EFFECTS OF PRESESSION AND INTERSPERSED ATTENTION ON THE DISRUPTIVE BEHAVIORS OF AN ELEMENTARY STUDENT IN AN INCLUSIVE CLASSROOM

by

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ABSTRACT

KERRY WILSON KISINGER. Effects of presession and interspersed attention on the disruptive behaviors of an elementary student in an inclusive classroom. (Under the direction of DR. CHARLES L. WOOD)

The purpose of this study was to evaluate the effects of presession and interspersed attention in the disruptive behaviors and academic achievement of an elementary school student with disruptive behavior. Social validity measures were also conducted at the completion of the study to determine the student's perception of the intervention as well as the teacher's opinions pertaining to the feasibility of implementation and overall effectiveness of the intervention. Visual analysis of results indicated a decrease in disruptive behaviors during both presession and interspersed interventions, as well as an overall increase in academic achievement across treatment conditions. Social validity measures indicated the student was satisfied overall with the intervention and felt that it had a positive impact on his classroom behavior. Additionally, social validity measures completed by the classroom teacher indicated that while both interventions were reasonable to implement, appropriate for addressing the student's disruptive behaviors, did not detract from the learning environment, and possibly improved classroom productivity, she preferred the presession attention intervention based on its simplicity and ease of implementation.

To conclude, students who display challenging classroom behaviors maintained by peer or adult attention may benefit from teacher-directed, peer-mediated presession or interspersed attention interventions. Findings from the present study are consistent with

previous results indicating that these interventions demonstrate a functional relation with a decrease in challenging behaviors (Kelly et al., 2015; McGinnis et al., 2010; Rispoli et al., 2014), and in increases in academic achievement (Chung & Canella-Malone, 2010). Further, according to social validity measures, these interventions are simple, effective, and well-tolerated. Ultimately, determining an appropriate behavioral intervention requires an FBA, proper planning, and some discretion by practitioners. However, presession and interspersed attention interventions should be considered by classroom teachers as a potentially effective strategy for decreasing disruptive behaviors and increasing academic achievement.

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DEDICATION

I dedicate this dissertation to my all family and all my friends who have, for so many years, endured my disruptive behavior. I love you all.

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CHAPTER 1: INTRODUCTION

Students with disabilities often engage in disruptive behaviors that can impede their education and the education of others (Horner, Albin, Sprague, & Todd, 2000). Furthermore, students with disabilities are often at increased risk for out-of-school suspension (Sullivan, Van Norman, & Klingbeil, 2014), expulsion (Bock, Tapscott, & Savner, 1998; Morris & Morris, 2006), incarceration in juvenile detention centers (Keith & Mccray, 2002; Mallet, 2014), and later for the adult penal system (Skiba, Arredondo, & Williams, 2014). Additionally, academic outcomes such as classroom grades, graduation rates, and postsecondary institution attendance are often poor for students with unaddressed behavioral needs (Goran & Gage, 2011; Lane, Carter, Common, & Jordan, 2012).

As school suspension rates continue to increase across the United States, so do the detrimental effects on students (American Academy of Pediatrics, 2013). In the 2011-2012 school year, 3.2 million students (6.4% of public-school students) received out-of-school suspension, while 111,000 (approximately 0.2%) students were expelled (NCES, 2012). A disproportionate amount of these students are students with disabilities (Goran & Gage, 2011; Krezmian, Leone, & Achilles, 2006; Mallet, 2014; Skiba, 2002). Suspension has been shown to be an ineffective strategy for reducing students' problem behaviors (McCord, Widom, Bamba, & Crowell, 2000) and often serves only to detract from valuable instructional time (Horner & Carr, 1997; Lane, 2004).

Increasingly, students with disabilities requiring behavioral supports, including those with an emotional/behavioral disorder (EBD), Autism Spectrum Disorder (ASD), and intellectual disabilities (ID) receive special education services in general education settings (Agran, Wehmeyer, Cavin, & Palmer, 2010; McLeskey, Henry, & Hodges, 1999). Students with EBD, who receive services in an inclusive classroom, may require specialized social supports and strategies (Coleman, Webber, & Algozzine, 1999; Malmqvist, 2016). Similarly, as students with ASD become more prevalent in general education classrooms, teachers and students alike express the need for behavioral support (Able, Sreckovic, Schultz, Garwood, & Sherman, 2015; Von der Embse, Brown, & Fortain, 2011). Finally, students with more severe cognitive or intellectual disabilities receive greater access to general education curriculum and general education classrooms than ever before (Agran, Wehmeyer, Cavin, & Palmer, 2010). As a result, many of these students exhibit disruptive behaviors that need to be addressed by general education teachers (Kurth & Enyart, 2016).

Although many teacher-preparation programs require a course on classroom management prior to graduating with a degree in education, many programs provide inadequate support for meaningful classroom management skills when new teachers begin their teaching careers (Freeman, Simonsen, Briere, & Macsuga-Gage, 2014; Oliver & Reschly, 2010). Classroom teachers are often ill-prepared for and overwhelmed by students' disruptive classroom behavior and there is a strong need for simple and effective interventions that teachers can use to prevent these behaviors from occurring (Westling, 2010).

In many traditional behavior management systems, consequences follow a problem behavior in an attempt to decrease the likelihood of the behavior reoccurring (Martens, Peterson, Witt, & Cirone, 1986). Unfortunately for teachers and students, this punitive model of classroom management is simply not effective for many students, particularly those with disabilities (Algozzine & Algozzine, 2007). A growing body of research indicates that such challenging behaviors can be diminished or eliminated by changing the classroom environment or by addressing events that precede the problem behavior (Conroy & Stichter, 2003; Kern & Clemens, 2007; Wood, Kisinger, Brosh, Fisher, & Muharib, 2018).

