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Behavioral Skills Training To Train Teachers To Conduct A Brief Functional Analysis

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BEHAVIORAL SKILLS TRAINING TO TRAIN TEACHERS TO CONDUCT A BRIEF

FUNCTIONAL ANALYSIS

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A Thesis

Presented to

The Graduate Faculty

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In Partial Fulfillment

of the Requirements for the Degree

Master of Science

Applied Behavior Analysis

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by

Rachel Elizabeth O'Connor

March 2018

CENTRAL WASHINGTON UNIVERSITY

Graduate Studies

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ABSTRACT

BEHAVIORAL SKILLS TRAINING TO TRAIN TEACHERS TO CONDUCT A BRIEF

FUNCTIONAL ANALYSIS

by

Rachel Elizabeth O'Connor

March 2018

Teachers are required to be a part of behavioral assessments for children in special education classrooms. Most teachers lack the tools needed to specifically address each child's individual need appropriately. To assist with this, a brief functional analysis was taught to teachers using behavioral skill training. Using written instructions, role-play, modeling and immediate feedback each of the teachers were taught how to conduct a brief functional analysis. While conducting this, the teachers were able to learn how to identify which function of behavior was providing enough reinforcement to maintain the challenging behaviors. Behavioral skills training was conducted with the experimenter and the generalization portion was conducted with a child from the classroom. Once the challenging behavior was identified, immediate feedback was provided and examples given. A multiple probe design across teachers was used to compare their performance from beginning of the study to the end during generalization.

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CHAPTER I

INTRODUCTION

According to federal mandates (Individuals with Disabilities Education Act 1997, P.L. 99-142), classroom teachers are required to be actively involved during behavioral assessments and treatment (Pence, Peter, & Gilles, 2014). Many teachers are either not properly trained or not trained at all on how to decrease problem behaviors or how to identify the cause of problem behaviors. In order to best serve students who engage in behaviors that may be described as challenging, such as disrupting the class for attention, it is important that teachers know how to conduct a functional analysis. Function-based interventions require consistent participation, which teachers may not always be capable of providing due to the structure of the classroom. In order to ask teachers to conduct function-based interventions, they must be taught the skills necessary to do so (Lane, Weisenback, Phillips, & Wheby, 2007). The information acquired about the function of the problem behavior can help identify an appropriate behavioral intervention for decreasing the particular problem behavior, while increasing appropriate behavior (Cooper, Heron, & Heward, 2007).

In Cooper, Heron, and Heward (2007) the advantages of functional analyses are discussed, including their use to assess and evaluate problem behavior as well as identify the proper course of treatment. A functional analysis also provides a valid assessment regarding the reinforcer that is maintaining a problem behavior. With this information, it is possible to identify a reinforcement-based treatment plan, rather than relying on punishment procedures (Cooper, et al., 2007). By incorporating functional analysis methodology into schools, teachers will be able to identify the source of a problem behavior, and from this information, create an acceptable treatment plan for a child that uses the least restrictive alternative (Cooper et al., 2007).

As part of a functional analysis, it is also important to note the source of reinforcement of the problem behavior that is occurring. Problem behaviors that occur to gain a positive reinforcer are called "access behaviors" and problem behaviors maintained by negative reinforcement are called "escape behaviors" (Cipani & Schock, 2011). These behaviors may be reinforced through another person, who is helping to maintain the behavior by mediating the delivery of reinforcement, or they may be maintained by automatic reinforcement. An automatically reinforced behavior does not need another person to mediate reinforcement; rather the behavior directly produces the reinforcer. Identification of the source of the reinforcer can further assist in selection of an appropriate reinforcement-based intervention (Cipani & Schock, 2011).

In order to be successful, teachers need to have effective training on the appropriate skills to conduct a functional analysis. One training technique commonly employed with teachers is behavioral skills training (BST). This technique includes an instructor who trains a teacher or paraprofessional how to conduct a functional analysis by explaining the procedure, modeling the components, having the participants engage in role-play, and providing feedback on participant performance. BST has been proven to be quite effective in proficiently training teachers and paraprofessionals (Reid, Parsons & Green, 2012).

CHAPTER II

LITERATURE REVIEW

Brief Functional Analysis

According to Cooper, Heron, and Heward (2007), a standard functional analysis (FA) involves identifying the antecedents, stimuli that occur prior to a behavior of interest, and consequences, the stimulus changes that follow a particular behavior. A standard FA typically consists of four conditions, including three test conditions and a control condition. The three most common test conditions consist of contingent attention, contingent escape, and an alone condition to assess for automatic reinforcement. The control condition typically includes reinforcement, both social and tangible, and an absence of demands being placed on the individual. After a standard FA has been completed, the behavior analyst can identify the function of the problem behavior and create an appropriate intervention plan based on the results of the FA (Cooper et al., 2007).

Functional analyses have become a standard part of behavioral treatment plans because they are highly effective at identifying the function of a behavior. However, even if fully trained in assessment methodology, a teacher may consider conducting a functional analysis to be too time consuming; therefore, conducting a brief functional analysis may be viewed as a more appropriate option in regards to time. A brief functional analysis requires about half the time of a standard functional analysis while also producing quality assessment results (Derby et al., 1992). A brief functional analysis may be a better approach and assessment tool for teachers to use.

Derby et al. (1992) adapted the functional analysis procedures in order to complete the FA within the 90 min time frame of a clinic session. The experimenters presented a summary of 79 cases that had been evaluated over 3 years using a brief functional analysis. The behaviors

used in the cases were self-injurious and aggressive behavior. The authors were interested to find

if a brief functional analysis could identify the specific maintaining conditions for these problem

behaviors and if interventions based on the results of the functional analysis would result in an

improvement in clients' problem behaviors (Derby et al., 1992).

Derby et al. (1992) began each case with direct observation lasting 90 min in duration.

During this time, the client problem behavior was observed during two phases. The first phase

was a brief functional analysis of problem behavior, and the second phase was a replication of

the initial assessment. The second phase included either the introduction of a contingency for

appropriate behavior or a contingency reversal during which the maintaining reinforcer identified

for the problem behavior was delivered for an appropriate, alternative behavior (Derby et al.,

1992). During the functional analysis portion of the assessment in the first phase, relevant test

conditions were evaluated including alone, attention, and escape. Each test condition lasted 10

min and included two independent observers recording data for both client and staff behaviors

using 6 s partial interval recording. Following the first phase, an example of contingency reversal

for an alternative behavior during the second phase was done through providing attention only

after a mand, while withholding attention for problem behavior. The exact contingency reversal

used was dependent upon the function identified in the functional analysis (Derby et al., 1992).

