 100%. Danielle did not need additional coaching or support; thus no further intervention was provided.

Summary of results for Research Question 1. See Appendix A for graphical depiction of concurrent multiple baseline design across participants. Using a vertical analysis, four out of four possible basic effects were observed across parents at four different points in

time. These data provide evidence to suggest a functional relation between provided intervention supports and parent fidelity to child behavior support plans. Therefore, the results confirm the hypothesis that parents engage in significantly higher levels of fidelity following BST and daily SAFMEDS.

Research Question 2: Is there a functional relation between the SAFMEDS and BST treatment package and decreased frequency of child target challenging behavior?

Child 1: Logan. Based on session observations, Logan engaged in moderate levels of challenging behaviors (*M* = 16%; range 0%- 28.6%) with mild variability during baseline. Following initiation of intervention, an immediacy of effect was observed to a low and stable level of intervals with challenging behavior (*M* = 6%; range 0%-50%) with the exception of 2 data points at 25% and 50%. No trends were detected in both baseline and intervention conditions. Tau-U non-overlap index value of -.49 which suggest a moderate effect.

Child 2: Matthew. Based on session observations, Matthew engaged in moderate levels of challenging behaviors (*M* = 8.5%; range 0%-30%) during baseline with moderate variability in the beginning of sessions. Following initiation of intervention, an immediacy of effect was observed to a low and stable level of intervals with challenging behavior (*M* = 3.5%; range 0%-15%). No trend was detected for both baseline and intervention conditions. Tau-U non-overlap index value of -.38 which suggest a moderate effect.

Child 3: Dominic. Based on session observations, Dominic engaged in moderate levels and variability of challenging behaviors (*M* = 9%; range 0%-35%) during baseline.

Following initiation of intervention, an immediacy of effect was not observed; however, data became low and stable in level of intervals with challenging behavior (*M* = 6%; range 0%-10%). No trends were detected in baseline and intervention conditions. Tau-U non-overlap index value of -.13 which suggest a small effect.

Child 4: William. Based on session observations, William first engaged in low to zero levels of challenging behaviors. Researcher spoke with parent about only providing alternative options of iPad if child made a request (not having the items available before the request). Once the change was made, an increasing trend of challenging behavior was observed in baseline (*M* = 5%; range 0%-30%). Following initiation of intervention, an immediacy of effect was observed to a low and stable level of intervals with challenging behavior (*M* = 0%; no range 0%). No trend was detected during intervention conditions. Tau-U non-overlap index value of -.42 which suggest moderate effect.

Summary of results for Research Question 2. See Appendix A for a graphical depiction of the concurrent multiple baseline design across participants. Using a vertical analysis, three out of the four possible basic effects were observed in the form of changes in challenging behavior from baseline phase to intervention phase for the children who participated in the study, across 3 different points in time. These data provide sufficient evidence to suggest a functional relation between the intervention and reduction in challenging behavior; thus these results confirm the hypothesis that the children will engage in lower rates of challenging behavior following the application of the model.

Research Question 3: Do parents perceive the intervention as effective, time efficient, and acceptable?

Parent Rating of Child Challenging Behavior in the Target Routine

Parent 1: Kim's rating of challenging behavior in the target routine. Results from Kim's ratings of child challenging behavior are presented in Appendix Q. Prior to intervention, on the Acceptability of Current Levels of Challenging Behavior (ACLCB; Routine) form, Kim reported overall dissatisfaction (*M* = 2.3, range 1- 3) with her child's challenging behavior in the target routine (i.e., clean up). Following intervention in the target routine, Kim's rated satisfaction improved on four of the nine items (*M* = 2.9; range 2-5). During post assessment, Kim rated *how much of a problem is the child' overall current level of challenging behavior* as a 2, which was the same rating during pre assessment. During post assessment, Kim rated satisfaction with how often the child's challenging behavior took place a 2 (*a little bit of a problem*), a rating improved by one point compared to pre-assessment. During post-assessment in the routine, Kim rated the consistency of the child's behavior in the routine overall a 2 (*little bit of a problem*), a rating improved by one point compared to pre-assessment. During post assessment in the routine, Kim rated how much siblings are impacted a 2 (*little bit of a problem*), a rating improved by one point compared to pre-assessment. During post assessment in the routine, Kim rated satisfaction with how adults interact with the child during the routine a 5, a rating improved by 3 points compared to pre-assessment.

Parent 1: Kim's rating of the challenging behavior across the entire day. Results from Kim's ratings of child challenging behavior are presented in Appendix Q. Prior to intervention, on the Acceptability of Current Levels of Challenging Behavior (ACLCB; Routine) form, Kim reported overall dissatisfaction (*M* = 3.3, range 2- 4) with child's

challenging behavior across entire day. Following intervention in the target routine, Kim's rated satisfaction improved on seven of the nine items from pre assessment to post assessment (*M* = 3; range 2-5). During post assessment, Kim rated appropriateness of the child's behaviors compared to siblings a 4 (*appropriate*) , a rating improved by one point from pre assessment. During post assessment, Kim rated the intensity of the challenging behavior across the day a 2 (*somewhat a problem*), a rating improved by one point from pre assessment. During post assessment, Kim rated how often the behavior occurred throughout the day a 2 (*somewhat a problem*), a rating improved by two points from pre assessment. During post assessment, Kim rated overall satisfaction with how adults interact with the child across the day a 5 (satisfied), a rating improved by two points from pre assessment.

Parent 2: Taylor's rating of challenging behavior in the target routine. Results from Taylor's ratings of child challenging behavior are presented in Appendix Q. Prior to intervention, on the Acceptability of Current Levels of Challenging Behavior (ACLCB; Routine) form, Taylor reported overall dissatisfaction (*M* = 3.1, range 2- 4) with child's challenging behavior in the target routine (i.e., play time). Following intervention in the target routine, Taylor's rated satisfaction improved on seven of the nine items on the rating scale from pre to post assessment. (*M* = 2.4, range 2-4). During post assessment, Taylor rated satisfaction with the overall level of child's challenging behavior a 2 (*a little bit of a problem*), a rating improved by one point compared to pre-assessment. During post-assessment in the routine, Taylor rated how often the child's behavior occurs in the routine overall a 2 (*little bit of a problem*), a rating improved by 2 points compared to

pre-assessment. During post-assessment, Taylor rated the consistency of the child's behavior a 2 (*little bit of a problem*), a rating improved by 1 point compared to pre-assessment. During post-assessment, Taylor rated duration of child's behavior a 2 (*little bit of a problem*), a rating improved by 1 point from pre-assessment. During post assessment, Taylor rated how dangerous the behavior is 3 (*medium problem*), a rating improved by 1 point from pre-assessment. During post-assessment, Taylor rated impact of siblings from child's behavior a 2 (*little bit of a problem*), rating improved by 1 point from pre-assessment. During post-assessment, Taylor rated her overall satisfaction on how others enjoy interacting with the child during the routine a 4 (*somewhat satisfied*), rating improvement of 1 point from pre-assessment.

Parent 2: Taylor's rating of the challenging behavior across the entire day. Results from Taylor's ratings of child challenging behavior are presented in Appendix Q. Prior to intervention, on the Acceptability of Current Levels of Challenging Behavior (ACLCB; Routine) form, Taylor reported overall dissatisfaction ($M = 4.13$, range 3- 5) with child's challenging behavior across the entire day. Following intervention in the target routine, Taylor's rated satisfaction improved on five of the nine items on the rating scale from pre to post assessment. ($M = 4.1$, range 2-5). During post assessment, Taylor rated satisfaction with the overall level of child's challenging behavior a 5 (*a big problem*), a rating stayed the same as pre-assessment. During post-assessment in the routine, Taylor rated the intensity of child's behavior occurs across the day a 4 (*big problem*), a rating improved by 1 points compared to pre-assessment. During post-assessment, Taylor rated the consistency of the child's behavior a 5 (*big problem*), a

rating improved by 1 point compared to pre-assessment. During post-assessment, Taylor rated duration of child's behavior a 5 (*big problem*), a rating improved by 1 point from pre-assessment. During post-assessment, Taylor rated impact of siblings from child's behavior a 4 (*fairly big problem*), rating worsened by 1 point from pre-assessment. During post-assessment, Taylor rated her overall satisfaction on how others enjoy interacting with the child during the routine a 4 (*somewhat satisfied*), rating improvement of 1 point from pre-assessment.

Parent 3: Angelika's rating of challenging behavior in the target routine. Results from Angelika's ratings of child challenging behavior are presented in Appendix Q. Prior to intervention, on the Acceptability of Current Levels of Challenging Behavior (ACLCB; Routine) form, Angelika reported overall dissatisfaction (M = 3.7, range 2- 6) with child's challenging behavior in the target routine (i.e., play time). Following intervention in the target routine, Angelika's rated satisfaction improved on one of the nine items on the post assessment survey (M = 3.9; range 3-6). During post assessment, Angelika rated how often the child engaged in the target behavior in the routine a 3 (*medium problem*), a rating improved by one point from pre-assessment. During the post assessment, Angelika rated the overall level of challenging behavior during the routine a 4 (*big problem*), a rating worsened by two points from pre-assessment.

Parent 3: Angelika's rating of the challenging behavior across the entire day. Results from Angelika's ratings of child challenging behavior are presented in Appendix Q. Prior to intervention, on the Acceptability of Current Levels of Challenging Behavior (ACLCB; Routine) form, Angelika reported overall dissatisfaction (M = 3.6, range 2- 5)

with child's challenging behavior across the entire day. Following intervention in the target routine, Angelika's rated satisfaction improved on one of the nine items (M = 4; range 2-5). Angelika rating of how often the target behavior occurred across the day was a 4 (*fairly big problem*), a rating improved by one point from pre assessment. Angelika's overall score worsened on 3 items on the post assessment. During post assessment for overall level of challenging behavior across the day, Angelika rated a 4 (*fairly big problem*), a rating worsened by two points. Angelika also rating how dangerous the behavior is and how long the behavior lasts an increase in points, ratings worsened by one point from pre-assessment.

Parent 4: Danielle's rating of challenging behavior in the target routine. Results from Danielle's ratings of child challenging behavior are presented in Appendix Q. Prior to intervention, on the Acceptability of Current Levels of Challenging Behavior (ACLCB; Routine) form, Danielle reported overall dissatisfaction (M = 3.4, range 2- 6) with child's challenging behavior in the target routine (i.e., choice time). Danielle did not complete and return the post assessment survey for challenging behavior during the target routine; however, she did return the rating of challenging behavior across the entire day and the results are described below.

Parent 4: Danielle's rating of the challenging behavior across the entire day. Results from Danielle's ratings of child challenging behavior are presented in Appendix Q. Prior to intervention, on the Acceptability of Current Levels of Challenging Behavior (ACLCB; Routine) form, Danielle reported overall dissatisfaction (M = 3.2, range 1- 6) with child's challenging behavior across the entire day. Following intervention in the

target routine, Danielle's rated satisfaction improved for four of the nine items on the post assessment (*M* = 3.3; range 2-6). During post assessment, Danielle rated overall satisfaction with adults interacting with child across the day a 6 (*very satisfied*), a rating improved by three points from pre-assessment. During post assessment, Danielle rated the problem of the challenging behavior a 2 (*a little problem*), a rating improved by four points from pre-assessment. Danielle's rating did worsen for the item related to how dangerous the behavior is across the day and how often the behavior occurs across the day.

Parent Rating of Behavior Support Plan

Parent 1: Kim. Results from Kim's ratings of the behavior support plan are presented in Appendix R. Prior to intervention, on the Adapted Treatment Acceptability Rating Form of Behavior Support Plan (TARF-BSP) form, Kim rated the overall BSP 5 (*very acceptable*) with a mean rating (*M* = 3.5, range 0- 5). Following intervention in the target routine, Kim's rated satisfaction remained consisted (*M* = 3.5, range 1-5). During post-assessment, Kim continued to rate the overall BSP 5 (*very acceptable*).

Parent 2: Taylor. Results from Taylor's ratings of the behavior support plan are presented in Appendix R. Prior to intervention, on the Adapted Treatment Acceptability Rating Form of Behavior Support Plan (TARF-BSP) form, Taylor rated the overall BSP 5 (*very acceptable*) with a mean rating (*M* = 3.6, range 0- 5). Following intervention in the target routine, Taylor's rated satisfaction remained consisted (*M* = 3.6, range 0-5). During post-assessment, Taylor continued to rate the overall BSP 5 (*very acceptable*).

Parent 3: Angelika. Results from Angelika's ratings of the behavior support plan are presented in Appendix R. Prior to intervention, on the Adapted Treatment Acceptability Rating Form of Behavior Support Plan (TARF-BSP) form, Angelika rated the overall BSP 4 (*acceptable*) with a mean rating (*M* = 3.0, range 0- 5). Following intervention in the target routine, Angelika's rated satisfaction improved (*M* = 3.6, range 0-5). During post-assessment, Angelika continued to rate the overall BSP 4 (*acceptable*).

Parent 4: Danielle. Results from Danielle's ratings of the behavior support plan are presented in Appendix R. Prior to intervention, on the Adapted Treatment Acceptability Rating Form of Behavior Support Plan (TARF-BSP) form, Danielle rated the overall BSP 5 (*very acceptable*) with a mean rating (*M* = 3.0, range 0- 5). Following intervention in the target routine, Danielle's rated satisfaction slightly increased (*M* = 3.2, range 0-5). During post-assessment, Danielle continued to rate the overall BSP 5 (*very acceptable*).

Parent Rating of Consultant Acceptability Form. Results from parents' ratings of the consultant acceptability form are presented in Appendix S. The form consisted of 12 items with a Likert scale of 1 (*very strongly disagree*) to 7 (*very strongly agree*). Overall parents strongly agreed that the consultant was helpful and found the training methods very acceptable (*M* = 6.5, range 6- 6.8).

Parent Rating of Consultation Model . Results from parents' ratings of the Consultation Model Treatment Acceptability Rating Form (CM-TARF) form are presented in Appendix T. The form consisted of 18 items with a Likert scale of 0 (*not at all true*) to 5 (*very true*). Overall parents strongly agreed that the consultation model was

helpful and they would not have been able to run the plan without the training provided (M = 4.3, range 3.7- 4.5).

Summary of acceptability results. Overall parents reported satisfaction with the consultant (M = 6.5; range 6 - 6.8), the behavior support plan (M = 3.5; range 3.2 – 3.5), and the consultation model (M = 4.3; range 3.7- 4.5). Levels of challenging behaviors during the routine rating only improved for one participants (Taylor and Matthew; improved from M = 3.1 to M = 2.4); Angelika and Kim's rating worsened slightly and Danielle did not complete the post assessment for the target routine. Levels of challenging behavior across the day, Kim (M = 3.3 to M = 3) and Taylor's (M = 4.3 to M = 4.1) rating improved slightly; however, Angelika (M = 3.6 to M = 4) and Danielle's slightly worsened (M = 3.2 to M = 3.3). Although parents found the model, plan, and methods acceptable, ratings for challenging behavior did not significantly differ from pre-assessment to post assessment.