Schoolwide Positive Behavior Interventions and Supports

In recent years, Schoolwide Positive Behavior Interventions and Supports (SWPBIS) have been developed to address disruptive behaviors across students and settings. SWPBIS is the preferred classroom management framework for students with disabilities as outlined in the Individuals with Disabilities in Education Act (IDEA, 2004). Based on the criteria provided by Flay et al. (2005), SWPBIS is an evidence-based practice (EBP) framed within a multi-tiered approach to proactively address challenging behaviors both in the classroom or school-wide (Horner, Sugai, & Anderson, 2010). SWPBIS has been defined as:

> the systematic and formal consideration of (a) measurable academic and social behavior outcomes, (b) information or data to guide decision making and selection of effective behavioral interventions, (c) evidence-based interventions that support student academic and social behavior success, and (d) systems

> supports designed to increase the accuracy and durability of practice implementation (Sugai & Horner, 2009a, p. 309).

SWPBIS has become a prominent model for addressing challenging behaviors in inclusive classrooms without resorting to suspensions, expulsions, or otherwise removing students from the classroom (Algozzine & Algozzine, 2007).

Based on the criteria set forth by Flay et al. (2005) SWPBIS is comprised of EBPs that have been successfully implemented across school settings (Horner et al., 2010; Sugai & Horner, 2009b). Specifically, SWPBIS has been implemented to obtain positive outcomes for minority students (Vincent & Tobin, 2011), low-income students (Marr, Audette, White, Ellis, & Algozzine, 2002), and students with disabilities (Algozzine, 2008) including students with EBD (Lewis, Jones, Horner, & Sugai, 2010; McCurdy et al., 2016), ASD (Lucyshyn et al., 2007), and students with ID (Freeman et al., 2006). SWPBIS also has a positive impact on students with and without disabilities in regards to academic achievement, attendance, and graduation (Bradshaw, Mitchell, & Leaf, 2009; Freeman et al., 2015). Teacher training in SWPBIS is necessary to manage disruptive student behaviors, particularly for students with disabilities such as EBD, ASD, or ID, as well as students who may be disproportionally at risk for special education identification, suspensions, and potential incarceration in detention centers.

Antecedent-based Interventions

Similar to SWPBIS practices, antecedent-based interventions are strategies that alter environmental factors that precede a challenging behavior and mitigate the behavior before it occurs (Kern, Choutka, & Sokol, 2002; Wood et al., 2018). These proactive approaches to managing behavior focus on altering events that may increase or maintain

problematic behavior rather than punishing problem behaviors. Antecedent-based interventions hold advantages over consequence-based approaches in that they can prevent problem behaviors prior to their occurrence (Bambara & Kern, 2005). Additionally, antecedent-based interventions are advantageous to consequence-based strategies because they can be effective quickly (Kern, Bambara, & Fogt, 2002). Finally, by altering the classroom environment in which the behavior occurs, the instructional environment can be greatly improved (Kern & Clemens, 2007) and students are more likely to experience academic success (Kruger et al., 2015).

Notable antecedent-based interventions include functional communication training (FCT), high-probability request sequences (HPRS), noncontingent reinforcement (NCR), and presession attention. Teachers can use FCT to teach students socially appropriate means of communication such as vocalizations, signs, cards, whiteboards, or gestures to replace disruptive behaviors (Cooper, Heron, & Heward, 2007). FCT is most effective for addressing problem behaviors that are maintained by social reinforcement such as peer or adult attention (Kurtz, Boelter, Jarmolowicz, Chin, & Hagopian, 2011). Proper implementation of FCT has been shown to be functionally related to a decrease in the occurrences of disruptive behaviors of students with disabilities (Casey & Merical, 2006; Schieltz et al., 2011).

Another effective antecedent-based intervention developed to address disruptive behavior and noncompliance in students with disabilities is HPRS (Luiselli, 2006). In a HPRS, the teacher asks the student to perform a series of simple requests for which the student has a high probability (high-p) of compliance. Immediately following favorable responses to the less aversive requests, the teacher asks the student to complete a more

difficult request or challenging task that has a low probability (low-p) of compliance (Cooper et al., 2007). Similar to FCT, when properly implemented, research has demonstrated functional relations between HPRS and decreases in disruptive behaviors of students with disabilities (Banda & Kubina, 2006; Pitts & Dymond, 2012). The final two ABIs mentioned, NCR and presession attention, will be discussed in greater detail below.

Noncontingent Reinforcement

Similar to FCT and HPRS, NCR is an antecedent-based intervention that provides known reinforcers to a student, such as access to a tangible item, on a fixed or variable interval schedule independent of a student's behavior. When noncontingent attention is provided on a fixed or variable interval it is referred to as interspersed attention. Providing more substantial access to such reinforcers (i.e., a tangible item or peer attention) works as an abolishing operation diminishing the value they may hold for the student (Cooper et al., 2007; Michael, 2000). NCR is an empirically supported treatment for students with disabilities who display problem or disruptive behaviors across a variety of settings and disability categories (Carr, Severtson, & Lepper, 2009).

NCR is a behavioral intervention functionally related to decreases in disruptive behaviors of students often served in the regular education setting with emotional/behavior disorders (EBD; Fisher, Ninness, Piazze, & Owen-Deschryver, 1996; Marcus & Vollmer, 1996; Rasmussen & O'Neill, 2006; Tomlin & Reed, 2012), autism spectrum disorder (ASD; Gouboth, Wilder, & Booher, 2007; Hagopian, Crocket, van Stone, DeLeon, & Bowman, 2000), intellectual disabilities (ID; Fisher et. al, 1999; Hanley, Piazza, & Fisher, 1997; Virues-Ortega, Iwata, Famie, & Harper, 2013; Wallace, Iwata, Hanley, Thompson, & Roscoe, 2012), developmental disabilities (DD; Moore,

Robinson, Coleman, Cihak, & Park, 2016; Ringdahl, Vollmer, Marcus, & Roane, 1997), and severe disabilities (Fisher, DeLeon, Rodriguez-Catter, & Keeney, 2004; Sprague, Holland, & Thomas, 1997) .

Additionally, research on NCR has demonstrated decreases in a number of challenging behaviors including aggression (Baker, Hanley, & Matthews, 2006; Britton, Carr, Kellum, Dozier, & Weil, 2000; DeLeon, Uy, & Gutshall, 2005; Goubouth, Wilder, & Booher, 2007), self-injurious behavior (SIB; Falcomata, Roane, Hovantez, Kettering, & Keeney, 2004; Kahng, Iwata, Thompson, & Hanley, 2000), and destruction of property (Kerth, Progar, & Morales, 2009; Long, Hagopian, DeLeon, Marhefka, & Resau, 2005; Rasmussen & O'Neill, 2006).