Derby et al. (1992) found that when a target behavior was displayed, a clear maintaining

condition was distinguished during the functional analysis conditions 74% of the time. The

introduction of a contingency for appropriate behavior resulted in a decrease of problem

behavior by 54%, and implementation of a contingency reversal resulted in a decrease of

problem behavior in 84% of cases (Derby et al., 1992). Overall, the results showed that the

function of the problem behavior was successfully identified for at least 66% of cases, and

behavior change based on the identified function occurred in 77% of cases (Derby et al., 1992).

Their authors were, therefore, successful in developing a brief functional analysis that can be

conducted during an outpatient evaluation. Use of this brief functional analysis has been

recommended when there is limited time available for completed the assessment (Derby et al.,

1992), and may be a good option for use in schools.

Training Teachers in Schools

Using a brief functional analysis (BFA) could prove to be helpful in a school setting;

however, training must be provided in order for teachers to know how to correctly conduct the

assessment. Rispoli, Neely, Lang and Ganz (2011) investigated how paraprofessionals in schools

are trained to implement the interventions of those diagnosed with autism spectrum disorder

(ASD). In identifying the various procedures used to train paraprofessionals, the authors

examined databases and reviewed specific articles. In order to be included in their analysis, the

data from the studies the researchers examined had to show a well-developed demonstration of

an intervention, have adequate reliability of measurement procedures, and had to be written with

sufficient detail so as to enable replication of the study. The authors identified several

components of training interventions including instructional videos, written and verbal

instructions, supervised practice, modeling, role-playing, and feedback. In 10 of the 12 studies

collected by the researchers, verbal feedback was incorporated in the training procedures.

Feedback was provided during participant performance of implementing the intervention with

the child. Seven of the 10 studies revealed that the feedback intervention resulted in improved

performance for all of the paraprofessionals trained. Overall, it was found that interventions

using feedback, modeling, instructions, and role-play, which are included as components of

behavioral skills training (BST), were most effective in improving paraprofessionals' accuracy of intervention implementation (Rispoli et al. 2011).

BST has four components: (a) instructions, (b) modeling, (c) rehearsal and (d) feedback. Instructions may be delivered in verbal or written form, and they are reviewed and explained by the trainer. During presentation of instructions, the trainee may ask questions about the material covered. The modeling component involves a demonstration of each part of the skill by the trainer. Next, during rehearsal, the trainees have an opportunity to practice the skill demonstrated by the trainer. Following rehearsal, the trainer will provide corrective and positive feedback on the trainee's performance (Reid, Parsons, & Green, 2012).

According to Miltenberger (2016), there are several factors that can contribute to more effective presentation of the four components of BST. When modeling, the model should match the complexity of the learner's developmental ability (e.g., a young child vs. an adult). It is also helpful to demonstrate a skill in numerous ways to help promote generalization. Instructions must be specific and clear when describing the appropriate behavior for the learner, and they should be presented at the academic level of the learner. During rehearsal, the practice should be arranged in such a way that the learner is successful in his or her attempt at the skill. Feedback should be given immediately and should largely involve praise of the learner's performance. If any aspect of the behavior being rehearsed was incorrect, corrective feedback should be provided for the first incorrect behavior. Multiple attempts at rehearsal may be needed for the learner to demonstrate mastery of the skill (Miltenberger, 2016).

Brief Functional Analysis being Taught to Teachers

Hall, Grundon, Pope and Romero (2010) evaluated the effects of a workshop that included instructive information and performance feedback for training six paraprofessionals and

their teachers to use behavioral strategies to promote the communicative behavior of their students. Most of the boys, who were in the participating preschool classroom, did not communicate unless prompted to do so. Hall et al. (2010) tracked the correct use of behavioral strategies by the paraprofessionals. Event recording was used to count the number of prompts provided by the paraprofessionals and teachers to promote communication; prompts were defined as assisting the child to vocally use words, the Picture Exchange Communication System, signs or gestures, and protests. Event recording was also used to record the number of correct uses of prompting and reinforcement procedures by the paraprofessionals during a discrete trial session (Hall, Grundon, Pope & Romero, 2010). The intervention involved the paraprofessionals attending a one-day workshop where they participated in modeling, role-plays and behavioral rehearsal of effective strategies for the relevant skills with their teacher and then with a volunteer child. The intervention took place during the child's free choice, but most of the children used a Picture Exchange Communication System or could provide one or two word utterances.

During the workshop, the paraprofessionals were broken up into groups where literature was provided to them regarding the steps of the intervention. The literature was then reviewed and the paraprofessionals were provided with published findings, a flowchart of the focal behavioral strategy, and a list of goals selected for each child. Following the written instructions the paraprofessionals engaged in role-play, first with their supervising teacher and then with a volunteer child. Positive feedback was provided for components they had done well, and corrective feedback was provided for components they needed to improve on for the following practice sessions. Following the workshop, the paraprofessionals received both oral and written feedback (Hall et al., 2010). Following role-play and feedback all of the paraprofessionals

showed improvement in prompting the child during work sessions and during the child's free time. These results demonstrate the effectiveness of BST when training teachers and paraprofessionals. The paraprofessionals from this study provided positive evaluations of the training procedure in the sense that they finally felt comfortable and confident in what they were required to do in the classroom. Thus, this study also demonstrates that BST is an acceptable training strategy in the view of consumers (Hall et al., 2010).

Miller, Crosland and Clark (2014) evaluated the effects of booster training in re-establishing classroom management. Teachers who had been previously taught classroom management, but lost proficiency in the last year were taught to re-establish classroom management using booster training through analogue role-play and in situ assessments. BST was used based on research suggesting its four components would be most effective in re-establishing these skills. The study was completed at a small private charter school with three teachers that had all completed an initial BST training about one year prior to the start of the study. A task analysis was created that broke down the steps for effective classroom management into five "tools." The first tool was to "stay close" to help improve relationships between the student and teacher by providing attention. The second tool was "use reinforcement" contingent on appropriate behavior to help increase desirable behaviors and decrease undesired behaviors. The third tool was to "pivot", which went along with the fourth tool of 'redirect-use reinforcement'. Both the third and fourth tools involved diminishing attention-maintained behavior and differentially reinforcing appropriate behavior. The fifth and final tool, "ignore junk behavior" was used to train teachers how to ignore attention-seeking behaviors that are undesirable. This tool was also used to help teachers make verbal agreements with the student on what demand needed to be completed and, upon completion, what reinforcer would be delivered. Booster

training was conducted using a BST format in which the experimenter reviewed the five tools (Miller, Crosland & Clark, 2014). It was found that, although performance at the start of the study had significantly decreased over time, the booster training effectively re-established the teachers' performance, and the five tools were effectively and correctly used. This study demonstrated that booster training conducted using BST is an effective way to re-establish skills and to improve the teacher's skills in both analogue assessments and in the classroom (Miller, Crosland & Clark., 2014).