CHAPTER IV

DISCUSSION

Challenging behavior is the most impactful stressor for parents (Davis & Carter, 2008). Challenging behavior among children with delays is common with a prevalence of 10%- 40% (Fox & Smith, 2007). Although individualized plans grounded in ABA methodology continue to be demonstrated as effective in significantly decreasing challenging behaviors (Wood, Ferro, Umbreit, & Liaupson, 2011), parents are met with many barriers to gain access to training of ABA resources and effective methods (Cluver et al, 2020; Unholz-Bowden et al., 2020). A well-documented training method for adult learners is behavioral skills training (BST). BST is a treatment package that has been shown to be used on a large array of skills and individuals (Hanratty, Miltenberger, & Florentine, 2016; Speelman, Whiting, & Dixon, 2015; Thomas, Lafaskis, & Spector, 2016). Limitations of BST are the focus on mastery criteria for learners and the labor intensiveness. A practice that goes beyond mastery criteria is fluency-based instruction (Weiss et al., 2010). A common fluency-based instructional method is SAFMEDS, which is an intervention used to increase the rate of correct responding with key facts (Graf & Lindsley, 2002). One solution for the service-gap barrier is the use of telehealth technology. Although only recently emerging in ABA practices, telehealth has been used in other fields for decades to reach geographically-limited healthcare providers. Recent literature reviews (Unholz-Bowden et al., 2020; Neely et al., 2017) have found parent training via telehealth to be an effective method to deliver ABA services; however, these reviews are limited in size (n = 30 and n = 19), practices were identified but a

recommended delivery-model is still needed, most participants had a diagnosis of ASD, and none of the articles mentioned a focused on fluency-building exercises.

Thus, this study contributed to the literature by evaluating the effectiveness and acceptability of a structured consultation model designed to increase parent fidelity of a behavior support plan to reduce challenging behavior in preschool-aged children with a delay. The study included a FBA to identify the function of each child's challenging behavior, written plan delivery to the parent to review and run the plan prior to training, behavioral skills training to teach parents how to implement the BSP during the difficult routine, SAFMEDS daily for 30 seconds based on key facts from the behavior support plan, and additional support contingent on the parent's fidelity of the BSP.

Summary of Results

Is there a functional relation between BST via telehealth and SAFMEDS and an increase level of parent fidelity of a routine-based behavior support plan? The results of the concurrent multiple baseline design found four basic effects at four different points in time; therefore, demonstrating a functional relation for parent fidelity. Parents were scored on BSP fidelity during the two phases on intervention (i.e., written plan delivery and post BST + SAFMEDS). During the written plan phase of the study, parents were sent the BSP checklist via email and asked to implement the plan. Across all participants, fidelity of BSP implementation remained at low levels (M = 2-25%). Following the written plan delivery phase, parents were trained on the individualized BSP and were given instructions to complete the SAFMEDS for 30 seconds a day.

Across all parents, an immediacy effect was demonstrated and levels of implementation significantly increased (*M* = 55- 96%).

Is there a functional relation between SAFMEDS and BST treatment package and decreased frequency of child target challenging behavior?

The results of the concurrent multiple baseline design found three basic effects at three different points in time; therefore, demonstrating a functional relation for decreased child challenging behavior. Child challenging behaviors were defined and scored based on results from the FBA. For three children, access to tangible items and activities were the primary function of the challenging behavior; only one child had escape from demand as the primary function. During the written plan delivery phase, challenging behavior for children was observed at moderate to low levels with low variability demonstrated by Logan and an increasing trend in challenging behavior demonstrated by William (*M* = 5 – 16%). After parent BST and daily SAFMEDS, level of challenging behavior decreased across all participants (*M* = 0 – 6%). Additionally, behavior became more stable across most participants during the intervention phase.

Do the parents perceive the intervention as effective, efficient, and acceptable?

The results from the parent acceptability measures found the parents perceive the intervention model, methods, and treatment plan as effective and acceptable. Parents found the behavior support plan to be acceptable and they learned valued strategies from the plan that they were not already using (with the exception of Danielle who reported she had learned of similar strategies from her in-home BCBA). All parents found the

consultant to offer useful information, fit within the home structure, offer useful information about ABA, and helped them to be independent in managing problems. Parents found the consultation model training to be effective and all agreed that without the training, they would have implemented the plan less accurately. Parents found the checklist and flashcards easy to use; however, Angelika reported reading the flashcards was difficult for her due to her dyslexia. Parent reporting of levels of challenging behavior did not significantly change from pre-assessment to post assessment for any of the children; although, individual items within the survey did improve for some. Parent perceptions may not have changed due to a couple of factors. First, the study took place over a short period of time. Kim and Logan were in intervention the longest (i.e., 3 weeks) and the shortest was Danielle and William (i.e., 1 week). It is possible that longer periods of time are needed to change the perceptions of low to moderate challenging behavior. Second, some parents returned the assessment survey weeks following the completion of the study. The duration of time it took parents to complete the survey post study may have also influenced the lack of change in perception.

Training and consultation time for all participants averaged 1hr and 30 seconds. Dyad 1 and 4 never needed additional support (i.e., text message performance feedback and offered coaching). Both Dyad 1 and 4 training times were 1 hour. Dyad 2 and 3 BST trainings were 1 hour; however, both dyads needed additional feedback in the form of a text message (1 minute per text).

SAFMEDS Variations

As mentioned in the Quigley et al., (2018) review of SAFMEDS, most articles used a 1-minute timing; however, variations of timings were also identified in 3 articles. One of the variations is a 30 second timing which was utilized during the current investigation. Meindl, Ivy, Miller, Neef, & Williamson (2013) used 30 seconds timings with college students and found SAFMEDS promoted fluent responding; however, the authors had the students engage in multiple timings a day, rather than just one 30 sec timing. Additionally, the cards used in their study were hardcopy and not on an electronic software.

SAFMEDS is typically broken down into nine steps (Quigley, Peterson, Frieder, & Peck, 2018). The current investigation made variations to two of the nine steps. The third step is to perform a minute each day. To reduce the burden of additional tasks for the families, 30 sec timing were selected. The eighth step is to chart the performance after each timing. Parents sent their scores to the author on a daily basis; however, families were not trained to use the chart. This was due to a similar cause as step 3: to reduce the burden of additional tasks for families. It is possible that only one timing a day was not sufficient enough for parents to increase their accuracy at a x2 celeration. As Quigley, Peterson, Frieder, and Peck (2018) found in their review, multiple timings for SAFMEDS is a highly used variation from the SAFMEDS original protocol. It is possible that parents may have been able to doubled their score or reach aim if multiple timings were conducted a day.

Preliminary effectiveness of BST with SAFMEDS with Parents

To my knowledge, the SAFMEDS procedure has never been used with parents and caregivers to increase the accuracy and fluency of knowledge-based skills with their child's behavior support plan (Quigley, Peterson, Frieder, & Peck, 2017). Based on the preliminary findings of the current study, SAFMEDS can be used with parents of children with a developmental delay and mild to moderate challenging behaviors. The parents within the current study ranged from no college to bachelor's degrees in teaching and accounting. All families had at least 1 sibling including the target child, and parents were currently working from home during the pandemic. Except for one parent (Danielle), families had little to no knowledge of ABA practices and had not worked with a BCBA prior to starting the study. Despite some of these differences in knowledge of ABA and education level, all parents were able to complete 30 second timings on a daily basis. Each parent was also able to increase their accuracy from the previous day before. Parents were able to apply the skills taught during BST and reviewed SAFMEDS on daily basis. This daily demonstration of parent skill development may also be viewed as an Application check, which is a component of the REAPS (Retention, Endurance, Application of Performance Standards; Haughton, 1981) approach used to assess a fluency-based intervention. Parents were applying the behavior support plan strategies during the routine individualized for their children with mild to moderate challenging behavior. Child challenging behavior was similar in that all children had low to moderate instances during baseline conditions. Although, the behavior was still present, behaviors did not occur at a high frequency throughout routines and were not severe in magnitude (e.g., potential for bruises or blood drawn). All children within the study had a function

of challenging behavior for a tangible item, aside from Logan whose function of behavior was escape from demands. With only slight variations found across child participants, this intervention was shown to be an effective model for ABA delivery to reduce mild to moderate challenging behavior.

Overall parents rated the SAFMEDS procedures as easy to use (agree to highly agree), except Angelika who rated SAFMEDS as a 2 suggesting that she did not find the SAFMEDS procedures easy to use. Within her open-ended answers to the social validity questionnaire, Angelika mentioned that the flashcards were difficult for her due to having dyslexia. Additionally, although she rated the SAFMEDS procedures as easy to use, Danielle mentioned that she was not sure if she would have included the flashcards. For those caregivers for whom the flashcard procedure is undesirable or ineffective, there may be other ways to include frequency-building exercises as a component of BST, but try other approaches, is to identify differing learning channels. The majority of research conducted on SAFMEDS uses a "see-say" learning channel (Quigley, Peterson, Frieder, & Peck, 2018); however, other learning channels are available and applicable to teaching a behavior support plan and may be as or even more suitable for caregivers. Some examples may be a "hear-say" learning channel where the learner will listen to the cards and state the correct answer, or a "hear-do" channel where the learner would listen to the card and perform the corresponding action, or "see-do" where the learner watches short video clips and role plays the corresponding action. Utilizing other learning channels may assist in including fluency components while meeting the learning preference and literacy skills of the caregiver.

All parents rated the fidelity checklist of the BSP as highly preferred and suggested this tool was easier to use than the SAFMEDS procedures. This is interesting since the parents had access to the fidelity checklist prior to BST; and yet, across all parents, low levels of fidelity were observed during the written plan delivery phase of the intervention. Based on the findings of the current study, it is not sufficient to deliver a function-based intervention plan alone, without training, to participants with little to no background in delivering ABA interventions. These findings are similar to Gianoumis, Seiverling, and Sturmey (2012) when they compared the use of a written task analysis alone to post BST implementation of a Natural Language Paradigm (NLP) for teacher. The authors found that delivering the written task analysis alone was not sufficient for teachers to reach mastery criteria and post BST resulted in increased fidelity and all teachers met mastery within 20-30 minutes.

One documented limitation of BST is the labor intensiveness of delivery. Within the literature, duration of time to train participants to mastery varies from 20 minutes (Gianoumis, Seiverling, and Sturmey, 2012) to 110 minutes (Davis, Thomson and Connolly, 2019). The current study took only 60 minutes to train each parent. Similar to the Gianoumis, Seiverling, and Sturmey (2012) study, participants were able to view and practice the intervention prior to the BST. The authors found that once BST was introduced, it only took teachers 20 – 30 min to reach mastery. It is possible that the shorter duration of training was related to the teachers having prior exposure and practice with the written task analysis. The same possibility is present in the current investigation. The parents may have had longer training sessions or needed additional coaching if they

did not have prior exposure to the written plan. To identify if this is the case, future research should investigate if prior written plan exposure influences the total duration of training. This research may assist in reducing the labor intensiveness of BST. Research should also see if SAFMEDS delivered during baseline vs the written plan has any impact on parent fidelity or duration of training needed. Based on the findings from this study, researchers may wish to deliver the written plan prior to training to reduce the duration of training time and reduce the duration of plan revisions if the parent does not find parts of the plan acceptable or feasible.

For two of the four parents, additional prompts were needed due to parents' fidelity of strategy implementation falling below pre-determined criterions. The author delivered minimal prompting in the form of a SMS text message. The text message was shown to be sufficient enough to increase parent fidelity the following day. Similar results were documented in an unpublished dissertation (Mahon, 2018). Mahon found for 2 of the participating teachers, a text message directing the teachers to review the task analysis of the child's behavior support plan alone increased their fidelity of implementation. The current investigation's text message was similar to Mahon (2018) except instead of directing the participant to the task analysis as a whole, the current study directed the parent to the specific steps they missed in the checklist. Another variation is instead of sending the text by the end of the day (Mahon, 2018), the current investigation sent the text the day of the following session (before the next session took place). Timing of the text message may have positively impacted the performance of the parents. Aljadeff-Abergel, Peterson, Wiskirchen Hagen, & Cole (2017) investigated the

temporal location of feedback for undergraduate psychology students delivering a teaching lesson. The authors compared feedback immediately after a teaching session and feedback prior to the next teaching session. Results found feedback provided before the next teaching session was more effective than feedback delivered right after session at improving teaching skills. Future research should investigate if feedback is better when coaching parents as an antecedent for future performance rather than a consequence for past performance.

It is interesting that each of the two parents offered additional coaching declined the opportunity to participate in coaching. One possibility is that the added responsibilities parents have taken on during the COVID-19 pandemic resulted in making additional effort aversive despite aligning with their stated goals of learning to prevent and address their child's challenging behavior during family routines. The COVID-19 pandemic has added uncertainties to families such as job security, employment uncertainty, and difficulties with juggling work and family responsibilities (Westrupp et al., 2020). The type of uncertainties experienced during the pandemic can increase parent stress, couple conflict, and parent and child mental health problems (Lupien, Juster, Raymond, & Marin, 2018). Another possibility is the text message feedback alone, which directed parents to steps they were missing on the checklist, was descriptive enough for parents to feel confident in making the changes needed.

Although an immediate and large increase in parent fidelity of implementation was demonstrated by the current investigation when the packaged intervention was introduced, the low rates of child challenging behavior prevents demonstration of a

causal relation via a clinically significant change from baseline to intervention. However, it is important to note that although the challenging behaviors were low to moderate in frequency, the magnitude of the behaviors were still social important to target (i.e., all participants demonstrated physical aggression towards parents and/or siblings). Future research should investigate the utility and effectiveness of this intervention with children with higher rate challenging behavior to see if the intervention can be associated with clinically significant change in rate of challenging behavior.

Contributions of intervention to acquisition, fluency, generalization and maintenance

Participants within the study did not meet the fluency aim for SAFMEDS. All parents had a fluency aim of 20-30 per 30 seconds. Although parents did practice their SAFMEDS each day, no parent reached this aim during the study. It is important to note that even though parents did not reach the predetermined aim, all parents saw an acceleration in their SAFMEDS score and a deceleration in their errors (with the exception of Angelika). Parents' celeration ranged from x1.13 to x1.74. Typically, within precision teaching, the goal is to have a x2 effect; this demonstrates frequencies double from one point in time to the next (Lindsley, 1990). The largest changes in SAFMED progress were parents' deceleration of errors which ranged from x1 to x2.42. For Taylor, Danielle, and Kim errors sharply declined, while Angelika had 0 errors throughout the SAFMEDS sessions. One reason parents may not have achieved the aim was that only one 30 second practice session was conducted per day. As Quigley, Peterson, Frieder, and Peck (2018) identified, articles that implemented a shortened timing floor also

conducted multiple timings a day. Another potential reason why parents did not reach the aim is the variation of one step within the SAFMEDS steps. Instead of the parents charting their own progress, they emailed their raw data (e.g., 8/4) to the author to enter data onto their standard celeration chart. The parents never visually saw their progress on a chart. Visually seeing the progress may be enough feedback for the learner to try and "beat their score from the day before". Indeed, self-charting and reviewing progress is often included in progress monitoring using the standard celeration chart (Lindsley, 1990).

Despite the fact that parents did not reach frequency aims, fidelity of implementation continued to increase or maintain at high levels for all parents. Meindl, Ivy, Miller, Neef, and Williamson (2013) investigated the generalization of SAFMEDS from one training deck to a novel deck of equivalent cards. The study also found that SAFMEDS promoted fluency, but rates of responding across participants were lower with the generalization set. These findings could help in identify why there may not be a strong relationship between the SAFMEDS "see-say" channel and the behavior support plan implementation which involves multiple channels (e.g., "see-do", "hear-say", "see-mark"). Binder and Sweeney (1997) created a training program for AT&T employees based on multiple channels involved in their job performance (e.g., "hear-click-say", "see-mark", "see-say"). These fluency training method was compared to the company's traditional training via lecture. The fluency group outperformed the traditional lecture style group on all performance measures. The current study may have seen a larger impact if other learning channels were included for frequency-building practice.

A fluent responder is someone who can retain the targeted skills for long periods of time, even in the face of distractions, and can perform these skills to novel situations (Binder, 1996; Brady and Kubina, 2016). Behavioral skills training is a well-documented intervention package, but solely focuses on mastery of skills and not other measures of fluency (e.g., REAPS) (Haugthon, 1980, 1981). This study aimed to include a frequency building exercise to promote fluency of facts within each child's behavior support plan. Although parents did not achieve SAFMEDS aims, parents did continue to make daily progress on their accuracy and sharply decrease their errors. Additionally, this study's results suggest that parents needed little training (60 min for initial training) and only one SMS text message with feedback to promote high rates of BSP fidelity. Overall the SAFMEDS + BST treatment package yielded positive results for parent fidelity of implementation. Since the study only took place over the course of 6 weeks, research needs to assess the retention and maintenance of the skills taught with the treatment package. Kim was in intervention for 3 weeks and did not require additional support following the BST training. Taylor was in intervention for 2 weeks and needed only one SMS text message with feedback. Angelika was in intervention for 1 week and needed only one SMS text message with feedback, and Danielle was in intervention for 1 week and did not require additional support.