Finally, NCR is an antecedent function-based intervention designed to provide adequate reinforcers (e.g., attention, escape, tangible items) that provide the same function as disruptive behavior that does not require the behavior to be present (Carr, Severtson, Lepper, 2009). Therefore, NCR has been used to mitigate attention-maintained behaviors including SIB, destruction, and aggression across disability categories (Britton et al., 2000; Fisher et al., 2004; Fisher et al., 1996; Hanley, Piazza, & Fisher, 1997; Rasmussen & O'Neill, 2006; Tomlin & Reed, 2012).

Presession Interventions

One additional ABI, presession interventions, requires the presentation of a presession event or condition to a student before a classroom activity. Most commonly, presession interventions either include access to a tangible, preferred item or presession attention. When presented with a stimulus, such as a preferred item or verbal attention, prior to engaging in an activity, the reinforcing effects of that stimulus are decreased and

one is less likely to engage in behaviors that would ordinarily be reinforced (Michael, 2000). For example, if a student engages in disruptive behavior to gain peer attention, then receiving presession peer attention prior to a classroom activity may decrease the student's motivation to engage in those disruptive behaviors.

Presession interventions are behavioral interventions that have demonstrated a functional relation with a decrease in undesired behaviors across disability categories including EBD (McGinnis, Houchins-Juarez, McDaneil, & Kennedy, 2010), ID (Chung & Cannella-Malone, 2010; O'Reilly, 1999; Rapp, 2004), ASD (Kelly, Axe, Allen, & Maquire, 2015; Lang et al., 2010; O'Reilly et al, 2009; Rispoli et al., 2011), DD (Berg et al., 2000; Edrisinha, O'Reilly, Sigafoos, Lancioni, & Choi, 2011; McComas, Thompson, & Johnson, 2003; Rispoli et al., 2014), and severe disabilities (Berg et al., 2004; McComas, Thompson, & Johnson, 2003). Each of these students in these disability categories represent students that are increasingly receiving services in the regular education classroom (Vakil, Welton, O'Connor, & Kline, 2009).

Additionally, presession interventions have demonstrated a functional relation with a decrease in a variety of undesired behaviors including stereotypic behaviors (e.g., making loud sounds and gesture; Chung & Cannella-Malone, 2010; Rapp, 2004; Rispoli et al., 2014; Roantree & Kennedy, 2006), SIB (Edrisinha, O'Reilly, Sigafoos, Lancioni, & Choi, 2011), disruptive behaviors (e.g., yelling, tantruming, throwing objects; Kelly, Axe, Allen, & Maquire, 2015; Lang et al., 2010; O'Reilly et al., 2009; Rispoli et al., 2011; Scalzo & Davis, 2017), and out-of-seat behavior (Patterson, 2009).

Finally, presession interventions are function-based and have demonstrated functional relations with a decrease in undesired behaviors as a function of escape

(Roantree & Kennedy, 2006), access to a tangible item (Lang et al, 2010; O'Reilly et al., 2009), and automatically reinforcing behaviors such as stereotypy (Chung & Cannella-Malone, 2010; Rispoli et al., 2014; Scalzo & Davis, 2017). Most relevant to this current study, presession access to attention has demonstrated decreases in disruptive or challenging behaviors maintained by attention for students across disability categories, challenging behaviors, and settings (Berg et al., 2000; Edrisinha, et al., 2011; McComas, Thompson, & Johnson, 2003; McGinnis, et al., 2010; O'Reilly et al., 2007; Patterson, 2009).

Limitations of Previous Studies

This present study will focus on students with high-incidence disabilities who primarily receive special education services in a general education classroom. Previous studies have focused on providing presession attention (McComas et al., 2003; O'Reilly et al., 2007; Patterson, 2009) or NCR for attention (Britton et al., 2000; Fisher et al., 2004; Hanley, Piazza, & Fisher, 1997; Moore et al., 2016; Rasmussen & O'Neill, 2006; Tomlin & Reed, 2012), but have been limited by the number and age of participants, setting (i.e., not in a school classroom), and disability categories.

Little research has been conducted pertaining to presession attention and NCR of attention for students with high-incidence disabilities. However, a functional relation with these interventions and a decrease in disruptive behavior for students with low-incidence disabilities such as ID (Chung & Cannella-Malone, 2010; Virues-Ortega et al., 2013), ASD (Gouboth, Wilder, & Booher, 2007; Kelly et al., 2015), EBD (McGinnis et al., 2010; Tomlin & Reed, 2012), and severe disabilities (Berg et al., 2004; Fisher et al., 2004) has been established in the literature.

Furthermore, very few studies on presession attention or NCR of attention have included assignment accuracy measures for these interventions. Chung and Cannella-Malone (2010) did include an academic measure for students on a presession intervention; however, this study was conducted individually with each student and not an entire class. Although results indicated an increase in academic responding for each participant, further research is necessary to determine a functional relation with academic improvement across participants in a regular education classroom.

Additionally, Patterson (2009), whose study is most similar to this present one, only used a single student without a known disability. This study also lacked procedural fidelity, interobserver agreement, and social validity measures that improve the quality of single-case research (Horner et al., 2005). While this study was published in a peer-reviewed journal, further research is necessary to attempt to replicate the positive results of this study with fidelity.

Finally, no research currently exists comparing these two antecedent-based interventions (i.e., pressession attention versus NCR of peer attention) in regards to their functional relation with a decrease in disruptive behavior, increase in academic performance, or overall classroom participation throughout a lesson.