A recent study conducted by Flynn and Lo (2016), examined the effects of BST on training teachers to conduct a functional analysis. The teachers in the study each identified a student who demonstrated challenging behaviors that occurred at least 10 times during a 30 min observation period and lasted for a total of 15 min in duration. The teachers were trained to conduct a trial-based functional analysis (TBFA) with attention, demand, tangible, and ignore conditions and to implement a differential reinforcement of alternative behavior (DRA) intervention. Training was conducted at a middle school where data and intervention sessions were held 3-5 days per week in the teacher's classroom. The sessions were completed over an 8-week period, and implementation of both the DRA intervention and the TBFA was done after school during a 45 min group instruction session. Procedural fidelity was assessed during the TBFA and DRA intervention. The experimenters used a 54-step checklist to evaluate if the teachers performed each step correctly. Steps on the checklist included aspects of the teacher's behavior and the antecedents and consequences teachers provided following a student's challenging behaviors. It was also noted whether or not the teacher performed each step correctly (Flynn & Lo, 2016).

Training of the TBFA was completed in a 2-hour session with the teacher and a Board Certified Behavior Analyst during which the teacher was taught to administer all of the relevant functional analysis conditions. The experimenter reviewed the steps of the TBFA by explaining the procedures for each condition, providing a video demonstration, allowing an opportunity for role-play, and providing feedback during the role-play scenarios. Training to implement DRA lasted one hour, and the experimenter reviewed the function of the behavior based on the results of the TBFA. For each child, the teacher chose an alternative behavior, an appropriate reinforcer and an appropriate extinction procedure. Feedback was delivered to teachers based on their decisions and was followed by a session of role-play to ensure the correct choice for the selection of the function of the behavior (Flynn & Lo, 2016).

Results of this study demonstrated a functional relation between BST and the teachers' correct implementation of the TBFA. Teachers showed a 90% increase in correct implementation during all of the TBFA sessions. Flynn and Lo (2016) also found that the use of verbal praise and providing correction for errors helped the teachers maintain high fidelity. Implementation of DRA also showed significant improvement and high fidelity (Flynn & Lo, 2016). Additionally, generalization was observed with two of the three teachers when conducting the TBFA and implementing DRA with other students. This study demonstrated the effectiveness of BST in training teachers to implement a functional analysis of problem behaviors and identify an effective intervention for a student (Flynn & Lo, 2016).

Research Question and Current Hypothesis

A functional analysis can be difficult and time consuming to conduct, but a BFA can produce reliable results in less time (Derby et al., 1992). Therefore, it may be more plausible to train teachers how to conduct a BFA. From the studies reviewed, it is clear that BST is effective

for training teachers to implement trial-based functional analyses and behavioral interventions. The use of BST may also be effective in training teachers to conduct a BFA. Therefore, the current study will examine the use of BST to train teachers to conduct a BFA. Training will be completed outside of the classroom, and following the BST procedure, corrective feedback and praise will be given in the classroom as the teacher performs the BFA with a student. The prediction is that training the teachers using BST will result in acquisition of the skill of conducting a BFA.

CHAPTER III

METHOD

Participants, Setting and Materials

This study was conducted at a public school in Yakima with teachers who work in a special education classroom with students who are on the autism spectrum or have other developmental disorders. Sessions took place in the teachers' classroom. Materials used for the BFA included toys such as magnets, white board, cars and action figures and task materials such as tracing letters, coloring, math and reading comprehension were obtained from the teacher's classroom and from the child's independent work assignments.

Two teachers from separate classrooms participated, and each participant recommended a student from her classroom for whom each wanted to complete a BFA with. Prior to beginning the study, informed consent was obtained from each teacher. Initially, three teachers had signed the consent form, but the third teacher dropped out just prior to collecting baseline. Informed consent was then obtained from the students' parents for their participation in the BFA. Participant 1 had attended trainings for ways to use Applied Behavior Analysis in her classroom and already had a strong understanding of a brief FA.

Dependent Variable

The steps in the BFA performed correctly by the teacher was the dependent variable. The experimenter used a task analysis to score performance on the steps in the BFA (see Appendix A). Each test condition of the BFA had a list of steps that the observer checked in order to identify whether or not the teacher performed each one correctly. A percentage of steps completed was done by dividing the total number of steps performed correctly by the number of total steps in the BFA.

The primary experimenter collected data during all of the sessions, and to ensure reliability, a secondary observer with a coworker collected data during at least 20% of sessions. When the coworker was not available, sessions were recorded for IOA. The secondary observer was provided with the task analysis of the BFA along with a description of BST. Prior to working with the teachers, the experimenter provided the secondary observer with the task analysis of the BFA, verbally reviewed the procedures, and answered any questions. Following instruction on the procedures, the secondary observer rehearsed data collection during a role-played BFA. The secondary observer reached 80% interobserver agreement (IOA) with the experimenter while collecting data to be deemed a reliable observer. IOA was calculated using the trial-by-trial method. Agreements on the occurrence or nonoccurrence of behavior for each individual step in the task analysis were counted. The total numbers of agreements were divided by the total number of steps in the session, and that value was multiplied by 100 to produce the percentage agreement.