Technological advances in parent training

Parents rating of accessibility and ease of use for online software is especially important during today's heightened need (Unholz-Bowden et al., 2020). Not only is there a very evident service-practice gap for ABA services, but there is also a global

pandemic which requires many to stay home and socially distance (Westrupp et al., 2020). This study adds to the literature on caregiver training via telehealth and the use of digitally-based SAFMEDS. First, this study's findings add to the results of a single peer-reviewed article examining the digital use of SAFMEDS (Cuzzocrea, Murdaca, and Patrizia, 2011). Cuzzocrea, Murdaca, and Patrizia (2011) found digital SAFMEDS to be effective and efficient at increasing knowledge-based skills. The majority of the parents within the current investigation rated the digital SAFMEDS as easy to use. No parents reported difficulty with signing on to use the SAFMEDS platform.

Second, in regards to family-centered behavioral teleconsultation, Unholz-Boweden et al. (2020) found in their literature review of caregiver training via telehealth that the medium of telehealth is effective at delivering ABA services; however, the article did outline that not one true model of consultation was identified but rather a series of practices and that the majority of the reviewed articles involved caregivers of individuals with ASD. The current study furthers the fields of telehealth delivery by proposing a model of service delivery as well as including participants with secondary diagnoses (e.g., ADHD, ODD). Throughout the study parents did not report experiencing any technical issues; however, anecdotally, parent did report a preference for using the zoom software over Vsee due to previous exposure at work or at child's school.

To inform future practice, future research studies should investigate the maintenance and generalization of skills taught to caregivers via telehealth. Not only has telehealth been documented as a cost-effective way to train others (Wacker et al., 2013), but the flexibility of viewing their child's behavior during regularly occurring family

routines was noted by three of the participants during the study. Future practices should utilize the convenience and flexibility of telehealth to investigate the longevity of the skills taught since more research continues to emerge that document telehealth service delivery as effective as in-person (Ferguson, Cralg, & Dounavi, 2018).

Adding to the efficacy of the current investigation, parents were trained for approximately 60 minutes and only 2 parents needed additional feedback in the form of a text message to increase their fidelity percentage. The author of the current study did not have to conduct an additional session with parents, which may be related to the severity and frequency of child challenging behavior (i.e. low frequency, mild to moderate intensity challenging behavior) This finding also supports the efficiency of the model that behavior change took place without coaching sessions with the BCBA and child; only observations to confirm the function of the child's target behaviors.

Social validity

Each of the parents participating in the present study rated the consultation model, behavior support plan, and consultant delivery of the model as acceptable. Parents rated highly agree that the *consultant's presence via telehealth was subtle and unobtrusive*. These findings are promising since technology is increasingly utilized within family homes due to government mandates during the COVID-19 pandemic related to social distance (Westrupp et al., 2020). Another promising finding is all parents rated highly that the consultant *fit well into the home's culture*. Due to the brief nature of the interactions of participants and consultant, it is important for a consultant to build rapport in a short amount of time. For 3 of the 4 parents, the consultant was rated highly in

customizing the work for the parents learning style. Angelika did identifyto the researcher after the study that she has dyslexia and the flashcards were difficult for her to read in a quick fashion. Future research should investigate if using differing learning channel based on parent preferences increase acceptability and fidelity of implementation. Two of the four parents rated this teleconsultation and SAFMEDS model as the *best services they have received for their child from a specialist*; the other two parents rated this model as *similar to other services delivered by specialists*. Overall, parents found the procedures used in this study to be a highly acceptable model. These findings are similar to findings from Unholz-Bowden et al., 2020 on parent acceptability of telehealth services. No significant difference was found in parent rating of levels of challenging behavior between pre and post assessment for both target and overall home routine. One possibility for this finding is due to the short nature of the study. Since participants were only in intervention for one to three weeks, it is likely that a large change did not occur in the short period of time due to the behaviors already being at low to moderate levels in baseline. Another possibility for lack of change from pre to post assessment is the delay between request of parent completion of the post survey and their return of the survey. For parents who took longer to complete and return the survey, it may be that the intervention was being no longer delivered and therefore the behavior returned to baseline levels.

Limitations and Implications for Future Research

The current study is not without limitations. First, three out of four of the routines consisted of sibling participation but no data were collected on their behaviors. When

typically coaching parents on BSP, it is individualized for one child; however, siblings within the study were engaging in similar challenging behavior. Taylor may have benefitted more from the intervention that addressed all challenging behavior of the siblings with the group contingencies rather than just the one child. Second, maintenance for fidelity of the behavior support plan implementation by parents and reductions of challenging behavior were not assessed during this investigation. Therefore, the author cannot make conclusions about the long-term effectiveness of the current study. Future studies should assess the long-term maintenance of this treatment package since maintenance data of BST is currently limited within the literature. Third, generalization data were not collected during this study. It is possible that the parents used strategies from the BSP in different routines or with their other children. Future research should investigate if parents are using the strategies in other areas of the home or with other children. Fourth, although reported higher during the initial FBA process, overall challenging behavior for children within the study were at moderate to low levels. Even though a mean level change was found for all children, future research should investigate the effectiveness of this treatment package with children with high levels of challenging behaviors. Fifth, the treatment package was comprised of multiple components and it is possible that some components within the package are more effective than others. Future investigations should add to the literature on component analyses of BST to assist in identifying the most essential components. Ways to investigate this is using a single-case alternating-treatment design embedded within an ABC, or ABCD design (e.g., see Ward-Horner & Sturmey, 2012) or a conventional group design and having various groups

learn a skill by only introducing specific components of BST. Additionally, studies should assess the addition of SAFMEDS and determine if the component had an additive effect on the impact of the BST intervention. Sixth, participants within the study did not meet the fluency aim for SAFMEDS. All parents had a fluency aim of 20-30 per 30 seconds. Although parents did practice their SAFMEDS each day, no one reached the aim. Future research should assess if reaching the fluency aim has an influence on fidelity of implementation. Additionally, future research should look into other ways to include fluency building practices within parent training (e.g., use of multiple timings) and investigate the effectiveness of other learning channels within parents training. Currently, there is a lack of research on fluency within parent training and moving beyond mastery criteria. Seventh, procedural fidelity on the researcher was not collected during this investigation and sessions were not recorded so this information cannot be provided. Future research should collect and score fidelity of the implementation of the training and consultation model to better assist in future replications and studies on the model. Lastly, the study took place during a worldwide pandemic. Due to the urgency and increased burden put on parents and caregivers, it is possible that there may have been other contingencies, factors, and motivating operations in effect that influenced parent uptake of the intervention.

Conclusion

The BST and SAFMEDS consultation model utilized in the current investigation was found to be effective, efficient, and rated highly acceptable by parents involved. This is a meaningful contribution to telehealth parent training where 1) parents have limited

resources and experience delivering individualized function-based interventions, 2) change to child challenging behavior requires parents to be active change agents, and 3) a service-gap continues to exist among the increasing prevalence of challenging behavior and worldwide pandemic.

The largest contribution of the current study to the literature is the amount of time and training that was needed for parents to meet fidelity. Overall the study was a total of 6 weeks in duration. Parents were trained for approximately 60 minutes and only 2 parents needed additional feedback in the form of a text message to increase their fidelity percentage. Therefore, when presented with children with mild to moderate challenging behavior, and parents with little to no training in ABA, the BST + SAFMEDS consultation model was an effective intervention to increase parent fidelity and decrease child challenging behavior across routines.

APPENDIX A

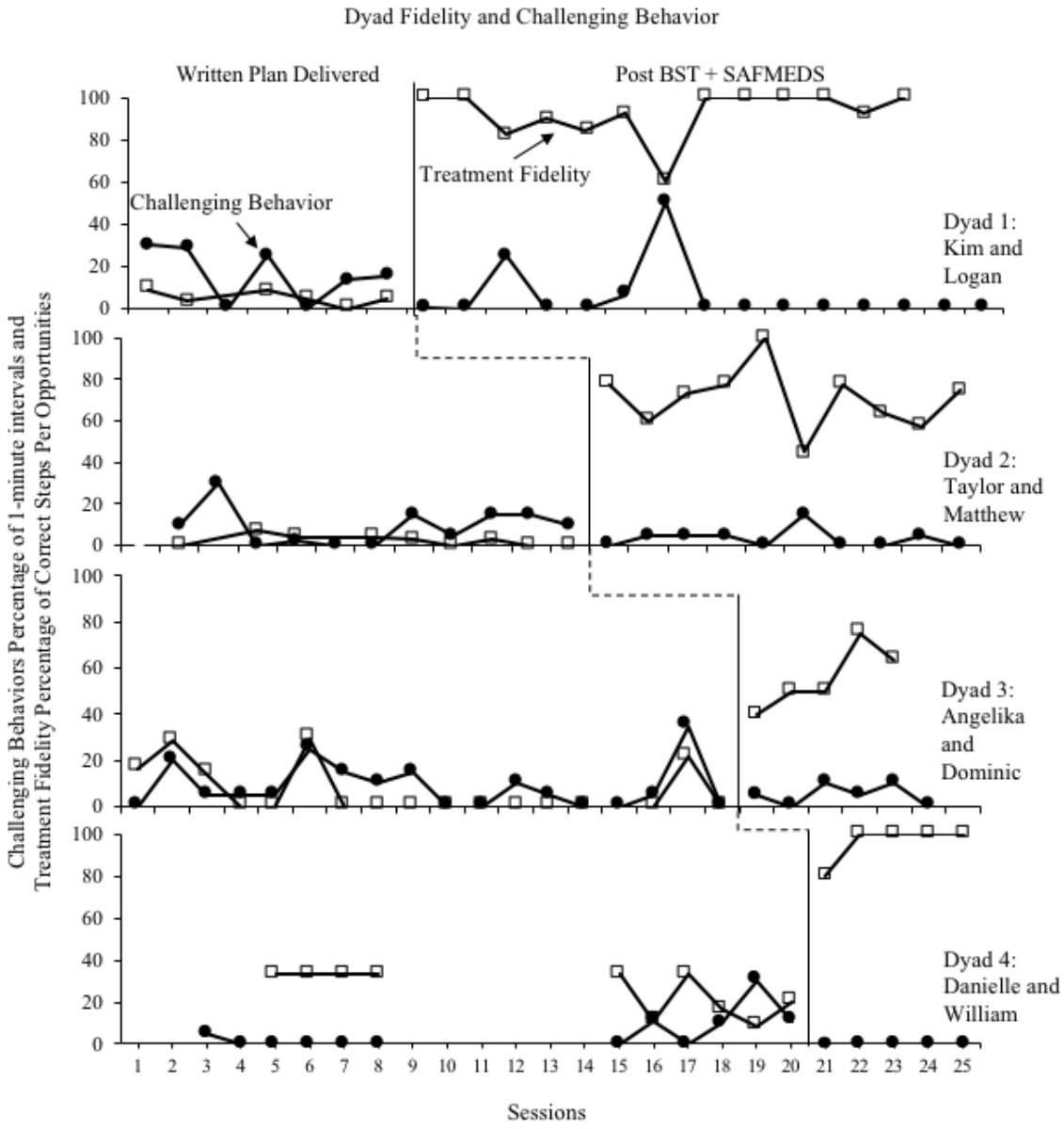


Figure 2. Concurrent multiple baseline across participant dyads of parent fidelity and child alternative and challenging behavior.

APPENDIX B

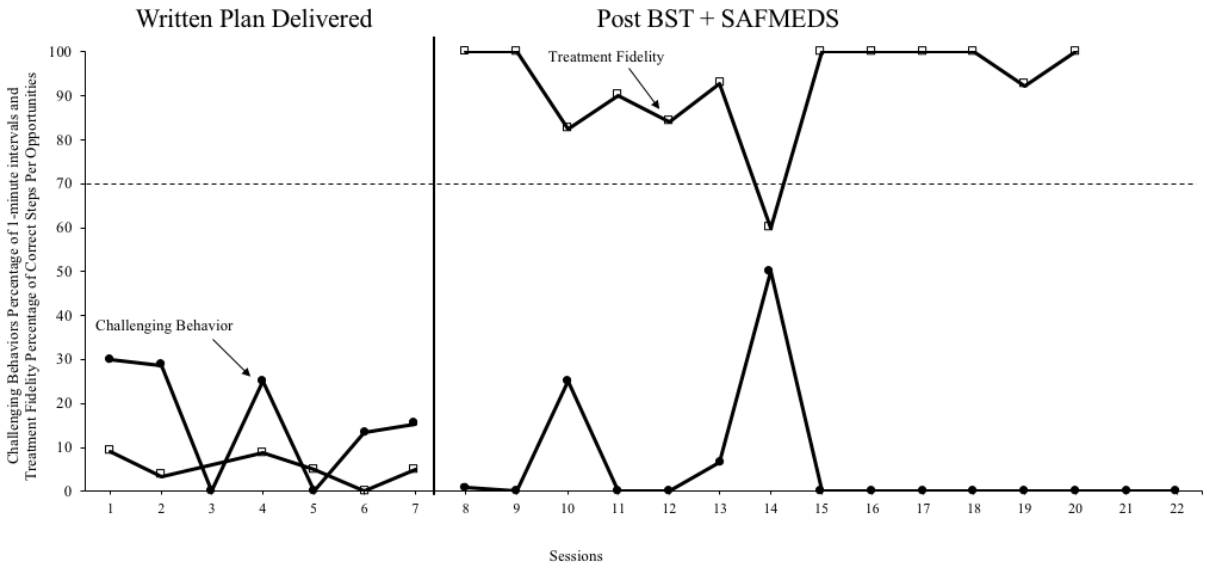


Figure 3. Tier 1 of concurrent multiple baseline for Kim's BSP fidelity and Logan's challenging behavior.

APPENDIX C

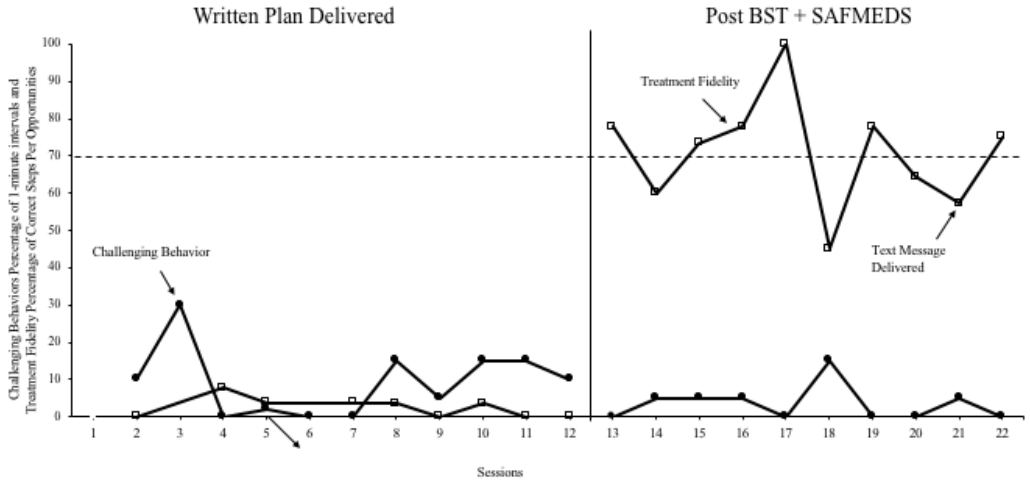


Figure 4. Tier 2 of concurrent multiple baseline for Taylor's BSP fidelity and Matthew's challenging behavior.