Purpose

Based on the need for more research on antecedent interventions, the purpose of this study is to determine the comparative effects of presession attention versus interspersed attention on the disruptive behavior of students with high-incidence disabilities. This study will seek to answer the following questions:

1. What is the effect of presession attention on the disruptive behaviors of an elementary student?
2. What is the effect of presession attention on the percentage of correct responses to assigned tasks of an elementary student?
3. What is the effect of interspersed attention on the disruptive behaviors of an elementary student?
4. What is the effect of interspersed attention on the percentage of correct responses to assigned tasks of an elementary student?
5. What are the comparative effects of presession attention versus interspersed attention on the disruptive behaviors of an elementary student?
6. What are the comparative effects of presession attention versus interspersed attention on the percentage of correct responses to assigned tasks of an elementary student?
7. What are the comparative effects of presession attention versus interspersed attention on disruptive behavior across an instructional session?
8. What are the teacher's opinions on the procedures and outcomes of the interventions on student's behavior?
9. What are student's opinions on the procedures and outcomes of the interventions?

Significance

This study is significant because it will contribute to the body of literature concerning presession attention and interspersed attention in the following ways. First, while many studies have demonstrated a functional relation between either presession attention or interspersed attention (i.e., NCR) and a decrease in disruptive behavior

(Edrisinha, et al., 2011; McComas et al.; McGinnis, et al., 2010; Rasmussen & O'Neill, 2006; Tomlin & Reed, 2012), no study has compared the effects of these two interventions on the disruptive behaviors of students with disabilities. This study will provide valuable insight on how to mitigate attention-seeking disruptive behaviors effectively by selecting the most appropriate antecedent-based intervention (i.e., presession attention or interspersed attention) based on individual student needs, classroom resources, and available instructional time.

Second, more research in FBIs and ABIs (i.e., presession attention and NCR) is needed for students with high-incidence or no disabilities. These students comprise a large sample of the general education population taught by a regular education teacher. Some research indicates that students with high-incidence disabilities (e.g., learning disabilities) can respond well to FBIs (McKenna, Flower, Kim, Ciullo, & Haring, 2015). However, while it is posited that students with high-incidence or no disabilities displaying disruptive behaviors would benefit from these interventions, there is currently a dearth of studies available in this body of research.

Third, in addition to measuring a behavioral variable (i.e., intervals of disruptive behavior), this study will also determine the effects of presession and interspersed attention on assignment completion. Few antecedent-based intervention studies have focused on an academic variable such as percentage of task completion or percentage of correct items. This is significant due to the fact that practitioners will be interested in a socially valid intervention not only designed to decrease disruptive behaviors, but also help students complete classroom tasks and assignments.

Fourth, since the intervention will be used with all students in the classroom, data will not just be collected for the target students, but on the on-task-engagement for the entire class throughout regular intervals. Although these interventions are targeted for students displaying attention-maintained behaviors, it is possible that non-targeted students will show improvement in task-engagement and participation. Additionally, the data will reflect how many students are on-task as recorded in 5-min interval from the beginning until the end of the class period. These data can help determine the effectiveness of each intervention throughout each session.

Finally, many previous antecedent-based interventions provided attention in clinical or other separate settings (e.g., conference room) rather than classrooms. As a result, these interventions may be impractical for classroom teachers and can result in lost instructional time. Although the intervention is a peer-delivered and academic (i.e., Think, Pair, Share), it is still a means of delivering peer attention. It is possible that academic interventions can be utilized by classroom teachers to decrease disruptive behavior and increase task-engagement by minimizing attention-maintained behaviors.

Delimitations of this Study

There are several delimitations to this study. First, the selection of target students will be based on teacher nomination in a small, private elementary school. All target students will have high-incidence disabilities (or be at-risk) and receive accommodations in the general education classroom. Due to the nature of single-case research, generalization to other populations and settings can be difficult to infer (Baer, Wolf, & Risley, 1968). Therefore, further replication will be required to determine the effects of

presession and interspersed attention on the disruptive behaviors of other students across different settings.

Second, this study will focus on minor disruptive behaviors (e.g., speaking out of turn, making distracting noises and/or gestures), but will not focus on more serious behaviors such as aggression, defiance, or self-injury. Similarly, target behaviors are maintained by teacher and/or peer attention as determined by an FBA. An experimental functional analysis will not be completed unless absolutely necessary due to the fact that this intervention should be able to be completed by a practitioner with minimal behavioral training or support (Bethune & Wood, 2013). Additionally, the function (i.e., escape-maintained or automatically reinforced) of other behaviors will not be the focus of this study and further research will be necessary to address the comparative effects of these interventions on those behaviors.

Definition of terms

Abolishing operation. Any variable that decreases the effectiveness of a consequence or reinforcer (Laraway, Snycerski, Michael, & Poling, 2003)

Antecedent-based intervention. Behavioral strategies that alter environmental factors that precede a challenging behavior and mitigate the behavior before it occurs (Kern, Choutka, & Sokol, 2002)

Disruptive behavior. Any challenging behavior that distracts the student, other students, or teacher; any behavior that detracts from the learning environment by as measured by the loss of instructional time.

Establishing operation. Any variable that increases the effectiveness of a reinforcer (Laraway, Snycerski, Michael, & Poling, 2003)

Functional behavior assessment. Systematic assessment of an individual's problem behaviors to identify variables that set the occasion for the occurrence of problem behaviors and the consequences that maintain the behaviors (O'Neil et al., 1997)

Function-based intervention. Support plans created using information identified in a functional-based assessment to address the function of a student's challenging behaviors (Cooper et al., 2007)

Interspersed attention. Form of NCR in which there is a noncontingent presentation of a stimulus (i.e., attention) on a fixed interval throughout a classroom lesson or activities.

Motivating operation. Any variable that alters (a) the reinforcing or punishing value of a stimulus and (b) the frequency of any behavior previously affected by that reinforcing or punishing stimulus (Michael, 2000).

Negative reinforcement. When a behavior is followed immediately by the contingent removal of a stimulus that increases the future frequency of the behavior (Cooper et al., 2007)

Noncontingent reinforcement. "A procedure in which stimuli with known reinforcing properties are presented on fixed-time (FT) or variable-time (VT) schedules completely independent of behavior; often used as an antecedent intervention to reduce problem behavior" (Cooper et al., 2007, p. 700)

Positive reinforcement. When a behavior is followed immediately by the contingent presentation of a stimulus that increases the future frequency of the behavior (Cooper et al., 2007)

Presession attention. Presentation of a presession stimulus (i.e., attention) to a student prior a classroom lesson or activity.