Experimental Design

A multiple probe design across teachers (see *Figure 1)* was used to show if there was a functional relationship between BST and the teachers' performance on the BFA. The multiple probe design was selected instead of the multiple baseline design because it was highly unlikely that baseline performance on the BFA would improve without training. An initial probe session was conducted with each participant to establish a baseline for performance on the BFA. The independent variable was then applied to the first participant. Once the first participant met criterion in training, a second baseline probe was collected with the second participant. The second participant then entered training (Cooper et al., p. 201-203). Generalization probes were

collected for each participant after mastery on training was achieved.
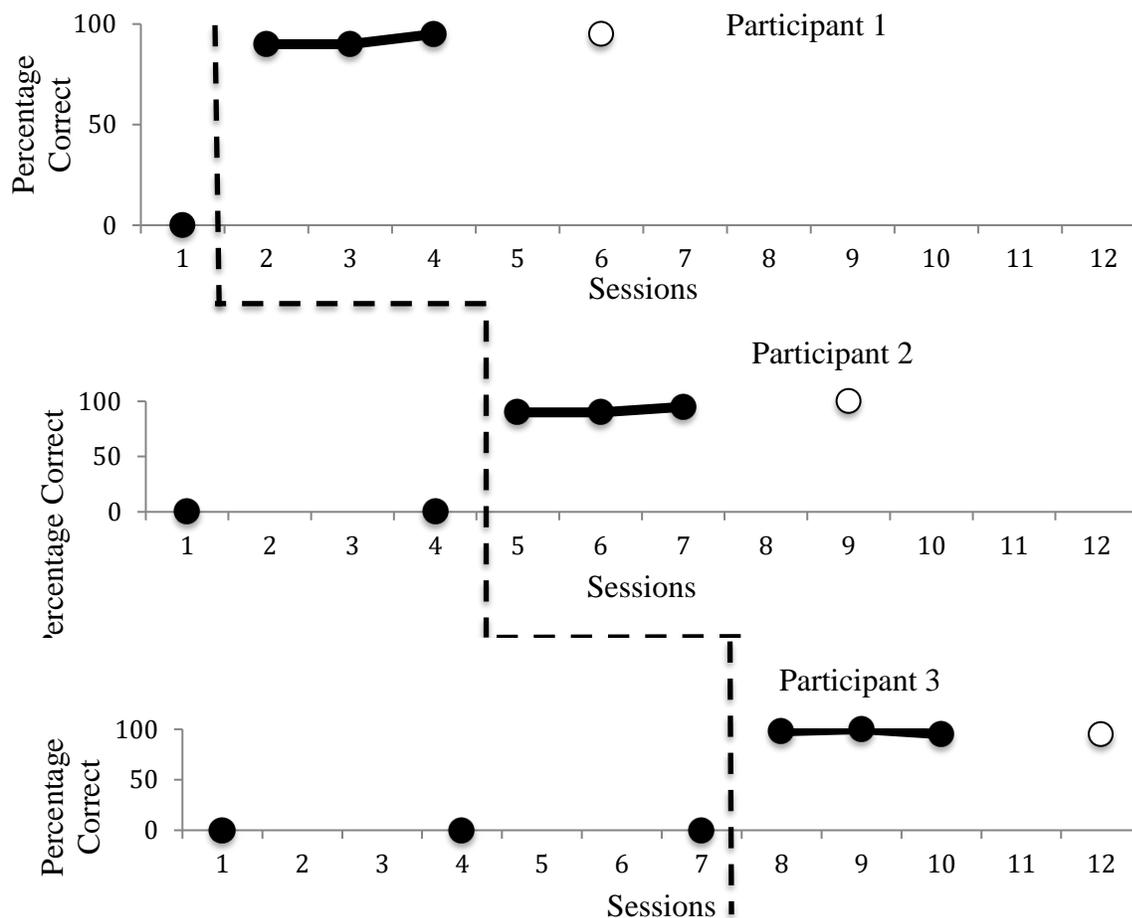
Figure 1. An example of a multiple probe baseline design across participants.

Procedure

   Pre-experimental Procedure. The experimenter first obtained permission from the

special services director, who then reached out to teachers, with the proposed study, to see who

would be interested along with the principals to gain their consent. The experimenter requested

to arrange a meeting with the teachers to discuss the study in further detail and obtain informed

consent. The participant was asked to identify a student to serve as her target child when

conducting the BFA, and a letter and consent form was sent home to the student's parents. Once

informed consent had been received from both teachers and parents, the experimenter proceeded with the study.

   Brief Functional Analysis. Sessions took place in the teacher's classroom. Teachers ran the sessions with the child of interest, and the experimenter provided all necessary data sheets. There were four test conditions included in the BFA: attention, tangible, demand, and ignore. In the BFA a single 6 min session was ran for each test condition, and then the test condition, or conditions, for the suspected function of the problem behavior was replicated. In total there were at least five test condition sessions included in the BFA. Each test condition within the BFA lasted 6 min, which included a 1 min period to arrange the establishing operation (EO) for that condition. After an individual test condition was complete, there was a 5 min period before the subsequent test condition, during which the child was allowed to engage in free time.

   Attention. The teacher was seated with the child and provided the child with attention continuously for 1 min to establish the EO for this condition. The teacher asked the child about her day, what they were going to do and how prior activities had gone. Upon initiating the test session, the teacher told the child she had to do some work and then turned her body away, but still remained in close proximity to the child. The child was not provided with any other activities to engage in during this time. If the child engaged in problem behavior, then the teacher provided the child with attention by giving a statement of concern. If the child left his seat, the teacher would follow the child and blocked attempts to interact with other students or items in the room. The session had to be terminated if the child interacted with another person during the test session, and the test condition had to be repeated after a 5 min free time period.

Tangible. The toys or other items for the tangible condition were obtained from the classroom such as magnets, action figures, white board and cars. The teacher and child were seated together, and the child was permitted to interact with a preferred tangible item for 1 min to establish the EO for this condition. Upon start of the 5 min test session, the teacher removed the preferred item. If problem behavior occurred, then the item was returned to the child for a 30 s period. If the child left the area, the teacher followed and blocked interactions with other students and other tangible items. The session had to be terminated if another person provided an interaction or tangible item to the child, and the test session was repeated after a 5 min free time period.

Demand. The task requirement for the demand condition was obtained from the teacher's lesson plan. Participant 1 used a worksheet requiring the child to trace letters, color a picture and to cut. Participant 2 used an audio tape that told a story with a corresponding worksheet the child was to answer. To establish the EO, the teacher was seated with the child but facing away, and the child did not have any leisure or task materials for 1 min. Any problem behavior presented by the child did not have any consequences during this 1 min time period. When the test session began, the teacher instructed the child to begin independent work time. If the child required prompts to engage in the work tasks, the teacher used a three-step prompting sequence that included verbal, model, and physical prompts. Once the worksheet was started, with Participant 1, the child required a full physical prompt when using the scissors. If the child engaged in problem behavior, the demand (i.e., work materials) were removed for 30 s. After 30 s without problem behavior the task was re-presented. Participant 1 had to remove the work during the first portion of the trial due to the child continuing to fixate on asking for toys and pushing the worksheet away. Participant 2 would remove the child's worksheet for the 30 s

when the child began to play with his pencil and displayed protests of not knowing what to do. Had there been any other demands placed on the child during the test session, then the trial would have be terminated, and the test session repeated after a 5 min free time period.