APPENDIX D

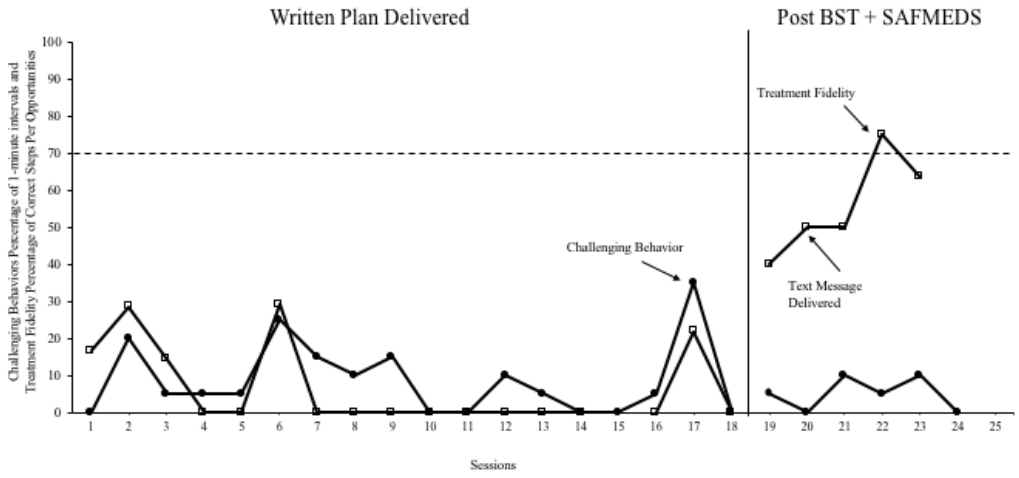


Figure 5. Tier 3 of concurrent multiple baseline for Angelika's BSP fidelity and Dominic's challenging behavior.

APPENDIX E

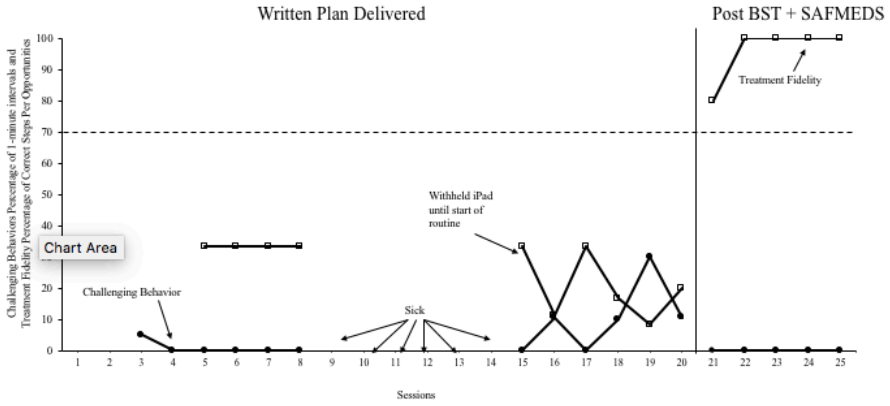


Figure 6. Tier 4 of concurrent multiple baseline for Danielle's BSP fidelity and William's challenging behavior.

APPENDIX F

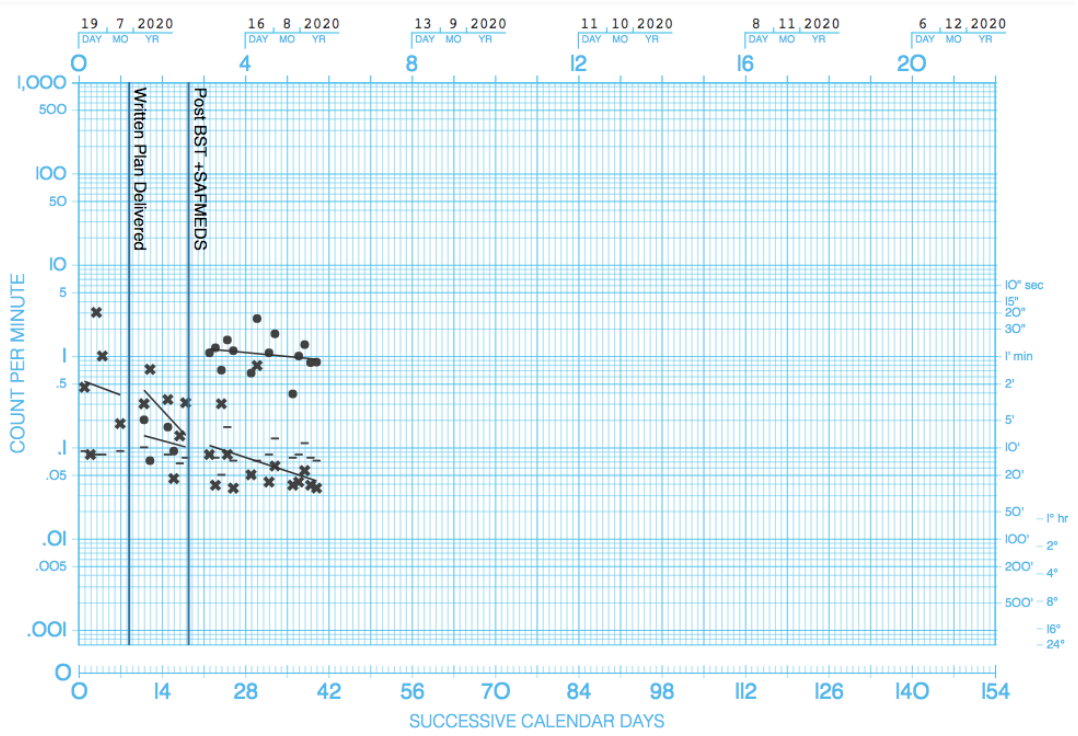


Figure 7. Tier 1 of concurrent multiple baseline for Kim's BSP fidelity and Logan's challenging behavior represented on a SCC.

APPENDIX G

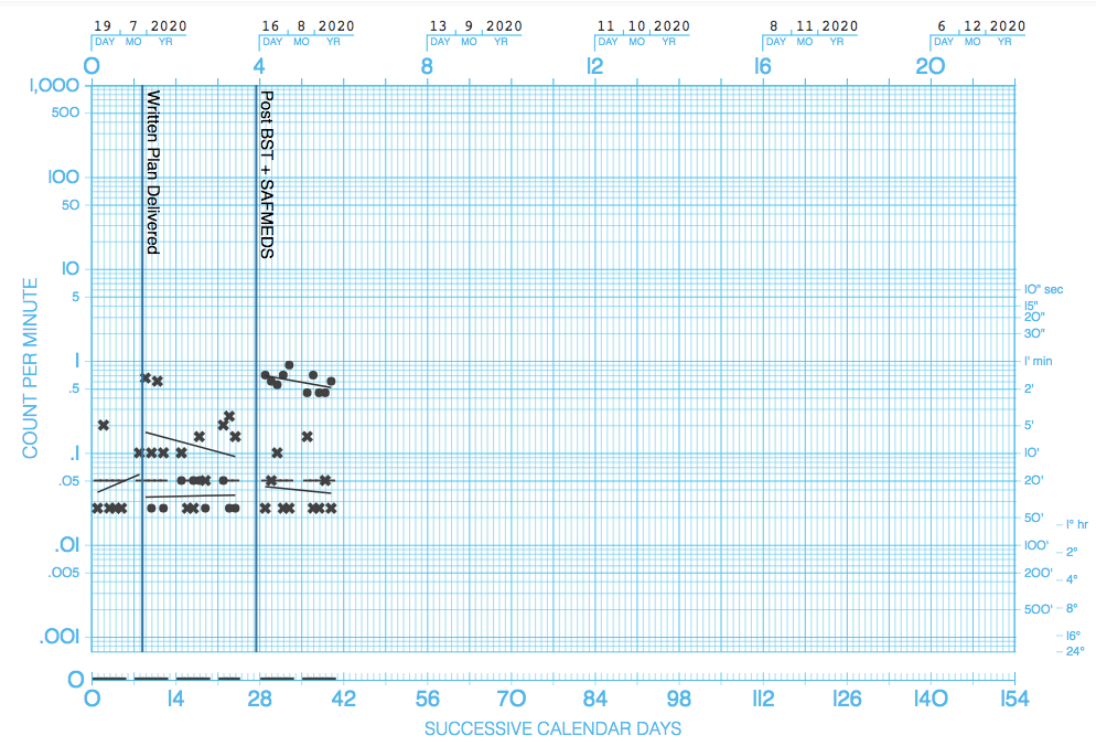


Figure 8. Tier 2 of concurrent multiple baseline for Taylor's BSP fidelity and Matthew's challenging behavior represented on a SCC.

APPENDIX H

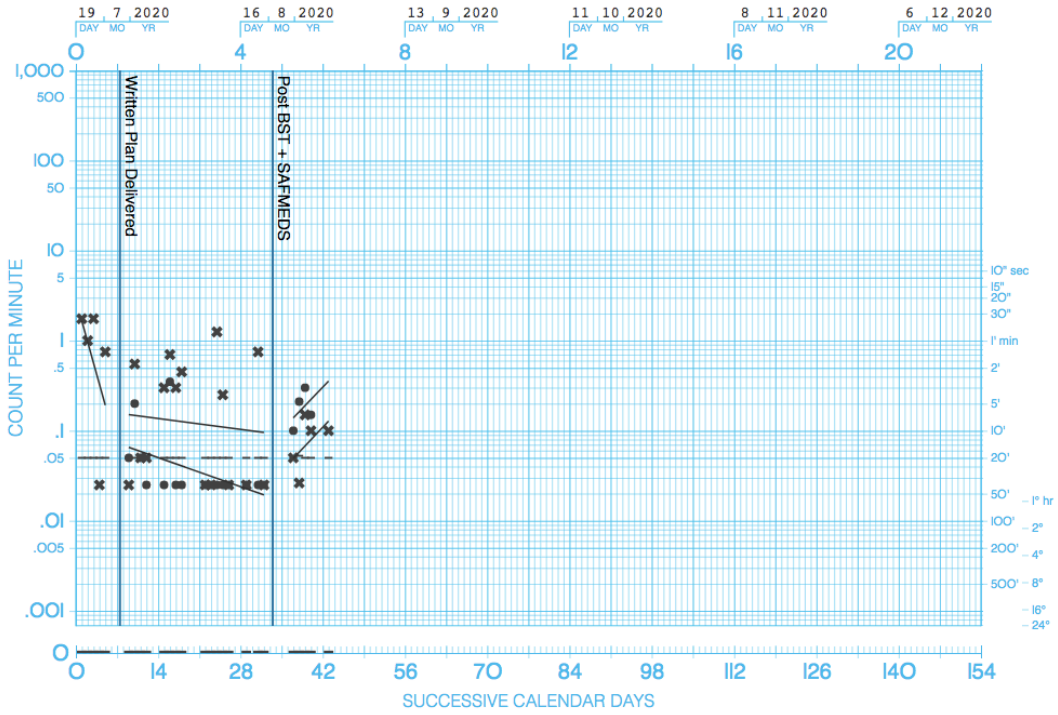


Figure 9. Tier 3 of concurrent multiple baseline for Angelika's BSP fidelity and Dominic's challenging behavior represented on a SCC.

APPENDIX I

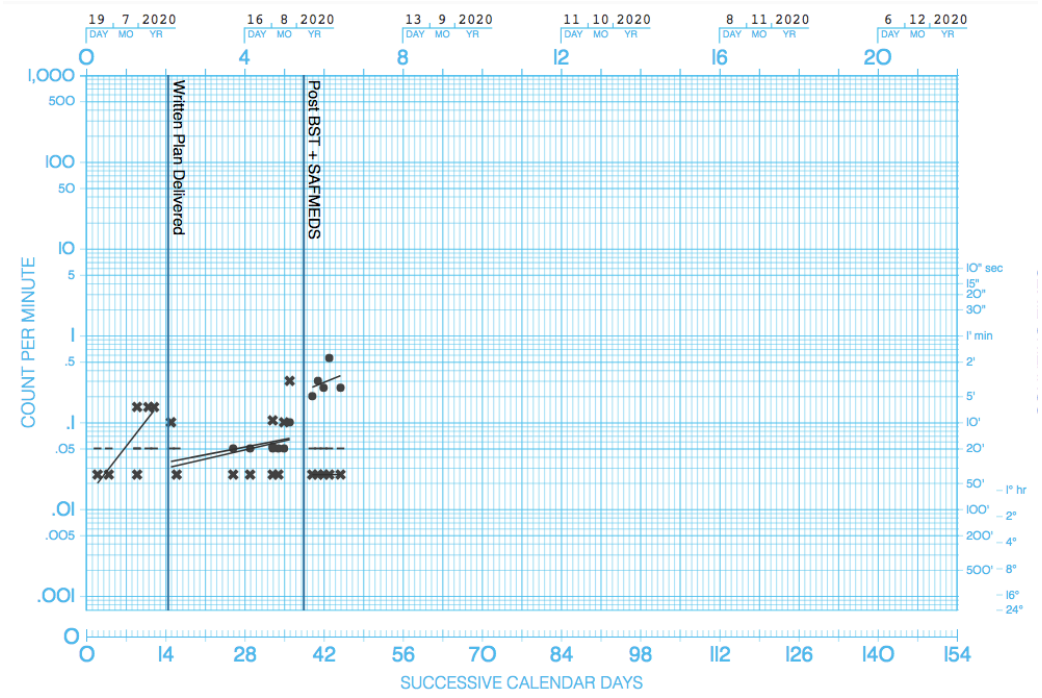


Figure 10. Tier 4 of concurrent multiple baseline for Danielle's BSP fidelity and William's challenging behavior represented on a SCC.

APPENDIX J

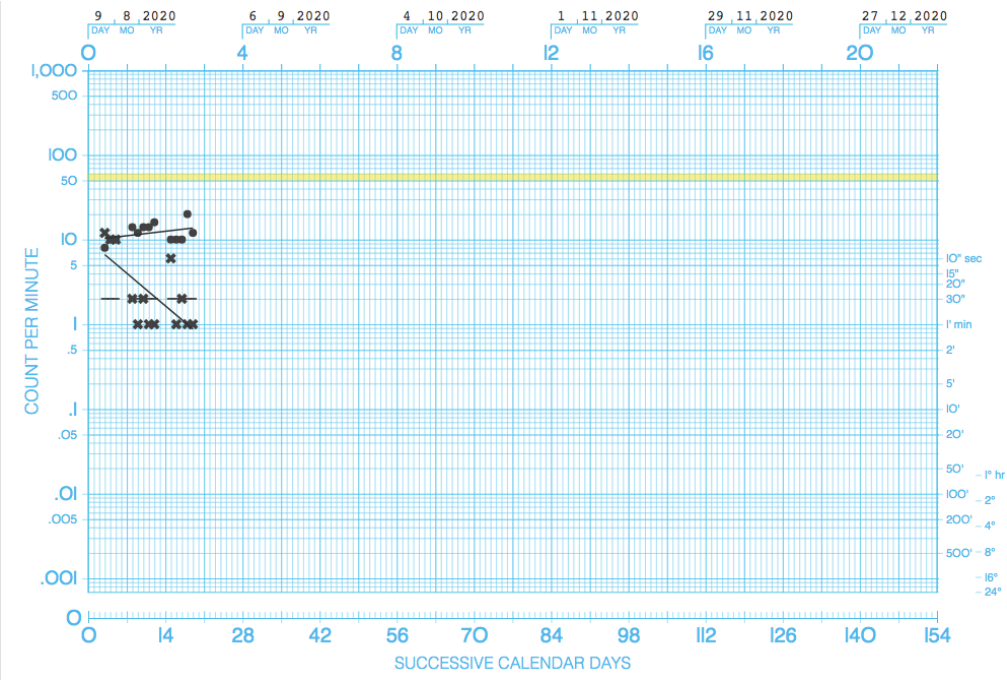


Figure 11. Kim's SAFMEDS data represented on a SCC.