CHAPTER 2: REVIEW OF LITERATURE

The following sections will provide a detailed synthesis of relevant literature that provides the rationale and framework for conducting the present study. The first section will provide pertinent theoretical concepts that comprise the essential behavioral principles on which this study is based. The next section will outline the rationale and literature to support conducting an FBA to determine the function of behavior in a school setting. The following section provides literature supporting the use of function-based interventions to further support students with high-incidence disabilities in the regular education setting. Finally, the last two sections are comprised of comprehensive literature reviews to support the use of the antecedent-based behavioral interventions presession attention and NCR.

Key Principles of Behavior Analysis

The following section will outline important concepts in behavior analysis. These topics are necessary to address before beginning the review of the related literature and will act as a foundation upon which interventions are built. The following discussion will include sections on the function-based model of behavior, positive and negative reinforcement, and motivating operations (MOs) including both establishing operations (EO) and abolishing operations (AO).

Function-based model of behavior. Prior to reviewing the literature on function-based interventions, it is necessary to describe the underlying assumptions of a function-based model of behavior developed by pioneers in behavior analysis and outlined by

Scott, Anderson, and Alter (2012). This model comprises three major assumptions. First, behavior is learned. All behaviors that are not innate (e.g., muscle reflexes or blinking) have either been learned by watching others or based on the consequences of that behavior (Watson, 1913). Second, behavior is lawful. Behavior is not a random occurrence but is influenced by the surrounding environment in predictable patterns (Pavlov, 1927). Third, behavior can be changed. Behavior can often be changed by altering the consequences that occur after a behavior or by changing the events that precede the behavior (Skinner, 1953). Using this information as a foundation, it is next necessary to describe how these learned behaviors can be shaped and changed using reinforcement.

Positive reinforcement. Rooted in the work of B.F. Skinner (1938), positive reinforcement occurs when a behavior is followed by the contingent presentation of a stimulus that increases the frequency of the behavior in the future during similar conditions (Cooper et al., 2007). Positive reinforcement can exist in the form of verbal praise, edible treats, tangible items, or can occur automatically (e.g., self-stimulatory behaviors) that immediately follow a behavior. These are known as reinforcers because they are contingent following a behavior and increase the likelihood of the frequency of future behaviors. Unconditioned reinforcers (e.g., food, oxygen, warmth or water) occur in the natural environment whereas conditioned reinforcers, previously neutral, must first be paired with an unconditioned reinforcer. Finally, stimulus preference assessments may be conducted to determine appropriate reinforcers for an individual by identifying stimuli preference, the relative value of that preference (e.g., high vs. low preference), and what

conditions surround that preference when demands or schedules of reinforcement are modified (Cooper et al., 2007).

Negative reinforcement. Similarly attributed to the work of Skinner (1938), negative reinforcement occurs when a behavior is followed by the contingent removal, termination, or reduction of a stimulus that increases the frequency of the behavior in the future during similar conditions (Cooper et al., 2007). Not to be mistaken for punishment, negative reinforcement also increases the future likelihood of future behavior, but necessitates the removal of an aversive condition. Additionally, unconditioned reinforcers can occur naturally such as loud noises, intense light, extremely hot or cold temperatures, or any other source of pain and discomfort. Conditioned reinforcers can be paired with these naturally occurring unconditioned reinforcers to elicit a similar response. Negative reinforcement often involves an escape contingency in which an aversive condition is removed (e.g., the buzzer of an alarm is turned off) or an avoidance contingency in which an aversive condition is postponed (e.g., procrastinating a difficult task; Cooper et al., 2007).

Motivating operations. Michael (2000) defined a motivating operation as any variable that alters (a) the reinforcing or punishing value of a stimulus (value-altering effect) and (b) the frequency of any behavior previously affected by that reinforcing or punishing stimulus (behavior-altering effect). The value-altering effect addresses the effectiveness of a reinforcer at a specific time and/or surrounding events. For example, a piece of candy may generally be a strong reinforcer for a child, but the value will be greatly diminished after Halloween consumption of treats (i.e., satiation). The behavior-altering effect refers to the frequency, duration, or magnitude of a behavior in a given

time or surrounding events. For example, an athlete may be deprived of water after a run causing him/her to drink substantial amounts of water upon returning home.

An MO can either increase the effectiveness of a consequence or reinforcer, called an establishing operation (EO), or decrease the effectiveness of a consequence or reinforcer, called an abolishing operation (AO; Laraway, Snycerski, Michael, & Poling, 2003). An EO can generate a state of deprivation increasing the reinforcing effects of a stimulus (e.g., hunger or thirst), whereas an AO leads to a state of satiation decreasing the reinforcing effects of a stimulus (e.g., ingesting large amounts of food or water; Cooper, Heron, & Heward, 2007).

Functional Behavior Assessment

In the following section, functional behavior assessment (FBA) measures will be addressed as they pertain to students with disabilities. This section will include seminal research studies on FBAs, the defining and essential characteristics of FBAs including a Functional Analysis (FA), the procedures necessary to complete an FBA in a classroom environment, the rationale for using an FBA to create function-based behavioral interventions and plans, and the significance of using FBAs for special education students based on the Individuals with Disabilities Education Improvement Act (IDEIA; 2004) and current legal precedents.

Functions of behavior can be placed into three main categories: (a) to obtain or receive a reinforcing stimulus (e.g., a tangible item or attention), (b) to avoid or be removed from an aversive stimulus (e.g., an unpleasant task or experience), or (c) to obtain an automatically reinforcing stimulus (e.g., stereotypic behaviors; Cooper et al., 2007; Repp & Horner, 1999). The topography or form of a specific behavior (e.g., a

student yelling at a teacher) does not reveal the function that behavior serves the individual. Students may engage in a disruptive behavior for a variety of functions (O'Neill et al., 2007). Perhaps the student is attempting to gain teacher attention. It is also possible that the student is trying to be removed from class due to a difficult class or simply because of the sensation that the behavior produces. Similarly, an individual can engage in the same or similar behavior in different situations to serve different functions. Ultimately, it is necessary to conduct an accurate FBA to determine the purpose of a target behavior.