Ignore. A 1 min free time period served to establish the EO for this condition. When the test condition began, the child was moved to an area without any materials or interaction for 5 min. There were no consequences if problem behavior occurred or if the child left his seat. During this portion with Participant 1, the child was moved to an area where he could not gain access to any tangibles. However, the child began to display challenging behaviors of crying and attempting to climb the shelves to gain access to the toy. Participant 1 was able to block this, but when doing so, the child attempted to go to mom to cry and ask for the tangible. Mom turned her back so as to not provide any attention, but then stepped out of the room due to the child becoming more persistent towards asking mom for the tangible. During this portion for Participant 2, she moved the child to a secluded area and put up a divider to prevent any children from looking in and vice versa. During the final minute of this condition the recess bell rang and so Participant 2 blocked the doorway and had to turn her back to prevent the child from leaving and providing any attention. Any interaction with another person or tangible item would have led to a termination of the session, and it had to be repeated following a 5 min free time period.

Baseline. Teachers were provided with written instructions (see Appendix B) that provided an overview of the four BFA conditions (attention, tangible, demand and ignore). The experimenter allowed the teacher to read both the appendices and once completed, the experimenter then moved onto the next step, role-play. The experimenter and the teacher role-played each of the four BFA conditions, with the experimenter taking the role of the child. Before each baseline session, the experimenter selected a function for the problem behavior, and

role-played according to the preselected function. The teacher was unaware of the function the experimenter had selected. The BFA test conditions were role-played in the order specified by the teacher, and was continued until the teacher had reported that she is finished or 90 min has elapsed. The teacher was then asked to identify what she believed the function of the behavior was. The experimenter did not provide any feedback during baseline sessions.

Behavioral Skills Training. Once baseline had been collected, training was implemented using the four components of BST: instructions, modeling, rehearsal, and feedback (Miltenberger, 2016). The experimenter continued to role-play the student, so the teacher could consistently practice how to appropriately react. In order to model for the teacher how to appropriately handle challenging behaviors, the experimenter had the assistant role-play as the child and the experimenter modeled the appropriate assessment procedures for the teacher.

Instructions. The teacher received written instructions on how to conduct a BFA (identical to those received in baseline) as well as the task analysis used by the experimenter to score performance on each BFA test condition (see Appendix). The experimenter also verbally reviewed the BFA procedures with the teacher. The teacher was permitted to ask questions regarding BFA procedures at that time. The experimenter then asked the teacher to describe how to conduct each test condition and provided correction for any errors in the teacher's description.

Modeling. The experimenter arranged the appropriate antecedent conditions for each test condition and demonstrated how to conduct each of the test conditions. The teacher was permitted to ask questions after each test condition was modeled. If another ABA therapy assistant was available, the experimenter modeled for the teachers on the assistant, what the teacher was to look like and how to appropriately respond to the behaviors.

Rehearsal. The teachers practiced conducting the BFA test conditions in a role-play situation with the experimenter playing the part of the child. The teacher's performance during role-plays was scored using the task analysis.

Feedback. Corrective feedback and praise were delivered immediately following rehearsal of each test condition. When errors were made, the experimenter provided further instructions or modeling on the skill before asking the teacher to rehearse again. The criterion for mastery of training is two consecutive role-plays with at least 80% accuracy.

Generalization Probe. Once training was complete, the experimenter observed the teachers conduct a BFA with a student selected from her classroom. The teacher chose the time of the day when conducting the BFA was least disruptive to classroom procedures. The teacher conducted the BFA as well as collected data on the student's problem behavior. The experimenter scored the teacher's performance as well as collected data on the student's problem behavior. This was to allow the experimenter to confirm the accuracy of the function identified by the teacher after the BFA was completed.

Procedural Fidelity

The secondary observer who was observing for the purpose of calculating IOA assessed the fidelity of the intervention. The secondary observer used a checklist identifying each step in the BST intervention in order to assess whether or not all steps of the BST were being correctly followed by the experimenter (see appendix D). Procedural fidelity was calculated by dividing the number of steps the experimenter performed correctly during the BST session, by the total number of steps possible. This was then multiplied by 100 to obtain a percentage.

Data Analysis

In order to analyze the data that was collected, the experimenter used visual analysis of the graphed data. The analysis included an examination of variability, trend, level, and immediacy of change (Cooper et al., 2007). To examine variability within the data, the range between the highest and the lowest data points within the conditions were computed. The data was also analyzed to examine increasing, decreasing, or stable trends. In order to determine the level, the mean responding in each condition was computed. The immediacy of change was assessed by inspecting the graphed data to determine how quickly the effect of the intervention occurred.

CHAPTER IV

RESULT

Baseline and Intervention

In Figure 2 shows the outcomes of the baseline, intervention and generalization probes for both participants. Baseline sessions began after meeting with each participant to go over, in person, the details of the study and to gain consent. Each participant was left with the written explanation of what a brief FA was (see Appendix B), and at the next meeting baseline was conducted. This was due to the participants' limited time to meet per week. During baseline, she scored a 67%, which given the other participant's score resulted in them being most stable and to move onto training first. Participant 2 required running baseline twice resulting in 64% and 71%.

During the intervention for Participant 1, her percentage increased to 75% but still required further training. The function of the behavior during this session was attention, however, due to needing to meet 80% criteria intervention was to continue. The function of the behavior during the next session was automatic reinforcement and although the participant was stumped on the function, her overall performance increased to 92% allowing them to need to meet criteria once more before moving onto to generalization. Participant 1's next session of BST, the function was demand, which they correctly identified. Although her percentage decreased to 82%, they still maintained criterion, allowing the next session to be generalization, which was to be with a child.

During intervention for Participant 2, she increased her score to 78% and were able to correctly identify the function of the behavior. However, training was to continue due to them not meeting criterion. During the next session Participant 2 completed majority of the steps for a brief FA correctly reaching a 92% allowing them to have one more session to reach criterion

before moving onto generalization. When meeting with Participant 2 again, they maintained criterion of 92% allowing the next session to be generalization.