APPENDIX K

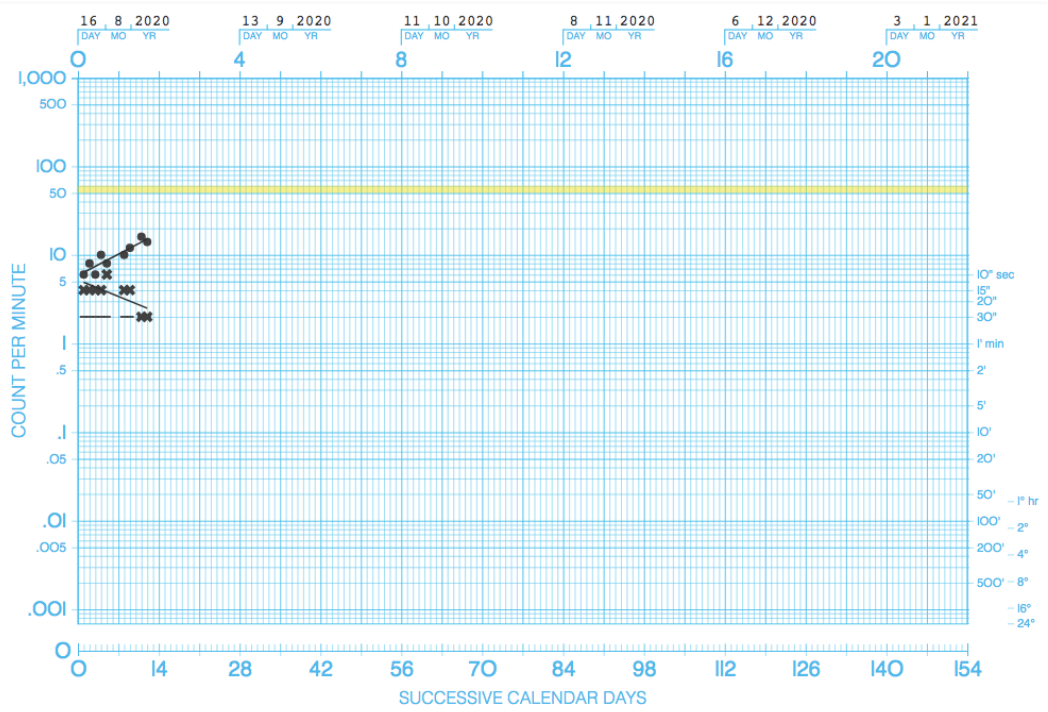


Figure 12. Taylor's SAFMEDS data represented on a SCC.

APPENDIX L

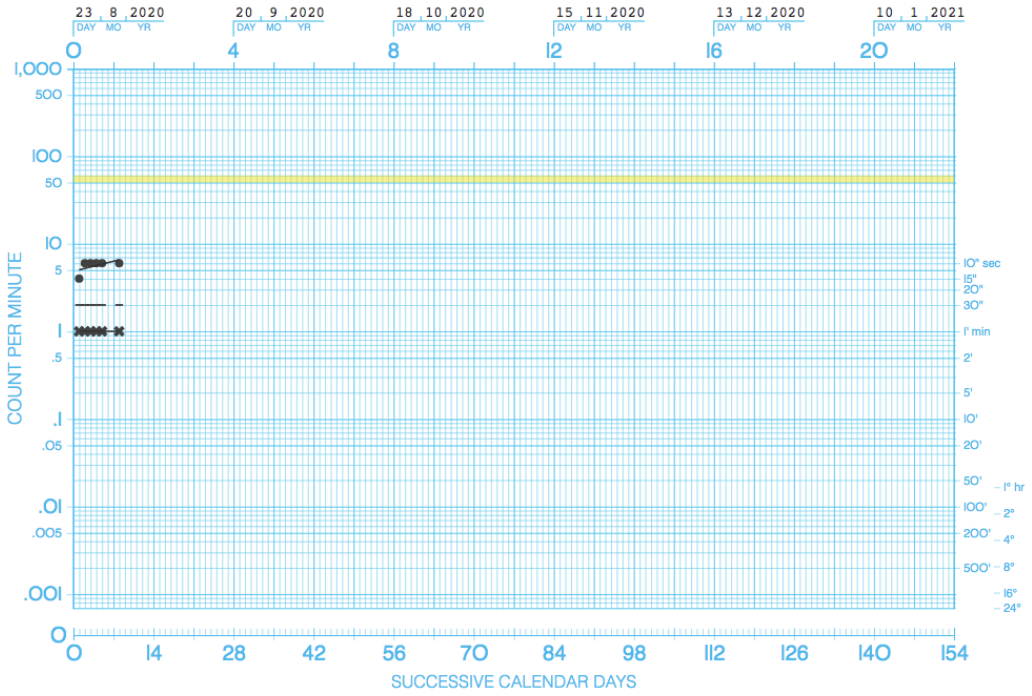


Figure 13. Angelika's SAFMEDS data represented on a SCC.

APPENDIX M

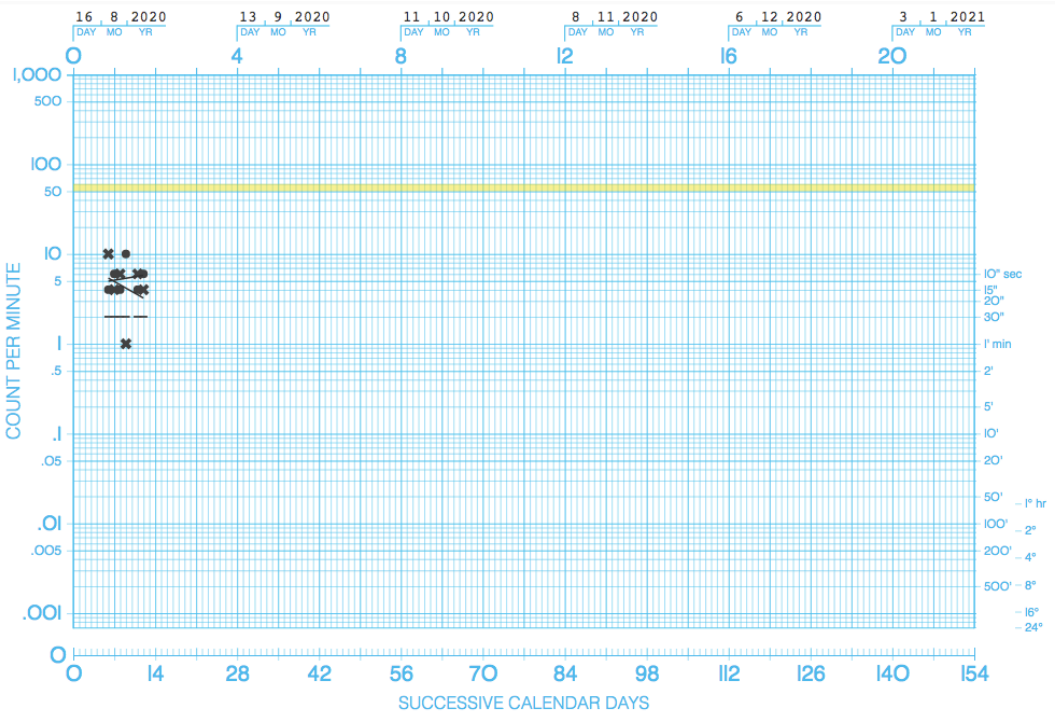


Figure 14. Danielle's SAFMEDS data represented on a SCC.

APPENDIX N

Table 3. Demographic data for each participant Parent in each dyad

Variable	Parent 1	Parent 2	Parent 3	Parent 4
Sex	Female	Female	Female	Female
Ethnicity				
White	X	X	X	
Black				X
English fluency	X	X	X	X
Highest degree earned				
High school diploma	X			
Associate's degree				X
Bachelor's degree		X	X	
Majors		Teaching	Accounting	Business Management
Familiarity with ABA	Some	Some	None	A lot

APPENDIX O

Table 4. Demographic data for each participant Child in each dyad

Variable	Child 1	Child 2	Child 3	Child 4
Sex	Male	Male	Male	Male
Age(years)	6	6	5	6
Number of siblings	2	2	1	2
Ethnicity				
Caucasian	X	X	X	
Black				X
English fluency	X	X	X	X
Qualification(s) for IEP	Emotional and Educational Delay	Educational Delay	Educational and Speech Delay	Autism Spectrum Disorder and Educational Delay
Additional Diagnoses	ADHD, ODD, and Anxiety	NA	ADHD	Sensory Processing Disorder

APPENDIX P

Table 5. Results of Dyad 1 Parent's target setting and global ratings across routines acceptability of child's challenging behavior based on the Acceptability of Current levels of Challenging Behavior Forms

	Target routine		Global rating (across setting)	
Item	Parent 1 pre-treatment rating	Parent 1 post-treatment rating	Parent 1 pre-treatment rating	Parent 1 post-treatment rating
Compared to their siblings how appropriate is the child's behavior in the routine/household?	3	4	3	4
How much of a problem is the child's overall current level of challenging behavior in the routine/household?	2	2	2	2
How much of a problem is the intensity of the child's challenging behavior in routine/household?	2	3	3	2
How much of a problem is how often the child's challenging behavior occurs in the routine/household?	3	2	4	2

Table 5.

Item	Parent 1 pre-treatment rating	Parent 1 post-treatment rating	Parent 1 pre-treatment rating	Parent 1 post-treatment rating
How much of a problem is how the consistently the child's challenging behavior occur in the routine/household?	3	2	3	2
How much of a problem is how long the child's challenging behavior lasts when it happens in the routine/ household?	2	3	4	4
How much of a problem is how dangerous the child's challenging behavior is in the routine/ your household?	1	3	4	3
How much of a problem is how siblings are impacted by the child's challenging behavior in the routine/ your household	3	2	4	3

Table 5.

Item	Parent 1 pre-treatment rating	Parent 1 post-treatment rating	Parent 1 pre-treatment rating	Parent 1 post-treatment rating
How satisfied are you with how much adults enjoy interacting with your child in the routine/ your household?	2	5	3	5

Table 5

	Pre	Post	Pre	Post
Mean	2.3	2.9	3.3	3

Table 6. Results of Dyad 2 Parent's target setting and global ratings across routines acceptability of child's challenging behavior based on the Acceptability of Current levels of Challenging Behavior Forms

	Target routine		Global rating (across setting)	
Item	Parent 2 pre-treatment rating	Parent 2 post-treatment rating	Parent 2 pre-treatment rating	Parent 2 post-treatment rating
Compared to their siblings how appropriate is the child's behavior in the routine/household?	3	3	3	2
How much of a problem is the child's overall current level of challenging behavior in the routine/household?	3	2	5	5
How much of a problem is the intensity of the child's challenging behavior in routine/household?	2	2	5	4
How much of a problem is how often the child's challenging behavior occurs in the routine/household?	4	2	4	4

Table 6.

Item	Parent 2 pre-treatment rating	Parent 2 post-treatment rating	Parent 2 pre-treatment rating	Parent 2 post-treatment rating
How much of a problem is how the consistently the child's challenging behavior occur in the routine/household?	3	2	5	4
How much of a problem is how long the child's challenging behavior lasts when it happens in the routine/ household?	3	2	5	4
How much of a problem is how dangerous the child's challenging behavior is in the routine/ your household?	4	3	5	5
How much of a problem is how siblings are impacted by the child's challenging behavior in the routine/ your household	3	2	4	5

Table 6.

Item	Parent 2 pre-treatment rating	Parent 2 post-treatment rating	Parent 2 pre-treatment rating	Parent 2 post-treatment rating
How satisfied are you with how much adults enjoy interacting with your child in the routine/ your household?	3	4	3	4
	Pre	Post	Pre	Post
Mean	3.1	2.4	4.3	4.1

Table 7. Results of Dyad 3 Parent's target setting and global ratings across routines acceptability of child's challenging behavior based on the Acceptability of Current levels of Challenging Behavior Forms

	Target routine		Global rating (across setting)	
Item	Parent 3 pre-treatment rating	Parent 3 post-treatment rating	Parent 3 pre-treatment rating	Parent 3 post-treatment rating
Compared to their siblings how appropriate is the child's behavior in the routine/household?	3	3	2	2
How much of a problem is the child's overall current level of challenging behavior in the routine/household?	2	4	2	4
How much of a problem is the intensity of the child's challenging behavior in routine/household?	4	4	4	4
How much of a problem is how often the child's challenging behavior occurs in the routine/household?	4	3	5	4

Table 7.

Item	Parent 3 pre-treatment rating	Parent 3 post-treatment rating	Parent 3 pre-treatment rating	Parent 3 post-treatment rating
How much of a problem is how the consistently the child's challenging behavior occur in the routine/household?	3	3	4	4
How much of a problem is how long the child's challenging behavior lasts when it happens in the routine/ household?	4	4	4	5
How much of a problem is how dangerous the child's challenging behavior is in the routine/ your household?	5	5	4	5
How much of a problem is how siblings are impacted by the child's challenging behavior in the routine/ your household	6	6	5	5

Table 7.

Item	Parent 3 pre-treatment rating	Parent 3 post-treatment rating	Parent 3 pre-treatment rating	Parent 3 post-treatment rating
How satisfied are you with how much adults enjoy interacting with your child in the routine/ your household?	3	3	3	3
	Pre	Post	Pre	Post
Mean	3.7	3.9	3.6	4

Table 8. Results of Dyad 4 Parent's target setting and global ratings across routines acceptability of child's challenging behavior based on the Acceptability of Current levels of Challenging Behavior Forms

	Target routine		Global rating (across setting)	
Item	Parent 4 pre-treatment rating	Parent 4 post-treatment rating	Parent 4 pre-treatment rating	Parent 4 post-treatment rating
Compared to their siblings how appropriate is the child's behavior in the routine/household?	4		4	5
How much of a problem is the child's overall current level of challenging behavior in the routine/household?	3		3	3
How much of a problem is the intensity of the child's challenging behavior in routine/household?	4		3	2
How much of a problem is how often the child's challenging behavior occurs in the routine/household?	2		2	3

Table 8.

Item	Parent 3 pre-treatment rating	Parent 3 post-treatment rating	Parent 3 pre-treatment rating	Parent 3 post-treatment rating
How much of a problem is how the consistently the child's challenging behavior occur in the routine/household?	3		4	3
How much of a problem is how long the child's challenging behavior lasts when it happens in the routine/ household?	6		6	2
How much of a problem is how dangerous the child's challenging behavior is in the routine/ your household?	3		1	3
How much of a problem is how siblings are impacted by the child's challenging behavior in the routine/ your household	3		3	3

Table 8.

Item	Parent 3 pre-treatment rating	Parent 3 post-treatment rating	Parent 3 pre-treatment rating	Parent 3 post-treatment rating
How satisfied are you with how much adults enjoy interacting with your child in the routine/ your household?	3		3	6
	Pre	Post	Pre	Post
Mean	3.4		3.2	3.3

APPENDIX Q

Table 9. Results of Dyad 1 Parent's acceptability of behavior support plan based on the Behavior Support Plan Treatment Acceptability Rating Form (BSP-TARF)

	Behavior Support Plan	
Item	Parent 1 pre-treatment rating	Parent 1 post-treatment rating
How acceptable did you find the amount of training offered to deliver this intervention?	5	5
How acceptable did you find the behavior support plan overall?	5	5
How willing are you to carry out the behavior support plan?	5	4
How much time will be needed each day to carry out the behavior support plan?	2	0
How confident are you that the behavior support plan will be effective for this child?	4	5
How likely is it that using the behavior support plan will make permanent improvement in the behavior of this child?	4	4

Table 9.