Sugai et al. (2000) define an FBA as "a systematic process of identifying problem behaviors and the events that (a) reliably predict occurrence and nonoccurrence of those behaviors and (b) maintain the behaviors across time" (pg. 137). An FBA not only identifies potential problem behaviors, but, perhaps more importantly, focuses on the events and environment surrounding the behavior that can influence, manipulate, or predict its future occurrence. According to underlying assumptions of behavior, learned behaviors are lawful and can be changed if the function of the behavior is fully understood (Scott, Anderson, & Alter, 2012). Conducting an FBA is the most effective means of mitigating problem behaviors because often the underlying cause or condition maintaining a behavior can be determined, those conditions can often be avoided, and sometimes a replacement behavior can be taught (Oakes, Lane, & Hirsch, 2018).

Simply put, conducting an FBA prior to implementing a behavior change program or intervention is much more effective than implementing an intervention without an FBA (Umbreit, Ferro, Liaupsin, & Lane, 2007). When the function of a behavior has been determined by an FBA, research indicates that the resulting intervention has a larger

impact on decreasing the targeted problem behavior (Filter & Horner, 2009; Ingram, Lewis-Palmer, & Sugai, 2005; Payne, Scott, & Conroy, 2007). Additionally, Scott et al. (2004) concluded that FBAs conducted in a school setting were a more efficient means of addressing chronic problem behaviors. Ultimately, it is more efficient to understand the function of a behavior, rather than simply trying interventions at random. Additionally, multiple staff members including classroom teachers can be easily trained to conduct an FBA with various "user-friendly" methodologies in the general education classroom (Asmus, Vollmer, & Borrero, 2002; Patterson, 2009).

In one formative study, Lovaas, Freitag, Gold, and Kassorla (1965) investigated the controlling variables surrounding the self-destructive behavior of a nine-year old with schizophrenia. Her behaviors included banging her head against walls and furniture, pinching and slapping herself, and setting her hair on fire by sticking her head in a wall heater. Through a series of related studies, results indicated a functional relation between occurrences of self-destructive behavior and external controlling variables such as delivering social attention or deprivation from social attention (e.g., ignored by researchers). Researchers noted that this child's learned behavior was lawful, capable of change, and functioned as a means of gaining adult attention.

In another seminal article, Carr (1977) evaluated "the motivation, rather than the treatment, of self-injurious behavior" (pg. 800). Carr posited that the self-injurious behavior (SIB) served a function and developed a series of hypotheses based on currently available research. He suggested that behavior was maintained primarily by either social reinforcement (i.e., attention), avoidance of an aversive stimulus (e.g., a demanding task or event), or the act itself was automatically reinforcing (e.g., a self-stimulating act).

Rather than identifying and addressing behavior in isolation, Carr iterated that motivational sources and behavioral relationships must be considered. This article marked a shift in focus on the behavior itself to determining the underlying purpose of behavior that is being exhibited.

Building upon the work of Lovaas et al. (1965) and Carr (1977), Iwata, Dorsey, Slifer, Bauman, and Richman (1982/1994) conducted a series of related studies to determine the functional relationships between the SIB and present environmental conditions of nine children with developmental disabilities. Prior to this study, little research had been conducted to determine the role that environment played in shaping and influencing SIB or problem behaviors in general. Each of these students were exposed to alternating conditions that included (a) free operant play, (b) experimenter demands, and (c) social attention. Data were collected for each child during each condition to determine a possible relation between instances of SIB and environmental conditions. Results indicated that for six of the nine participants, occurrences of SIB were clearly and consistently higher in one condition versus another indicating that SIB had a function for that participant. The process detailed by Iwata et al. (1982/1994) continues to serve as an outline for conducting a functional analysis (FA) to describe and determine the function of a behavior.

Currently, the term FBA is used as an all-encompassing procedure used to describe any method of assessment that attempts to determine the relationship between environmental events and a target behavior (Cooper et al., 2007). There are various means of determining the relationships between environment and target behavior depending on the setting, type and severity of behavior, and resources available (e.g.,

time, staff, or money) to the person conducting the FBA (Repp & Horner, 1999). These methods can be placed in the following general categories: indirect FBA, direct FBA, and functional analysis (FA). An overview of each method will be discussed in the following sections.

Indirect FBA. An indirect FBA is perhaps the simplest and most popular means of determining the underlying function of a behavior (Rooker, DeLeon, Borrero, Frank-Crawford, & Roscoe, 2015). Indirect FBA methods include measures such as completing functional assessment interviews (FAI; Kern, Dunlap, Clarke, & Childs, 1994), reviewing historical records (e.g., IEP progress reports or disciplinary referrals), and utilizing behavior ratings and checklists. These checklists are often completed by parents and/or practitioners in order to quickly identify problem behaviors and events immediately surrounding them. Amongst others, these behavior scales include: Motivation Assessment Scale (Durand & Crimmins, 1988), Questions About Behavioral Function (QABF; Matson & Vollmer, 1995), and Functional Assessment Screening Tool (FAST, 2013).

Unfortunately, since indirect FBA methods involve assessing a target behavior apart from directly observing the behavior itself (e.g., interview, educational data, or a screening tool) there are certain limitations that must be considered prior to using them to determine the function of a behavior (Gresham, Watson, & Skinner, 2000). Indirect FBA methods are the least accurate method of determining the function of a behavior, lack consistency with different raters, and are often considered to be unreliable across different students and behaviors. (Dufrene et al., 2017; Kearney, Cook, Chapman, & Bensaheb, 2006; Witt, Daly, & Noell, 2000). Although indirect FBA measures can serve

to aid in identifying and describing a target behavior, they should always be followed by conducting a direct FBA (Chandler & Dahlquist, 2006).