Generalization Probe

The generalization probe (see *Figure 2)* for Participant 1 was conducted exactly 3 weeks after the last intervention session due to scheduling conflicts. During generalization, Participant 1 maintained above criteria with 89% and was able to correctly identify the function of the child's behavior.

The generalization probe for Participant 2 was conducted one day shy of a month later. This was due to scheduling conflicts and holiday break fro the school. There was an expectation of the percentage to be lower due to a lag in time from the last intervention. Participant 2 conducted the brief FA and even though her percentage decreased to 85% they were still able stay above the criterion.
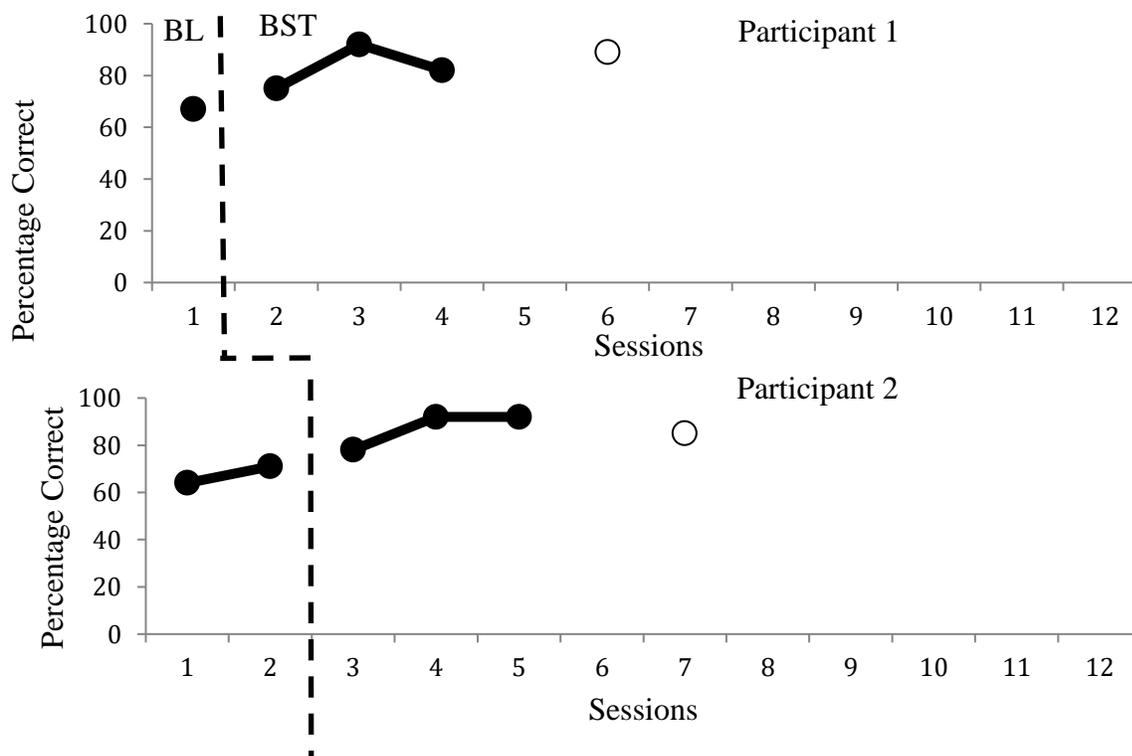

Figure 2. Percentage of steps correct when conducting a BFA across participants.

CHAPTER V

DISCUSSION

For both participants, the results of the intervention demonstrated BST is successful in training teachers how to conduct a brief FA. However, Participant 1 had attended trainings on Applied Behavior Analysis and already had an understanding of what a brief FA is despite never having actually conducted one herself. Participant 2 had not had any prior training and asked questions prior to beginning baseline for further clarification. After baseline was completed, Participant 1 correctly guessed the function of the behavior, tangible, but also believed it could have been a little bit of escape as well. Participant 2 did not correctly guess the function, also tangible, and instead believed it to be escape, which could indicate poor role-playing by the primary investigator.

Participant 1 displayed stable responding during baseline of 67% whereas Participant 2 was at 64%. After baseline, Participant 1 moved onto intervention where they greatly improved up to 75%. During this intervention, the participant correctly identified the function of the behavior. Feedback was given immediately after the function was conducted on how to respond to certain behaviors and those pertaining to the task list from Appendix A. Participant 2 ran baseline again, however, due to them running late the session had to be split into two and so there was one day in between. During second baseline, the participant did improve and correctly guessed the function of the behavior, but feedback could still not be given.

During the next session meeting with Participant 1, her score drastically improved up to 92%, but they could not identify the function of the behavior. When told the function was automatic reinforcement, the primary investigator then explained the reasons behind this being the function and how it could be seen throughout the session. Participant 1 admitted that they

were looking for bigger behaviors and are much more use to attention seeking behaviors that they do not take note to stemming behaviors. Participant 2 continued to improve up to 78% during the next session. They displayed much more confidence throughout by following through with the directions given from the print out of Appendix B. Although some details were missed, they overall showed improvement and correctly identified the function of the behavior.

Participant 1's next session did not display the same accuracy of all of the steps during the week prior, but they still correctly identified the function as a demand. The primary investigator believes the score was lower due to the increase in behaviors displayed making the participant show hesitancy in how to handle each situation. After this portion was conducted, immediate feedback was given to the participant on how to respond the different behaviors being displayed. It was reviewed to go through the three-step prompting hierarchy and to remove the work being presented when challenging behaviors were being presented. The participant took notes and asked further questions to clarify and gave scenario questions to the primary investigator to grasp a further understanding.

Participant 2 score significantly improved up to 92% during the next session, where they also correctly identified the function, tangible. Feedback was given during this more specifically to steps during the attention condition of how to appropriately respond to challenging behaviors as well as during the tangible condition to remind them to keep the tangible out of sight and reach. Participant 2 was able to maintain her performance during the next meeting of 92%, but did not correctly identify the function of escape and instead believed it to be attention. Participant 2 believed it to be attention due to the primary investigator talking to them each time a demand was placed. Talking was either asking questions to prolong having the complete the demand or displaying challenging behaviors when redirected back to work.