Item	Parent 1 pre-treatment rating	Parent 1 post-treatment rating
How disruptive do you think it will be to carry out the behavior support plan in the routine?	1	1
How much discomfort did siblings experience prior to implementing the child's behavior support plan?	3	4
How much discomfort do you think siblings experience during the implementation of the behavior support plan?	2	1
How much discomfort do you think siblings experienced as a result of the behavior support plan?	1	1
How willing are you to change your routines to continue to carry out the behavior support plan in the home?	5	4
How well do you think the behavior support plan fits into your existing home routine?	4	4

Table 9.

Item	Parent 1 pre-treatment rating	Parent 1 post-treatment rating
How well did the goals of the behavior support plan fit with your personal/professional goals?	5	5
Table 9		
How well did the goals of the behavior support plan fit with your goals for the child?	5	5
Did you learn valuable strategies from the child's behavior support plan that you were not already using?	5	5
	Pre	Post
Mean	3.7	3.5

Table 10. Results of Dyad 2 Parent's acceptability of behavior support plan based on the Behavior Support Plan Treatment Acceptability Rating Form (BSP-TARF)

	Behavior Support Plan	
Item	Parent 2 pre-treatment rating	Parent 2 post-treatment rating
How acceptable did you find the amount of training offered to deliver this intervention?	5	5
How acceptable did you find the behavior support plan overall?	5	5
How willing are you to carry out the behavior support plan?	5	5
How much time will be needed each day to carry out the behavior support plan?	2	3
How confident are you that the behavior support plan will be effective for this child?	4	5
How likely is it that using the behavior support plan will make permanent improvement in the behavior of this child?	4	4

Table 10.

Item	Parent 2 pre-treatment rating	Parent 2 post-treatment rating
How disruptive do you think it will be to carry out the behavior support plan in the routine?	2	2
How much discomfort did siblings experience prior to implementing the child's behavior support plan?	4	3
How much discomfort do you think siblings experience during the implementation of the behavior support plan?	1	1
How much discomfort do you think siblings experienced as a result of the behavior support plan?	0	0
How willing are you to change your routines to continue to carry out the behavior support plan in the home?	4	4
How well do you think the behavior support plan fits into your existing home routine?	4	3

Table 10.

Item	Parent 2 pre-treatment rating	Parent 2 post-treatment rating
How well did the goals of the behavior support plan fit with your personal/professional goals?	5	5
Table 10		
How well did the goals of the behavior support plan fit with your goals for the child?	5	5
Did you learn valuable strategies from the child's behavior support plan that you were not already using?	5	5
	Pre	Post
Mean	3.6	3.6

Table 11. Results of Dyad 3 Parent's acceptability of behavior support plan based on the Behavior Support Plan Treatment Acceptability Rating Form (BSP-TARF)

	Behavior Support Plan	
Item	Parent 3 pre-treatment rating	Parent 3 post-treatment rating
How acceptable did you find the amount of training offered to deliver this intervention?	4	4
How acceptable did you find the behavior support plan overall?	4	4
How willing are you to carry out the behavior support plan?	5	5
How much time will be needed each day to carry out the behavior support plan?	3	2
How confident are you that the behavior support plan will be effective for this child?	4	4
How likely is it that using the behavior support plan will make permanent improvement in the behavior of this child?	3	4

Table 11.

Item	Parent 2 pre-treatment rating	Parent 2 post-treatment rating
How disruptive do you think it will be to carry out the behavior support plan in the routine?	3	2
How much discomfort did siblings experience prior to implementing the child's behavior support plan?	3	4
How much discomfort do you think siblings experience during the implementation of the behavior support plan?	3	0
How much discomfort do you think siblings experienced as a result of the behavior support plan?	5	5
How willing are you to change your routines to continue to carry out the behavior support plan in the home?	5	4
How well do you think the behavior support plan fits into your existing home routine?	2	4
How well did the goals of the behavior support plan fit with your personal/professional goals?	3	4

Table 11.

Item	Parent 2 pre-treatment rating	Parent 2 post-treatment rating
How well did the goals of the behavior support plan fit with your goals for the child?	4	4
Did you learn valuable strategies from the child's behavior support plan that you were not already using?	4	5
	Pre	Post
Mean	3.0	3.6

Table 12. Results of Dyad 4 Parent's acceptability of behavior support plan based on the Behavior Support Plan Treatment Acceptability Rating Form (BSP-TARF)

	Behavior Support Plan	
Item	Parent 4 pre-treatment rating	Parent 4 post-treatment rating
How acceptable did you find the amount of training offered to deliver this intervention?	5	5
How acceptable did you find the behavior support plan overall?	5	5
How willing are you to carry out the behavior support plan?	5	4
How much time will be needed each day to carry out the behavior support plan?	0	0
How confident are you that the behavior support plan will be effective for this child?	4	4
How likely is it that using the behavior support plan will make permanent improvement in the behavior of this child?	5	5

Table 12.

Item	Parent 2 pre-treatment rating	Parent 2 post-treatment rating
How disruptive do you think it will be to carry out the behavior support plan in the routine?	0	0
How much discomfort did siblings experience prior to implementing the child's behavior support plan?	2	4
How much discomfort do you think siblings experience during the implementation of the behavior support plan?	3	1
How much discomfort do you think siblings experienced as a result of the behavior support plan?	0	0
How willing are you to change your routines to continue to carry out the behavior support plan in the home?	5	5
How well do you think the behavior support plan fits into your existing home routine?	4	5

Table 12.

Item	Parent 2 pre-treatment rating	Parent 2 post-treatment rating
How well did the goals of the behavior support plan fit with your personal/professional goals?	4	5
Table 12		
How well did the goals of the behavior support plan fit with your goals for the child?	4	5
Did you learn valuable strategies from the child's behavior support plan that you were not already using?	0	1
	Pre	Post
Mean	3.0	3.2

APPENDIX R

Table 13. Results of parents' ratings of the acceptability of the consultant using the Consultant Acceptability Form

Item	Parent 1	Parent 2	Parent 3	Parent 4
The consultant was generally helpful.	7	7	7	7
The consultant offered useful information.	7	7	7	7
The consultant's presence via telehealth was subtle and non-obtrusive.	5	6	5	7
The consultant helped me find the alternative solutions to problems.	6	6	6	7
The consultant was a good listener.	7	7	7	7
The consultant helped me identify useful resources.	6	7	4	7

Table 13.

Item	Parent 1	Parent 2	Parent 3	Parent 4
The consultant fit well into the home's culture or environment.	7	7	6	7
The consultant encouraged me to consider a number of points of view.	4	7	7	5
The consultant viewed her role as a collaborator rather than the expert.	7	7	7	7
The consultant helped me understand underlying concepts for designing behavior plans that I feel confident using with other children in the future.	7	7	6	7

Table 13.

Item	Parent 1	Parent 2	Parent 3	Parent 4
The consultant helped me understand which factors lead to behavior plans working well and not working well.	7	7	4	7
The consultant helped me to be independent in the management of problems.	7	7	6	7
Suggestions for improvement or other activities that consultant could have engaged in.	In-situation training during huge melt downs.	More games to replace challenging behavior.	NA	Son reacted to the technology.
What were some things about the consultant that were most helpful?	Convenient.	I liked that is was provided in written form and verbal.	Seeing the behavior happening in the natural environment.	Flexibility, scheduling, and location
Other comments?	Plan works well for him, added an element of fun.	It was good. It can actually work digitally.	Flashcards were difficult for me; I have dyslexia so I could only get through a few at a time.	Checklist was helpful, open communication and resources were good. I don't know if I would have done with the flashcards.

Table 13.

	Parent 1	Parent 2	Parent 3	Parent 4
Mean	6.4	6.8	6	6.8

APPENDIX S

Table 14. Results of parents' ratings of the acceptability of the consultation model as reported on the Consultation Model Treatment Acceptability Rating Form (CM-TARF)

Item	Parent 1	Parent 2	Parent 3	Parent 4
How helpful was the initial training you completed with the consultant in understanding the underlying theory of ***WHY*** specific components of the behavior plan were selected?	5	4	4	5
Understanding ***WHY*** certain components were added to the plan, helped my motivation to stick to the plan	4	5	5	5
How helpful was the initial training you completed with the consultant in understanding what types of parent behaviors and attitudes make the plans "work"?	5	5	3	5

Table 14.

Item	Parent 1	Parent 2	Parent 3	Parent 4
Understanding what types of parent behaviors and attitudes make the plans "work", helped my motivation to stick to the plan	5	5	4	5
How helpful was the initial training you completed with the consultant in understanding ***HOW*** to implement each component of the behavior plan?	5	5	3	5
How helpful was it to practice each component of the behavior plan with the consultant during the initial training?	5	5	4	5
How helpful was the initial training in making it feel okay to get feedback about your performance implementing the behavior support plan?	5	4	5	5

Table 14.

Item	Parent 1	Parent 2	Parent 3	Parent 4
Without the initial training with the consultant, I probably would have implemented the plan less accurately	4	5	5	5
How easy was it to use the checklist you were provided with?"	5	5	4	5
How easy was it to use the flashcards you were provided with?	4	5	2	4
How helpful was it for sticking to the plan to self-monitor your own use of the behavior plan with a checklist?	4	4	4	5
Without the self-monitoring checklist, I probably would have implemented the plan less accurately	4	5	5	5

Table 14.

Item	Parent 1	Parent 2	Parent 3	Parent 4
The consultant customized the behavior plan to meet the context of the routine	5	5	5	5
The consultant customized the strategies to work well for me and my learning style	5	5	3	5
I felt the consultant was available if I had any questions about what to do	5	5	4	5
Thinking of all the times in the past when a specialist has asked you to implement a specific intervention with a specific kid, how well does this one compare?	5	5	3	3

Table 14.

Item	Parent 1	Parent 2	Parent 3	Parent 4
How well did this intervention work for your student? With 0 being nothing changed, everything was the same after the intervention, nothing improved. And 5 meaning the child made a complete 180 for the better, it made a big, Table 14 noticeable difference.	5	4	4	5

	Parent 1	Parent 2	Parent 3	Parent 4
Mean	4.4	4.5	3.7	4.5

APPENDIX T

Behavior Support Plan Checklist

Target student initials: _____ Date: _____

Target setting: Clean up time Target time: 7pm EST

[1] 1 tally for each occurrence "topic" (e.g. if child is arguing about a particular topic count it as 1 tally; if child changes topics then a new tally)
Incorrect if parent does not praise at least every 3rd correct response.

Step in the BSP	Correct	Incorrect	NA
2 min BEFORE signaling clean up time			
Step 1: Collect the following: (1) You/Me visual schedule, (2) Select a "mystery" number			
Step 2: Review Expectations of game. Be kind and Be on time			
Step 3: Conduct preference assessment to choose what he wants to earn. ***"What do you want after clean up time?"***			
Step 4: Remind child of what he can earn for engaging in cleaning up. ***"If you beat the mystery motivator you get____" "If I beat he motivator, I get_____"***			
Step 5: Practice • Before we start, tell me an example of being on time • Now, an example of being kind • Show child visual of cleaned room			
DURING: Clean up time			
Step 6: Signal: • "Clean up time" • Whiteboard or paper with You/Me game is present			
Step 7: Reinforce alterative behavior **If child cleans up, asks clarifying questions, and provides additional help: Provide praise and a tally on the board**			
(1) Use specific praise (**very enthusiastically**)			
(2) Gives tally for being kind and being on time.			
Step 8: If… Challenging Behavior			
(1) At first, ***Reduce conversation***			
…if noncomply (2) Provide specific praise and reward to nearby sibling			
…if noncomply (3) Remind him what he earns if he ***does "do" behaviors***			

Behavior Support Plan Checklist

Target student initials: _____ Date: _____
Target setting: Play time Target time: 9am CT

Step in the BSP	Correct	Incorrect	NA
2 min BEFORE signaling play time			
Step 1: Collect the following: (1) Set 2-minute timer, (2) bowl of children names			
Step 2: Review Expectations of game. Be safe and Be kind			
Step 3: Conduct preference assessment to choose what children wants to earn. ***"What should we get for being kind and safe during play time?"***			
Step 4: Remind children of what they can earn for engaging in cleaning up. ***"If we are all safe and kind we can have_____"***			
Step 5: Practice • Before we start, tell me an example of being safe • Now, an example of being kind • Allow children to generate own examples			
DURING: Play time			
Step 6: Signal: • "Okay let's play!" • Timer and bowl present			
Step 7: Reinforce alterative behavior **If child shares a toy, asks others to play or for help, plays gently with toys and watches out of others: Provide specific praise. During timer:** **IF child was being kind and being safe:** **May publicly praise "NAME, you have been safe and kind- way to go! Now we all get ____"** **IF child was not demonstrating kind and safe behaviors:** **"Okay team, for this next round let's make sure we practice being safe and being kind" Option: Have child(ren) give examples of being safe and kind before resuming play.**			
(1) Use specific praise (**very enthusiastically**)			
(2) Gives tally/token or provides reminder for being kind and being safe during timers.			
Step 8: If… Challenging Behavior			
(1) At first, ***Reduce conversation***			
…if noncomply (2) Provide specific praise and reward to nearby sibling			
…if noncomply (3) Remind him what he earns if he ***does "do" behaviors***			

Behavior Support Plan Checklist

Target student initials: _____ Date: _____
Target setting: Play time Target time: 12pm CT

Step in the BSP	Correct	Incorrect	NA
2 min BEFORE signaling play time			
Step 1: Collect the following: (1) Practice sharing toys/items			
Step 2: Review Expectations "my turn" "help please" and "space please"			
Step 3: Remind child of what happens when he uses "my turn and space please". ***"If you say my turn, brother can share the toy. If you say space please, brother will find a different toy to play with. If brother is playing with the toy, you can ask him to help you play."***			
Step 4: Practice • Before we start, tell me what you do if you want a toy back from brother • Now, tell me what you do it you want brother to leave your space alone? • Okay, if brother wants to keep the toy, what can you ask him? • Practice each skill with child 2-3 times			
DURING: Play time			
Step 5: Signal: • "Okay go ahead and play"			
Step 6: Reinforce alterative behavior **If child uses my turn, help, or space please without physical aggression, provide praise and prompt brother to return item or find another toy.**			
(1) Use specific praise (**very enthusiastically**)			
(1) Prompt brother to return toy, play with brother, or find another toy.			
Step 7: If… Challenging Behavior			
(1) At first, ***block immediately***			
…if noncomply (1) Prompt child to use "my turn" "help" or "space please"			
…if noncomply (1) Continue to allow brother to have access to preferred item until child uses alternative response.			

Behavior Support Plan Checklist

Target student initials: _____ Date: _____
Target setting: Choice time Target time: 4pm CT

Step in the BSP	Correct	Incorrect	NA
BEFORE signaling choice time			
Step 1: Collect the following: (1) choice board, (2) possible preferred items			
Step 2: Ensure child has had access to iPad for at least 3 minutes.			
DURING: Clean up time			
Step 3: Present the demand "iPad is all done. Let's make a choice" Tell child each item on board.			
Step 7: Reinforce alterative behavior **If child makes a choice, provide the selected item and praise immediately (within 3 seconds)**			
(1) Use specific praise (**very enthusiastically**)			
(2) Gives selected item.			
(3) Provides least to most prompting if child does not make a choice			
Step 8: If… Challenging Behavior			
(1) At first, ***block and redirect child to choice board***			
…if noncomply (2) Provide least to most prompting to assist child in making a choice			
…if noncomply (3) Remove attention and choice board for 3 seconds, then represent choices (may switch choice options)			

APPENDIX U

Please score the following items by circling the number that best indicates how you feel:

Compared to his or her peers…

1. …**how appropriate** is this child's behavior in your classroom overall?