Direct FBA. In contrast to an indirect FBA, a direct FBA requires the direct observation and requisite observational data to be collected in a natural setting such as in a classroom, the home, or in the community where the target behavior occurs (Umbreit et al., 2007). The occurrence of a target behavior is recorded in relation to the occurrences of antecedent events (i.e., events immediately preceding the behavior), as well as the consequence of the target behavior (i.e., events immediately following the behavior; Cooper et al., 2007). While multiple measures of direct FBAs can be utilized, including antecedent-behavior-consequence (ABC) continuous recording (i.e., anecdotal narratives regarding the antecedents and consequences relating to a behavior) and functional behavior scatterplots (i.e., graphs or charts the signify days and times of targeted behaviors), the most common and appropriate means for conducting a direct FBA in a school setting is ABC narrative recording (Cooper et al., 2007; Oliver, Pratt, & Normand, 2015).

ABC narrative recording was first introduced by B.F. Skinner (1953), but later adopted and refined by Bijou, Peterson, and Ault (1968). Using a four-column format, researchers simplified a student's actions into (a) time in which the event occurred, (b) antecedent stimulus events immediately preceding the target behavior, (c) the response (i.e., the observable manifestation of the target behavior), (d) and consequent stimulus events following the target behavior. This formative study still provides the framework for ABC data collection and recording that includes a definition of the setting, using operational definitions capable of observation and measurement, and documentation of

observer reliability. As with indirect FBA methods, ABC data collection and other direct FBA methods can also be completed by a classroom teacher, but have the advantage of being much more accurate for the determination of function of a behavior (Alter, Conroy, Mancil, & Haydon, 2008).

O'Neill et al. (1997) defined a direct FBA as a strategic means of collecting functional assessment information by observing a person's problem behavior as it manifests in daily routines. The authors suggested conducting an FBA using ABC recording on a functional assessment observation (FAO) form. Included on a FAO form are (a) dates and information identifying the observer, (b) time intervals marking the data recording session, (c) target behavior(s), (d) predictors identified as possibly triggering target behavior, (e) the perceived function of the behavior, (f) actual consequences following the behavior, (g) observers notes and comments, and (h) days the behavior occurred and number of behavior events (O'Neill et al., 1997). Further, each session should only last between 15-20 minutes and 2-5 sessions are necessary to provide a complete assessment of targeted behaviors. All observations should take place during the time and in the location in which problem behaviors occur most frequently or predictably. If necessary, observational data may be collected in more than one setting. This aggregate data can then be synthesized to identify target behaviors and analyzed to determine the perceived function of the behavior.

Functional analysis. Beginning with the work of Iwata et al. (1982/1994), an FA is the final method considered to be a part of the FBA process. According to Cooper et al. (2007), an FA is an analysis of the function of a problem behavior that occurs naturally in a person's environment, but is systematically manipulated in a controlled environment or

under clinical conditions. An FA is more than just observing and recording ABC events, but actively creating conditions in which a target behavior, as well as the requisite antecedent events are more likely to occur. When utilizing an FA, researchers will typically include (a) an alone condition in which no attention or demands are placed on a participant, (b) an escape from demand condition in which an aversive task or stimulus is present, (c) an attention condition contingent on occurrences of target behavior and (d) a control condition in which reinforcement is freely available (Repp & Horner, 1999). Since each environmental condition is manipulated in isolation, a FA can consume valuable time and resources.

Additionally, some current research suggests that a full FA is not always necessary. Alter, Conroy, Mancil, and Haydon (2008) compared the results of a number of indirect (e.g., functional interviews and behavioral screeners) and direct FBA (i.e., ABC observation) methods to an FA. The researchers found that while indirect methods of determining the functional of a behavior were inconsistent, direct methods matched the findings of an FA for all four participants. And although FA procedures have been taught to classroom teachers with high-levels of fidelity (Iwata et al., 2000), an FA is only necessary when indirect and direct FBA methods are unable to accurately and consistently determine the function of a behavior (O'Neill, 1997).

Increasingly, there is a need to conduct an FBA in the school setting to meet the needs of students with disabilities who present challenging behaviors (Alter et al., 2008). Included in IDEA (2004), is the provision that students should be place in their least restrictive environment (LRE). An FBA is mandated when a student is moved to a more restrictive environment due to behavioral concerns or if the student accumulates more

than 10 absences due to school suspensions (Drasgow & Yell, 2001). An additional provision of IDEA (2004) states that any student with a disability is entitled to a free appropriate public education (FAPE) including necessary academic and behavioral supports. Therefore, any students demonstrating the need for behavioral supports has a legal right to receive those supports in their LRE. Conducting FBA is considered best practice when a student requires any behavior intervention plan (BIP) to support challenging behaviors that may or may not be a manifestation of an individual's disability (Becker et al., 2010).

Although the necessity and demand of employing FBAs in the classroom has increased over the years (Dunlap & Kincaid, 2001), research indicates that many classroom teachers and behavior specialists are not considering the function of a behavior when designing and implementing interventions (Scott, Liaupsin, Nelson, & McIntyre, 2005). Additionally, Scott et al. (2005) report that teachers face many other barriers including a lack of proper training and support to conduct an FBA, as well as an inability to connect the results of an FBA with a meaningful intervention. Although it is evident that teachers and specialists are exposed to some training on functional assessments, the ability to adequately conduct an FBA and develop interventions that truly support the needs of students with challenging behaviors will be integral for student success in the classroom (O'Neill & Stephenson, 2010).

Further, Scott et al. (2004) conducted a meta-analysis to review the effectiveness and efficiency in which classroom teachers with minimal training could accurately determine the function of a behavior by conducting FBA procedures in a general education setting. While some studies yielded positive results, others affirmed that

without assistance, many teachers failed to accurately determine the function of many students' behaviors. A major limitation of this study was the inclusion of a wide variety of FBA methods including indirect FBA measures such as behavioral screening checklists and FAI that have previously demonstrated weak reliability across observers and poor reliability in regards to determining the function of a behavior (Dufrene et al., 2017). Ultimately, the researchers conclude that while direct FBA methods, including FA, may not be efficient, they are more likely to be accurate and therefore effective.