Participant 1 had a lag in time for meeting for generalization and so it was expected the score to be lower, but instead they improved from the session prior up to 89%. The participant performed each step of the brief FA correctly up until the automatic reinforcement session. The participant removed all materials from the child and created an area for the child to be in as they made sure to block the child from gaining access to any items in the room and from mom and grandma. Once the child realized they were not getting the tangible back from the participant and they were being blocked, they sought out mom to ask her for the toy. Mom ignored the child, but this then changed the child's function of behavior to try and gain mom's attention. Mom and grandma then left the room to ensure they would not accidentally provide attention by laughing. The child proceeded to cry at the door, where the participant blocked any chance of escape for the remainder of the time. Once complete, the participant correctly identified the function of behavior as tangible.

Participant 2 met one day shy of a month later for generalization. This was due to a shortened workweek for Thanksgiving and then lack of timely response from the participant. Once a date and time was established, the primary investigator anticipated a lower score due to the extended time in between. The participant's score did lower to an 85%, but they were able to correctly identify the function of the behavior being attention. Steps during the attention condition were missed, but since this was the condition chosen to start with it was no surprise steps were not ran correctly as the participant was refreshing themselves on what was rehearsed. Attention was sought during the automatic reinforcement session, but the participant put up barriers to prevent other students providing attention and then continued to block the child from leaving the area.

Compared Research

Previous research done by Lane et al. (2007) had stated in order to complete a function-based interventions, it required consistent participation, which teachers are not always capable of providing. This was observed mostly with Participant 2 who struggled to maintain a consistent time to meet for trainings and voiced concern of uncertainty as to when she would be able to complete one in her classroom. Lane et al. (2007) also brings up the point that in order to ask teachers to conduct function-based interventions, they must be taught the skills necessary to do so, which both participants demonstrated with the probe that they did not have strong grasp on the concept nor did they have the tools to complete a function-based intervention.

The purpose of this research was to provide the teachers with the appropriate tools to teach them how to identify the function of the problem behavior. As stated by Cooper et al. (2007), the advantages of functional analyses are to identify what is maintaining the problem behavior to then provide an appropriate alternative. Through training, both participants would correctly identify the function of the behavior, role-played by the experimenter, and would then brainstorm appropriate alternatives she could do with the students. Through training, both participants learned how to complete a valid assessment; although BFA is accurate a functional analysis should be done if possible.

Each participant was told in greater detail, prior to beginning, that finding the source of reinforcement of the problem behavior occurring would be incredibly useful in order to reduce the problem behavior, but to continue to allow access, in a more appropriate way, to the maintaining behaviors which was also discussed by Cipani and Schock (2011). Although Cipani and Schock discuss how problem behaviors that occur to gain a positive reinforcer are called "access behaviors" and those that are maintained by negative reinforcement are "escape

behaviors", Participant 2 could not grasp negative reinforcement as "escape behavior". Despite problem behaviors being broken down into these two categories, it was simpler to explain each condition and provide examples of what the child may be displaying challenging behaviors for. Both participants were unsure of the function of the behavior when it was automatic reinforcement and so the experimenter went into greater detail to explain how the individual does not need anyone else to provide the reinforcement to them (Cipani & Schock, 2011). Participant 1 demonstrated she understood this when the automatic reinforcement condition was role-played and she identified which behaviors were automatic reinforcement.

Finally, the BST proved to be an effective way to train each participant through each of the steps of written/verbal instruction, modeling, role-playing and feedback stated by Reid, Parsons and Green (2012). Each participant had given a verbal confirmation of understanding how the BST was to be completed, but it was not until modeling and role-playing where each stated how each condition began to make more sense. Feedback was incredibly important with improving for each participant. This allowed the experimenter the chance to not only correct the participants' behavior, but to also correct her own to better model it for the participants.

Limitations and Future Research

While the results of BST showed to be effective, some limitations remain. Finding a consistent time to meet with teachers showed to be rather difficult as meetings before school took place or shortened weeks at school occurred. A suggestion for this would be to set aside specific days and time options and have the teacher pick which one works best for his/her schedule to help maintain a more consistent schedule. In the teacher consent form, the portion going over meetings was softly stated and so specifying that a consistent day and time will be arranged based on what is available between the participant and the primary investigator.

Another limitation, one that may not have a good solution, is the child not being available the day of generalization due to an unknown absence. This limitation may lack control for a solution due to not being able to control the child being sick or any other life events that arise.

A final limitation would be the role-playing between the primary investigator and participant. Initially, it was stated by both participants, that it felt awkward to respond to the primary investigator as if they were a child. Along with this, a concern was brought up that a child may display stronger challenging behaviors such as crying, laying on the floor, actually hitting and or kicking than what the primary investigator was displaying. A potential solution for this would be to have the primary investigator warn the participant that bigger challenging behaviors would be displayed to assist in more effective role-playing.

Future research should investigate the performance levels of teachers when working with either higher functioning children or lower functioning as higher functioning may have functions of behaviors change at a faster rate than those of lower functioning. With functions of behaviors changing more often, it could lead to more difficulty in identifying. This may require a change in how role-playing and feedback are presented so the participant is most successful at identifying these changes and responding appropriately.

Future research should also continue to examine the generalization and maintaining the training taught. Looking into how often teachers would require review, feedback after observation or engage in role-play again to maintain the skills taught to them. In the study done by Flynn and Lo, (2016), training was done 3-5 times during a week, whereas this study only met once a week, which could possibly take an effect on maintaining generalization. Based on these thoughts, it would be presumed that providing this tool to teachers would prove to be useful in finding more applicable interventions to reduce challenging behaviors. Based on Participant 2's

lag time of a month, and still remaining above 80% criterion, it would be suggested to review

with teachers and provide feedback on a monthly basis.

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Appendix A

Task Analysis

Prior to beginning the 4 sessions, of the task analysis, the teacher or paraprofessional and the experimenter will gather all of the materials needed. This will include and specific toys for the child and the work from the lesson plan that will be given during the demand session, pencils, clipboard and copies of the task analysis for the experimenter to fill out for each teacher or paraprofessional. The experimenter and the teacher or paraprofessional will also find an appropriate area in the room where the session will be conducted. The experimenter will also provide time for the teacher or paraprofessional to ask any questions prior to the session beginning.