1	2	3	4	5	6
Very Inappropriate	Inappropriate	Somewhat Inappropriate	Somewhat Appropriate	Appropriate	Very Appro.

How much of a problem is…

2… the child's overall **current level of challenging behavior** in your classroom?

1	2	3	4	5	6
Not a problem A very big at all problem	A little bit of a problem	A medium problem	A fairly big problem	A big problem	

3. …**the intensity** of the child's challenging behavior in your classroom?

1	2	3	4	5	6
Not a problem A very big at all problem	A little bit of a problem	A medium problem	A fairly big problem	A big problem	

4. …**how often** the child's challenging behavior occurs in your classroom?

1	2	3	4	5	6
Not a problem A very big at all problem	A little bit of a problem	A medium problem	A fairly big problem	A big problem	

5. …**how consistently** the child's challenging behavior occurs in your classroom?

1	2	3	4	5	6
Not a problem A very big at all problem	A little bit of a problem	A medium problem	A fairly big problem	A big problem	

6. …**how long** the child's challenging behavior lasts when it happens in your classroom?

1	2	3	4	5	6
Not a problem A very big at all problem	A little bit of a problem	A medium problem	A fairly big problem	A big problem	

7. …**how dangerous** the child's challenging behavior is in your classroom?

1	2	3	4	5	6
Not a problem A very big at all problem	A little bit of a problem	A medium problem	A fairly big problem	A big problem	

8. …**how peers are impacted** by the child's challenging behavior in your classroom?

1	2	3	4	5	6
Not a problem at all	A little bit of a problem	A medium problem	A fairly big problem	A big problem	A very big problem

How satisfied are you with…

9. …**how much adults enjoy interacting with** the child in your classroom?

1	2	3	4	5	6
Very Dissatisfied	Dissatisfied	Somewhat Dissatisfied	Somewhat Satisfied	Satisfied	Very Satisfied

Compared to his or her peers…

1. …**how appropriate** is this child's behavior in the target setting overall?

1	2	3	4	5	6
Very Inappropriate	Inappropriate	Somewhat Inappropriate	Somewhat Appropriate	Appropriate	Very Appropriate

How much of a problem is…

2… the child's overall **current level of challenging behavior** in the target setting?

1	2	3	4	5	6
Not a problem at all	A little bit of a problem	A medium problem	A fairly big problem	A big problem	A very big problem

3. …**the intensity** of the child's challenging behavior in the target setting?

1	2	3	4	5	6
Not a problem at all	A little bit of a problem	A medium problem	A fairly big problem	A big problem	A very big problem

4. …**how often** the child's challenging behavior occurs in the target setting?

1	2	3	4	5	6
Not a problem at all	A little bit of a problem	A medium problem	A fairly big problem	A big problem	A very big problem

5. …**how consistently** the child's challenging behavior occurs in the target setting?

1	2	3	4	5	6
Not a problem at all	A little bit of a problem	A medium problem	A fairly big problem	A big problem	A very big problem

	1	2	3	4	5	6
	Not a problem at all	A little bit of a problem	A medium problem	A fairly big problem	A big problem	A very big problem

6. …**how long** the child's challenging behavior lasts when it happens in the target setting?

1	2	3	4	5	6
Not a problem at all	A little bit of a problem	A medium problem	A fairly big problem	A big problem	A very big problem

7. …**how dangerous** the child's challenging behavior is in the target setting?

1	2	3	4	5	6
Not a problem at all	A little bit of a problem	A medium problem	A fairly big problem	A big problem	A very big problem

8. …**how peers are impacted** by the child's challenging behavior in the target setting?

1	2	3	4	5	6
Not a problem at all	A little bit of a problem	A medium problem	A fairly big problem	A big problem	A very big problem

How satisfied are you with…

9. …**how much adults enjoy interacting with** the child in the target setting?

1	2	3	4	5	6
Very Dissatisfied	Dissatisfied	Somewhat Dissatisfied	Somewhat Satisfied	Satisfied	Very Satisfied

APPENDIX V

Consultation Model CM-TARF
(POST)
Intended to measure the acceptability of the BST and other supports

Teacher Name: _____ Child initials: _____ Date: _____

Please score the following items by circling the number that best indicates how you feel
---

1. "How helpful was the initial training you completed with the consultant in understanding the underlying theory of ***WHY*** specific components of the behavior plan were selected?"

0 1 2 3 4 5
Not at all helpful Neutral Very helpful

2. "Understanding ***WHY*** certain components were added to the plan, helped my motivation to stick to the plan"

0 1 2 3 4 5
Not at all true Neutral Very true

---

3. "How helpful was the initial training you completed with the consultant in understanding what types of teacher behaviors and attitudes make the plans "work"?"

0 1 2 3 4 5
Not at all helpful Neutral Very helpful

4. "Understanding what types of teacher behaviors and attitudes make the plans "work", helped my motivation to stick to the plan"

0 1 2 3 4 5
Not at all true Neutral Very true

---

5. "How helpful was the initial training you completed with the consultant in understanding ***HOW*** to implement each component of the behavior plan?"

0 1 2 3 4 5
Not at all helpful Neutral Very helpful

6. "How helpful was it to practice each component of the behavior plan with the consultant during the initial training?"

0 1 2 3 4 5
Not at all helpful Neutral Very helpful

7. "How helpful was the initial training in making it feel okay to get feedback about your performance implementing the behavior support plan?

0 1 2 3 4 5
Not at all helpful Neutral Very helpful

8. "How helpful was it to have access to the video recording of you implementing the plan 100% correct?

0 1 2 3 4 5
Not at all helpful Neutral Very helpful

9. "Without the initial training with the consultant, I probably would have implemented the plan less accurately"

0 1 2 3 4 5
Not at all true Neutral
Very true

---

10. "How easy was it to use the checklist you were provided with?"

0 1 2 3 4 5
Extremely difficult Neutral
Extremely easy

11. “How helpful was it for sticking to the plan to self-monitor your own use of the behavior plan with a checklist?”

0	1	2	3	4	5
Not at all helpful			Neutral		Very helpful

12. “Without the self-monitoring checklist, I probably would have implemented the plan less accurately”

0	1	2	3	4	5
Not at all true			Neutral		Very true

Some parents got in-person feedback (praise and constructive criticism) while they were implementing the behavior plan. Did you get any in-person feedback from the consultant ***while*** you were implementing the plan?

Yes (if “Yes” answer questions 14-16 below) No

13. How helpful were the consultant’s directions of what to do?
14. (skip if you answered “No” to #13 above)

0	1	2	3	4	5
Not at all helpful			Neutral		Very helpful

15. How helpful was the consultant’s praise? (skip if you answered “
16. No” to #13 above)

0	1	2	3	4	5
Not at all helpful			Neutral		Very helpful

17. How helpful was the consultant’s constructive criticism? (skip if you answered “No” to #13 above)

0	1	2	3	4	5
Not at all helpful			Neutral		Very helpful

---

18. “The consultant customized the behavior plan to meet the context of the home”

0 1 2 3 4 5

Not at all true Neutral
Very true

19. “The consultant customized the strategies to work well for me and my learning style”

0 1 2 3 4 5

Not at all true Neutral
Very true

20. “I felt the consultant was available if I had any questions about what to do

0 1 2 3 4 5

Not at all true Neutral Very true

---

21. “Thinking of all the times in the past when a specialist has asked you to implement a specific intervention with a specific kid, how well does this one compare?

0 1 2 3 4 5

The worst Similar to others
The best

22. How well did this intervention work for your child? With 0 being nothing changed, everything was the same after the intervention, nothing improved. And 5 meaning the child made a complete 180 for the better, it made a big, noticeable difference.

0 1 2 3 4 5

Nothing changed Neutral
Extremely well

APPENDIX W

Behavior Support Plan Treatment Acceptability Rating Form (BSP-TARF) - pre

Intended to measure the acceptability of the BSP developed for each target student

Teacher Name: _____ Student initials: _____ Date: _____

Please score the following items by circling the number that best indicates how you feel about the behavior support plan (BSP)?

---

1. How acceptable did you find the amount of training offered to deliver this intervention?

0	1	2	3	4	5
Not at all acceptable		Neutral		Very acceptable	

2. How acceptable did you find the *behavior support plan (BSP) overall*?

0	1	2	3	4	5
Not at all		Neutral		Very acceptable	

3. How willing are you to carry out the *behavior support plan (BSP)*?

0	1	2	3	4	5
Not at all willing		Neutral			Very willing

4. How much time will be needed each day to carry out the *behavior support plan (BSP)*?

0	1	2	3	4	5
Little time is needed		Neutral		Much time is needed	

5. How confident are you that the *behavior support plan (BSP)* will be effective for this child?

0	1	2	3	4	5
Not at all		Neutral		Very confident	

6. How likely is it that using the *behavior support plan (BSP)* will make permanent improvements in the behavior of this child?

0	1	2	3	4	5
Unlikely		Neutral			Very likely

7. How disruptive do you think it will be to carry out the *behavior support plan (BSP)* in the classroom?

0	1	2	3	4	5
Not at all		Neutral			Very disruptive

10. How much discomfort did children in your classroom experience ***prior to*** implementing this student's *behavior support plan (BSP)*?

0	1	2	3	4	5
No discomfort at all		Neutral		Very much discomfort	

11. How much discomfort do you think children in your classroom will experience ***during*** implementation of the *behavior support plan (BSP)*?

0	1	2	3	4	5
No discomfort at all		Neutral			Very much

12. How much discomfort do you think children in your classroom will experience ***as a result*** of the *behavior support plan (BSP)*?

0	1	2	3	4	5
No discomfort at all		Neutral			Very much

13. How willing are you to change your routines to continue to carry out the *behavior support plan (BSP)* in the classroom?

0	1	2	3	4	5
Not at all		Neutral		Very willing	

14. How well do you think the *behavior support plan (BSP)* fits into your existing classroom routine?

0	1	2	3	4	5
Not at all well		Neutral		Very well	

15. How well did the goals of the *behavior support plan (BSP)* fit with your personal/professional goals?

0	1	2	3	4	5
Not at all		Neutral		Very much	

16. How well did the goals of the *behavior support plan (BSP)* fit with your goals for the student?

0	1	2	3	4	5
Not at all		Neutral		Very much	

17. Did you learn valuable strategies from this student's *behavior support plan (BSP)* that you were not already using?

0	1	2	3	4	5
Not at all valuable		Neutral			Very valuable

Behavior Support Plan Treatment Acceptability Rating Form (BSP-TARF) - post

Intended to measure the acceptability of the BSP developed for each target student

Teacher Name: _____ Student initials: _____ Date: _____

Please score the following items by circling the number that best indicates how you feel about the behavior support plan (BSP)?

---

1. How acceptable did you find the amount of training provided to deliver this intervention?

0	1	2	3	4	5
Not at all acceptable		Neutral		Very acceptable	

2. How acceptable did you find the *behavior support plan (BSP)*?

0	1	2	3	4	5
Not at all		Neutral		Very acceptable	

3. How willing are you to *continue* to carry out the *behavior support plan (BSP)* after the study?

0	1	2	3	4	5
Not at all willing		Neutral		Very willing	

4. How much time was needed each day for you to carry out the *behavior support plan (BSP)*?

0	1	2	3	4	5
Little time was needed		Neutral		Much time was needed	

5. How confident are you that the *behavior support plan (BSP)* is effective for this child?

0	1	2	3	4	5
Not at all		Neutral		Very confident	

6. How likely is it that using the *behavior support plan (BSP)* will make permanent improvements in the behavior of this child?

0	1	2	3	4	5
Unlikely		Neutral		Very likely	

7. How disruptive was it to carry out the *behavior support plan (BSP)* in the classroom?

0	1	2	3	4	5
Not at all		Neutral		Very disruptive	

8. How much do you like the procedures used in the *behavior support plan (BSP)*?

0	1	2	3	4	5
Do not like them at all		Neutral		Like them very much	

9. To what extent did you notice undesirable side-effects from the *behavior support plan (BSP)*?

0	1	2	3	4	5
No side-effects		Neutral		Many side effects	

10. How much discomfort did children in your classroom experience ***prior to*** implementing this student's *behavior support plan (BSP)*?

0	1	2	3	4	5
No discomfort at all		Neutral		Very much discomfort	

11. How much discomfort did children in your classroom experience ***during*** the *behavior support plan (BSP)*?

0	1	2	3	4	5
No discomfort at all		Neutral		Very much	

12. How much discomfort did children in your classroom experience ***as a result*** of the *behavior support plan (BSP)*?

0	1	2	3	4	5
No discomfort at all		Neutral		Very much	

13. How willing are you to change your routines to continue to carry out the *behavior support plan (BSP)* in the classroom?

0	1	2	3	4	5
Not at all		Neutral		Very willing	

14. How well did the *behavior support plan (BSP)* fit into your existing classroom routine?

0	1	2	3	4	5
Not at all well		Neutral		Very well	

15. How well did the goals of the *behavior support plan (BSP)* fit with your personal/professional goals?

0	1	2	3	4	5
Not at all		Neutral		Very much	

APPENDIX X

BEHAVIOR SUPPORT PLAN

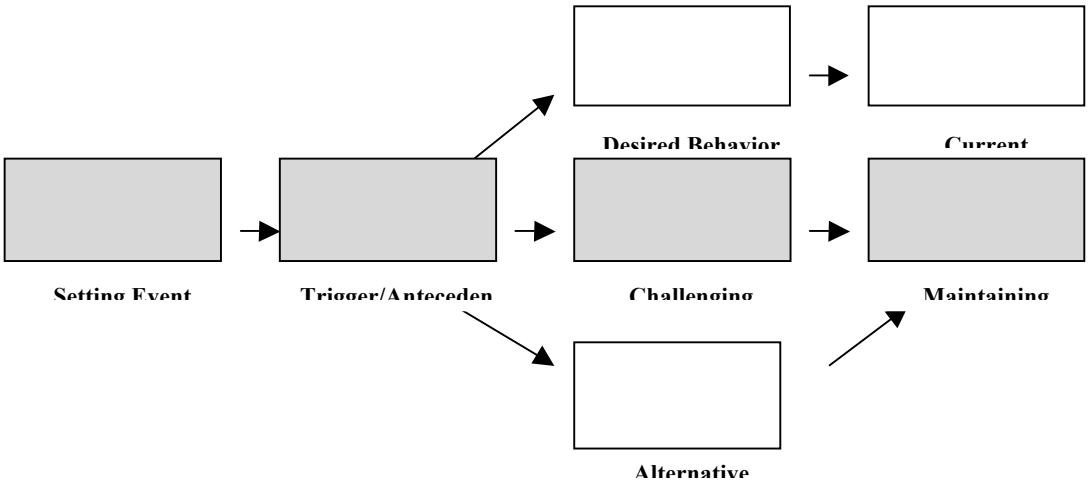
Child: **Last Name** **First Name** Referred by: **Name** Date:

DOB: _____ **Grade: _____**

Team Members Involved in Intervention Development:

[insert child Competing Behavior Pathway here]

Child Strengths:



STEPS:

1. **Brainstorm possible elements of behavior support [Make challenging behavior irrelevant, inefficient and ineffective].**

[Make challenging behavior irrelevant]

[Make challenging behavior inefficient]

[Make challenging behavior ineffective]

Setting Event Strategies (if applicable	**Antecedent Strategies**	**Teaching Strategies**	**Consequence Strategies**
1. **2.** **3.**	**1.** **2.** **3.**	**Teaching strategies for alternative behavior** **1.** **2.** **3.** **Teaching strategies for long term desired behavior** **1.** **2.** **3.**	**Strategies to reinforce appropriate behavior:** **1.** **2.** **3.** **Strategies to minimize payoff for challenging behavior** **1.** **2.** **3.**

2. **Select those elements that are contextually appropriate for final plan**

[Fill out details below]

Behavior Support Plan Specifics

---

1. **Strategies to prevent challenging behavior from occurring.** ***Describe all strategies with sufficient detail that someone not familiar with the plan could implement the strategies.***
    a. **Modifications to setting event**

    b. **Modifications to trigger/antecedent**

2. **Strategies to teach new behaviors**
    a. **Teach the alternative (short term replacement) behavior**

    b. **Teach the desired (long term) behavior**

3. **Strategies to reinforce appropriate (alternative and desired) behavior**

a. **Steps to reward during initial instruction and skill building (what you will do now)**

b. **Steps to reward appropriate behavior over time — to maintain new skills**

4. **Steps to minimize payoff for challenging behavior (what you will do when child engages in challenging behavior)**

5. **Safety procedures (if needed): Steps to ensure the safety of all in a dangerous situation**

Practices for Implementation

---

1. **Target date to begin implementation:**
2. **Getting the support plan started: (what materials/resources are needed? what training is needed?)**

3. **Process for informing parents and child (who, what, when)**

4. **Others who need to be informed (Who else might intervention impact?)**

5. **Plan for notifying substitutes of intervention**

6. **Are the teacher (implementer) and child involved in developing the intervention? If not, how will we verify the acceptability of the intervention and ensure the plan reflects sensitivity to individual differences, resources, classroom practices, and other systems issues?**

7. **Possible limitations to the intervention that should be considered**

APPENDIX Y

Name_____ Date_____

Parent Demographics Survey

1. What is your highest level of education?

2. What did you go to school for?

3. What is your current knowledge of applied behavior analysis and challenging behavior interventions?

4. What is your view of behavior analysis? Positive? Negative? Neutral?

APPENDIX Z

TIME: → Entered Classroom:_____ Start Observation:_____ End Observation:_____ Leave Classroom:_____ROUTINE:_____

OPERATIONAL DEFINITIONS OF BEHAVIOR

Challenging behavior response class with topographies listed:
- **Examples:**
- **Non Examples:**

Alternative behavior response class with topographies listed
- **Examples:**
- **Non Examples:**

INSTRUCTIONS:

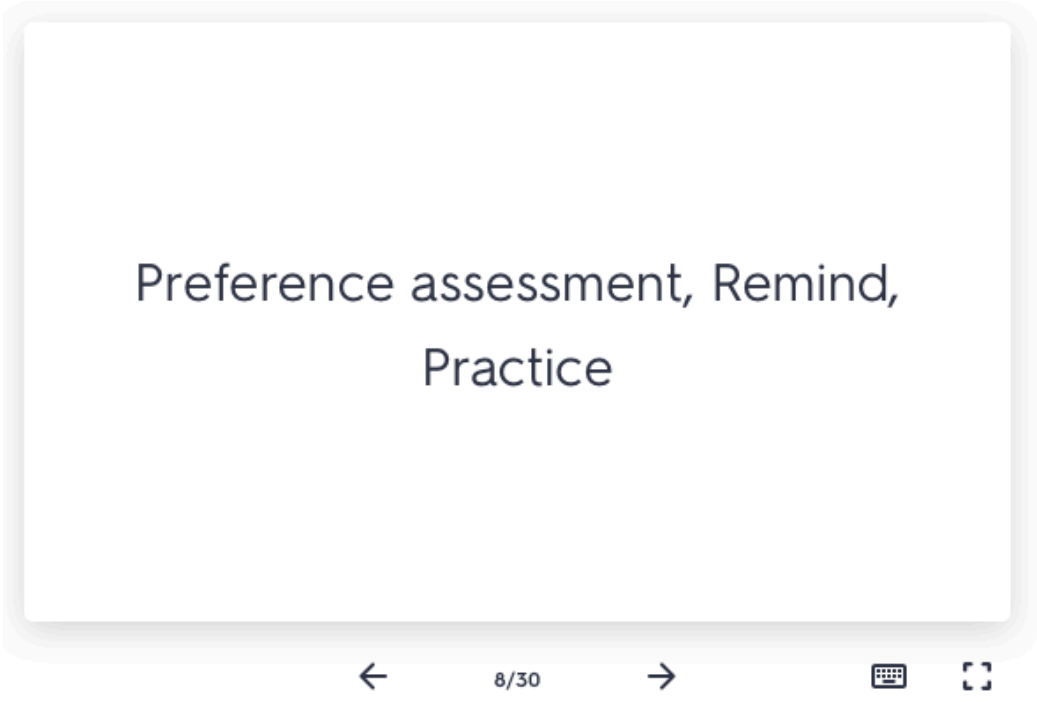
Minute	Alternative Behavior
0 -1	
1-2	
2-3	
3-4	
4-5	
5-6	
6-7	
7-8	
8-9	
9-10	
10-11	
11-12	
12-13	
13-14	
14-15	
15-16	
16-17	
17-18	
18-19	
19-20	

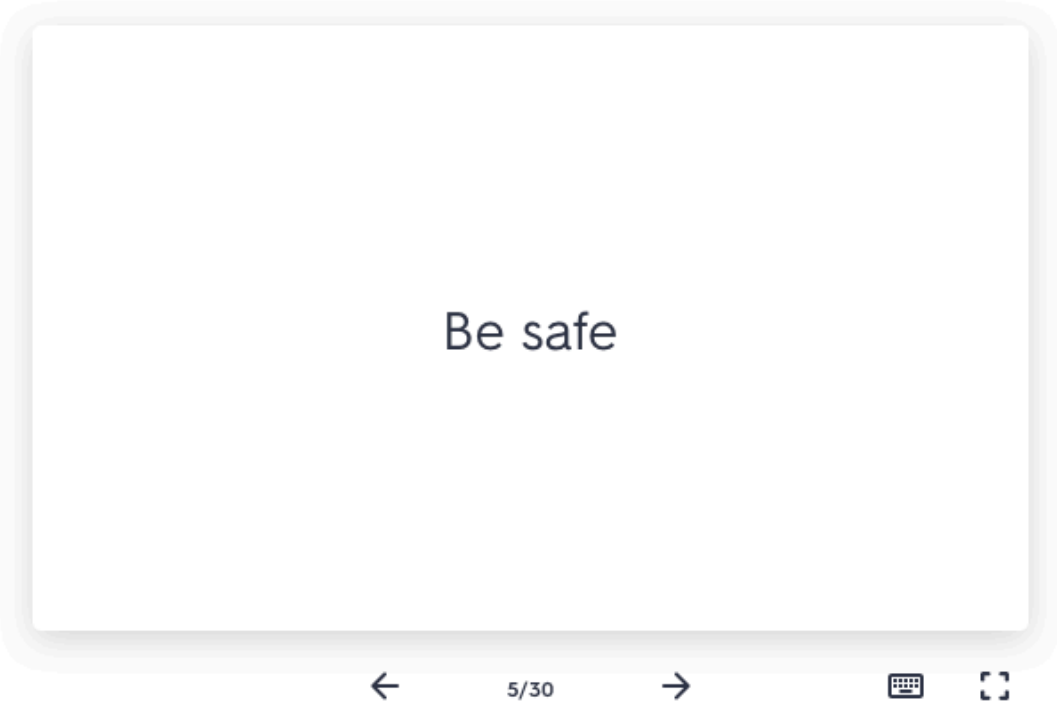
Minute	Challenging Behavior
0 -1	
1-2	
2-3	
3-4	
4-5	
5-6	
6-7	
7-8	
8-9	
9-10	
10-11	
11-12	
12-13	
13-14	
14-15	
15-16	
16-17	
17-18	
18-19	
19-20	

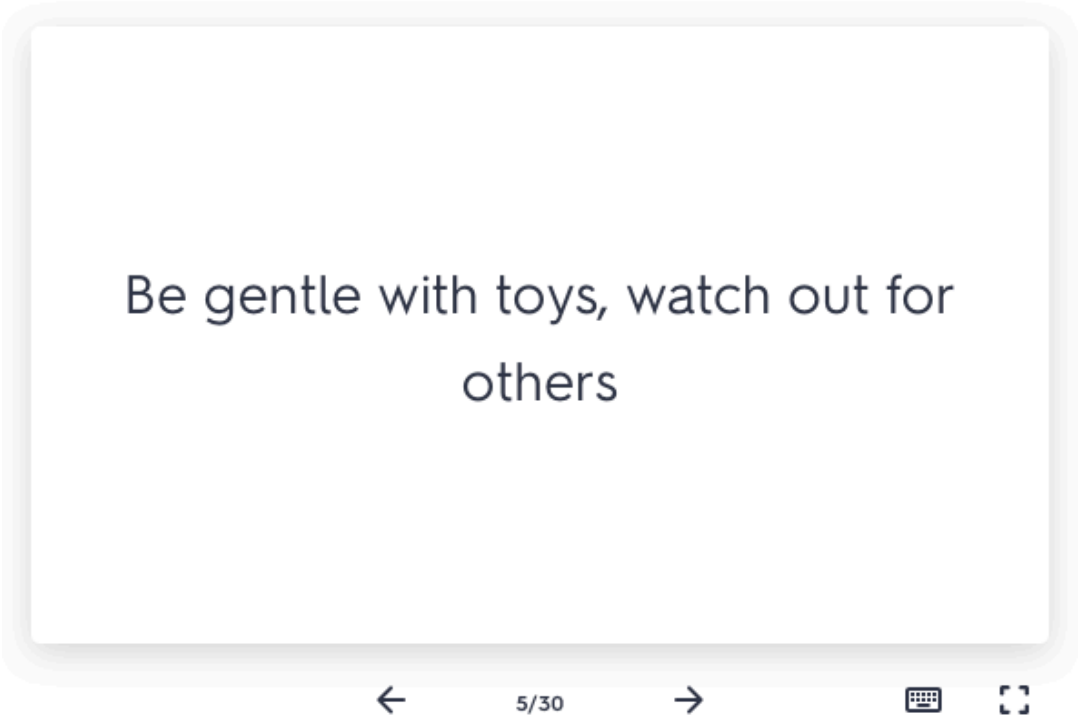
Observation Summary
____Total frequency of alterative behaviors ____Total frequency of challenging behaviors ____# Intervals w/ Challenging Behavior ____% Intervals w/ Target Behavior ____# Intervals w/ Alternative Behavior ____% Intervals w/ Alternative Behavior

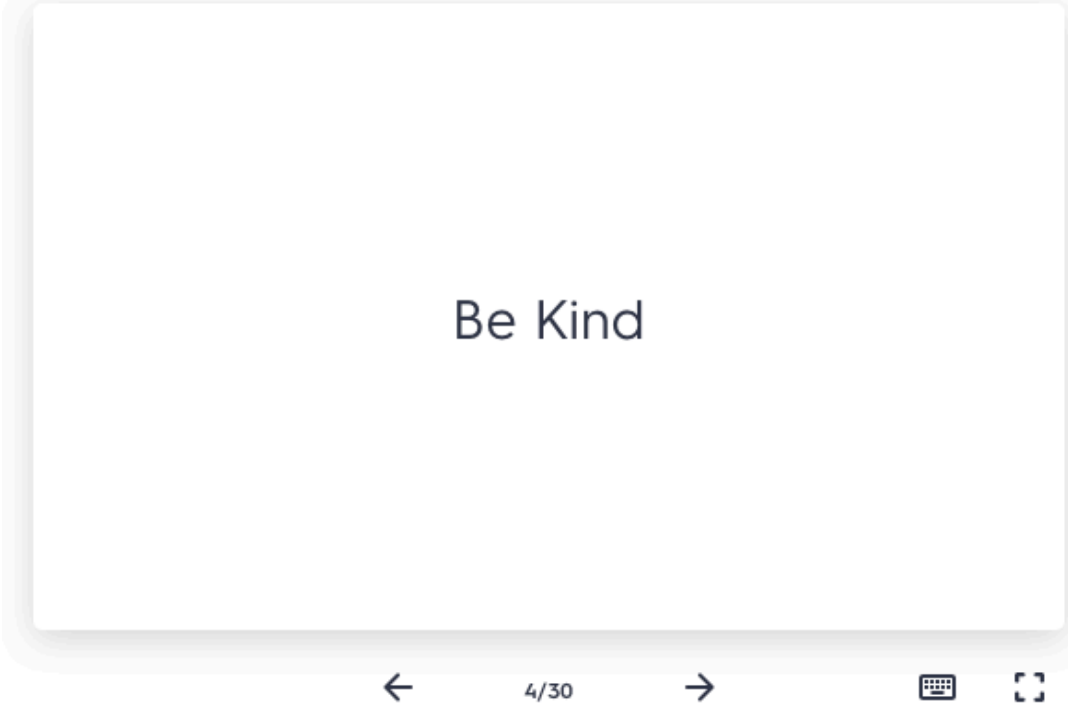
APPENDIX AA

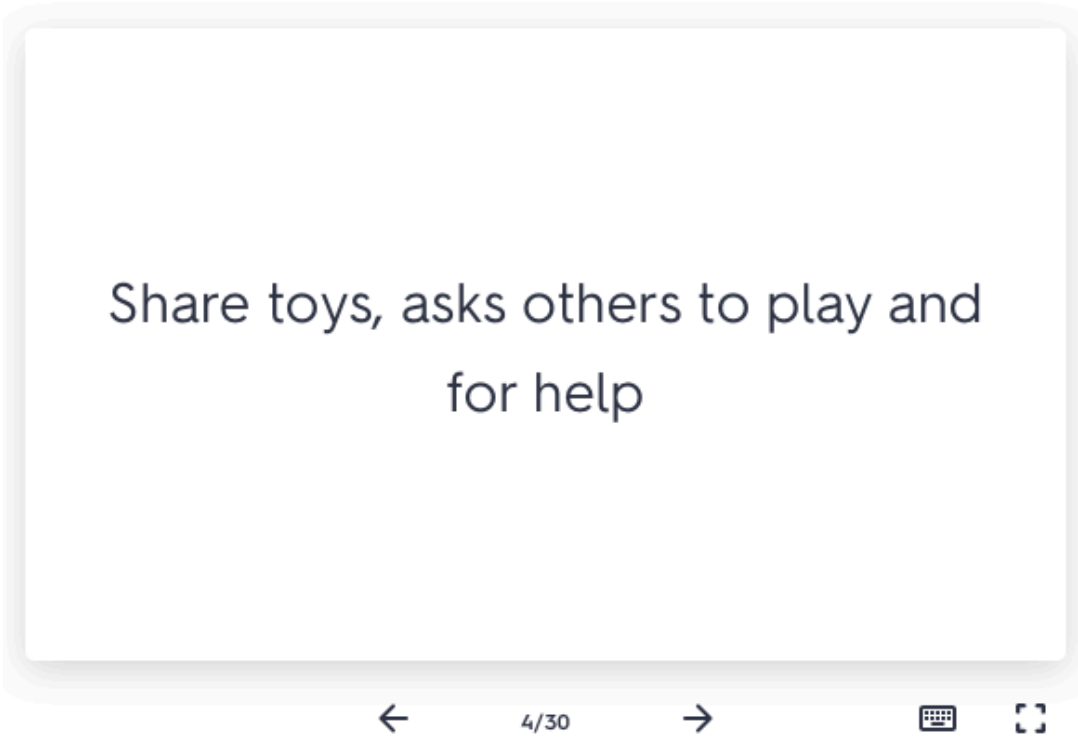

BEFORE signal play time
8/30


Preference assessment, Remind,
Practice
8/30


Be safe
5/30


Be gentle with toys, watch out for others
5/30


Be Kind
4/30


Share toys, asks others to play and for help
4/30

APPENDIX BB

Table 15. Functional Behavior Assessment Results Per Child

Variable	Logan	Matthew	Dominic	William
Challenging behavior	Elopement Vocal Refusal Name Calling Physical Aggression Property Destruction	Physical Aggression Property Destruction	Physical Aggression Sharing Refusal	Physical Aggression Tantrums
Function	Escape	Tangible	Tangible	Tangible

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