Attention condition:	Performed Correctly?
Gather relevant materials	**Y** **N**
Locate an appropriate place for the BFA	**Y** **N**
Sitting with the student and with preferred toys readily accessible by child in the classroom	**Y** **N**

The teacher playing and interacting with the child, providing them with attention such as, reading a book, driving with a toy car etc.	**Y** **N**
The teacher tells the child, "I have some work to do." And turns their body away from the child.	**Y** **N**
If child displays any behavior to gain teacher's attention such as crying, touching the teacher, throwing items, moving to be in front of the teacher, etc. then the teacher turns back to child and provides attention.	**Y** **N**
The attention back to the child will be words asking them to stop any unwanted behavior or to continue playing with the child as before	**Y** **N**
Tangible condition:	
Gather relevant materials	**Y** **N**
Locate an appropriate place for the BFA	**Y** **N**
Sitting with the student and with preferred toy(s).	**Y** **N**
The teacher says, "We are all done with the toy."	**Y** **N**
The teacher waits 5 s for the child to hand over the toy	**Y** **N**
If the child does not give the toy to the teacher, then the teacher repeats the demand and proceeds to take the toy.	**Y** **N** **N/A**

Teacher places the toy either behind themselves or somewhere else out of sight and out of reach from the child, but with easy access.	**Y** **N**
The toy remains out of sight and out of reach from the child during the entire session.	**Y** **N**
If the child displays any behavior such as crying, hitting, reaching for the toy, attempts to retrieve the toy back, etc., then the teacher immediately returns the toy to the child	**Y** **N**
Demand condition:	
Gather relevant materials	**Y** **N**
Locate an appropriate place for the BFA	**Y** **N**
The child is sitting in the room without access to any preferred items.	**Y** **N**
The teacher places a demand on the child saying, "It's time to do some work." While presenting the work to the child	**Y** **N**
The teacher proceeds through the three-step hierarchy as needed. (i.e. gesture/verbal, modeled prompt and partial or full physical prompt)	**Y** **N**
Any problem behaviors displayed during any of the prompts, such as kicking, hitting, crying or trying to leave, etc., then the teacher says, "Okay, you don't need to do your work."	**Y** **N** **N/A**
Teacher removes all work from the child.	**Y** **N**

Ignore condition:	
Gather relevant materials	**Y** **N**
Locate an appropriate place for the BFA	**Y** **N**
The child is alone without access to any toys or tasks.	**Y** **N**
No attention is provided despite any behaviors that occur	**Y** **N**
The session only ends if the child interacts with a toy or if someone provides them attention.	**Y** **N**
	Total: ____/20

Appendix B

BFA Written Instructions

A brief functional analysis (BFA) is a series of single exposures of a hypothetical function in order to determine the function of a specific behavior. The hypothetical functions of the specific behavior include attention seeking, access to tangibles (i.e. toys, leisure items etc.), escape from demand, and automatic reinforcement (i.e. the child can receive reinforcement without it being delivered by another person). Meaning, the child's most problematic behaviors occur due to gaining access to one of these functions. The four functions of behavior (attention, tangible, escape and automatic) will be arranged so that each will be observed separately.

Each function of a behavior will be done during a trial lasting for 6 mins. During the attention trial, attention will be given to the child, whether it is playing with them or assisting them with work, attention will be provided to the child. To identify if the child is seeking attention and the problem behaviors are due to this, the teacher will turn their back, taking attention away from the child. If the child displays any problem behaviors, then attention will be returned to the child.

Tangible, the child will have access to toys, books, and coloring, whatever is available in the classroom. To identify if the problem behaviors are due to gaining access to toys etc., the teacher will remove the toys etc. the child is playing with. If the child displays any problem behaviors, then the item(s) are to be returned to them.

Escape, a worksheet or some other type of work from the lesson plan will be given to the child as a demand to start work or to complete work. If the child displays any problem behaviors after the demand is placed, then the function of their behavior is to get out of demands placed on them. This could be because the demand is too hard or they do not wish to comply.

Finally, automatic reinforcement will be when the child is finding reinforcement whether or not someone is providing the reinforcement. This can also be seen as something such as hand movements.

Each of these trials will be completed either during the child's independent work time or when it is applicable for the teacher to do so without disrupting the rest of the class. The point of the BFA is to correctly identify the function of the behavior in the natural environment without consuming too much time during class.

Appendix C

Procedural Fidelity Checklist

Observer:_____   Teacher:_____

Date:_____

Steps during BST	Performed Correctly?	
Gathered relevant material for attention condition	**Y**	**N**
Reviewed what the attention function will look like	**Y**	**N**
Reviewed what the tangible function will look like	**Y**	**N**
Reviewed what the escape function will look like	**Y**	**N**
Reviewed what the automatic reinforcement function will look like	**Y**	**N**
Role-played the child with the teacher for the attention condition	**Y**	**N**
Role-played the child with the teacher for the tangible condition	**Y**	**N**
Role-played the child with the teacher for the escape condition	**Y**	**N**
Role-played the child with the teacher for the automatic reinforcement condition	**Y**	**N**
Modeled how the teacher should react during the attention trial	**Y**	**N**

Modeled how the teacher should react during the tangible trial	**Y**	**N**
Modeled how the teacher should react during the escape trial	**Y**	**N**
Modeled how the teacher should react during the automatic reinforcement trial	**Y**	**N**
Rehearsed with teacher or paraprofessional what was previously modeled for the attention trial	**Y**	**N**
Rehearsed with teacher or paraprofessional what was previously modeled for the tangible trial	**Y**	**N**
Rehearsed with teacher or paraprofessional what was previously modeled for the escape trial	**Y**	**N**
Rehearsed with teacher or paraprofessional what was previously modeled for the automatic reinforcement trial	**Y**	**N**
Immediately gave corrective feedback during the attention trial	**Y**	**N**
Immediately gave corrective feedback during the tangible trial	**Y**	**N**
Immediately gave corrective feedback during the escape trial	**Y**	**N**
Immediately gave corrective feedback during the automatic reinforcement trial	**Y**	**N**
Provided praise throughout each rehearsal and when delivering feedback.	**Y**	**N**
Procedural Fidelity:	**/17**	

Appendix D
BST Checklist

BST checklist	Performed Correctly?	
Described what BFA is and provided a written summary	**Y**	**N**
Demonstrated each condition, as the child, for the teacher or paraprofessional	**Y**	**N**
Modeled for the teacher or paraprofessionals how they are to respond in each condition	**Y**	**N**
Provided immediate feedback to the teacher or paraprofessional	**Y**	**N**
	Total: ___/4	