In an attempt to incorporate FBA in a general education setting, Asmus, Vollmer, and Borrero (2002) outlined a comprehensive model describing the comprehensive use of FBAs for students with behavioral needs in a school wide environment. This proposal incorporated completing descriptive measures (e.g., teacher/parent interviews and behavior screening tools) as well as direct ABC assessments (Bijou et al., 1968), conducting a brief FA (Chandler & Dahlquist, 2006), and implementing consequence-based interventions focusing on known reinforcers rather than punishment as well as antecedent based behavioral interventions. Additionally, the authors stressed the importance of adequate teacher and parent training on creating positive student outcomes. Finally, while the authors noted that this method can be time consuming, they offer that behavioral interventions are not "quick fixes" and that all elements are necessary for a full and accurate FBA to be conducted in a whole school environment.

In addition to being reasonable in a school setting, FBAs are compatible with many other whole school behavior systems such as Positive Behavior Interventions and Supports (PBIS; Sugai et al., 2000). Currently, PBIS is the recommended behavior management strategy for students with disabilities as outlined in IDEA (2004). While the

use of an FBA is essential for third-tier (i.e., individualized plans for students demonstrating significant behaviors) behavioral interventions requiring a BIP, Sugai et al. (2000) state FBAs may be useful across all tiers of PBIS to support all students. This is particularly accurate for students with minor disruptive behaviors which may detract from their ability to learn and the teacher's ability to teach in the general education setting.

Finally, utilizing the results from an accurate FBA leads to more effective interventions for students displaying challenging behaviors (McIntosh & Hadas, 2007). Numerous studies have been conducted comparing the effects the function-based versus non-function-based interventions. The results of each of these studies revealed that insignificant improvements in student's behavior for non-FBA interventions, while significant functional relations were determined for the interventions based on function (Filter & Horner, 2009; Ingram, Lewis-Palmer, & Sugai, 2005; Russel & Horner, 2006). Again, while conducting thorough and accurate FBA procedures may require substantial resources, students and teachers benefit from determining the function of a behavior prior to the implementation of a behavior management plan.

Summary of FBA

In summary, behaviors are learned, lawful, and capable of being manipulated and changed (Scott et al, 2005). Additionally, behaviors serve a purpose or a function for the individual exhibiting them (Carr, 1977; Lovaas et al., 1965). The function of these behaviors fall into three major categories including (a) seeking attention or a tangible, (b) task avoidance, or (c) sensory reinforcement (Repp & Horner, 1998). Researchers, behavioral specialist, and other practitioners can conduct FBA procedures, such as

indirect measures (e.g., parent interviews and behavioral checklists), direct measures (i.e., ABC event recording), or an FA determine the function of an individual's behavior (Cooper at al., 2007). By identifying the function of a target behavior, specific interventions and functionally equivalent behaviors can be taught in order to mitigate any harmful or detrimental effects of the target behavior exhibited (Oakes et al., 2018). Increasingly, FBA procedures are becoming necessary in public schools and in the general education setting to meet the needs of students with disabilities that present challenging or disruptive behaviors (Alter et al., 2008). Not only is it possible to conduct an FBA in a school settings with adequate supports (Asmus et al., 2002), but FBAs are congruent with other behavior management systems (i.e., PBIS; Sugai et al., 2000) and can lead to developing interventions that provide better student outcomes (McIntosh & Hadas, 2007).

Function-Based Interventions and Antecedent-Based Interventions

The following section will discuss function-based interventions (FBIs) and antecedent-based interventions (ABIs). These are broad terms that refer to a variety of behavioral interventions and some could accurately be categorized into either category or perhaps both. While many of these interventions share similar characteristics and defining traits, they will be addressed in separate sections. The following sections will include a brief overview highlighting core characteristics of the intervention, pertinent seminal research studies, the implementation of each intervention across categories of target behavior, and research regarding its inclusion in a general education classroom.

Function-based interventions. Scott and Cooper (2017) maintain that the only purpose of conducting an FBA is to properly propose and implement an FBI. An FBI is a

behavioral plan or intervention designed around the results of an FBA considering the function of a behavior and accounting for the surrounding environmental factors that may influence behavior (Oakes et al., 2018). Similarly, Dunlap and Kern (1996) state that an FBI must teach alternative behaviors that are functionally equivalent and also change the environment when external conditions exert control over a behavior. Such conditions may include the physical environment of the classroom as well as seating arrangements and proximately to peers. FBIs primary consideration is the function of behavior as determined by an FBA, so FBIs can be based on antecedent conditions (i.e., implemented before the behavior occurs) or based on consequential conditions (i.e., implemented after the behavior occurs; Oakes et al., 2018).

FBIs hold certain advantages over non-FBI interventions. Ingram, Lewis-Palmer, and Sugai (2005) conducted a study to determine the effects of FBIs versus non-FBIs for two sixth grade students who exhibited low-levels of task engagement and problem behavior (e.g., playing with toys and making disrupting noises during lessons). Based on the results of an FBA, an FBI was developed for each student, as well as a more generic non-FBI. Using an ABCAB reversal design, results indicated substantially fewer occurrences of problem behavior during the FBI condition compared to the non-FBI treatment condition and baseline observations. Further research has yielded similar results (Newcomer & Lewis, 2004: Payne, Scott, & Conroy, 2007).

Additionally, research suggests that the use of FBI may decrease the use punitive measures (e.g., suspension) allowing students more opportunities to be present and on-task in the classroom (Smith, Bicard, Bicard, & Casey, 2012). Although FBIs are not currently considered evidence-based practices based on the criteria set forth by Horner et

al. (2005), they have shown to be effective for teaching various skills (i.e., communication and academic), decreasing challenging problem behaviors, and across disability categories (Lane, Kalberg, & Shepcaro, 2009).

Functional communication training (FCT). One FBI that can be utilized to prevent, discourage, and replace disruptive behavior for students with disabilities is FTC. FCT is a practical and effective solution for individuals that may exhibit more severe behavior problems (Tiger, Hanley, & Bruzek, 2008). Using FCT, participants are taught to use socially appropriate means of communication such as vocalizations, signs, cards, whiteboards, or gestures to replace disruptive behaviors (Cooper et al., 2007). Additionally, FCT is most effective for addressing problem behaviors that are maintained by social reinforcement such as peer or adult attention (Kurtz, Boelter, Jarmolowicz, Chin, & Hagopian, 2011).

In one seminal study, Carr and Durand (1985) conducted an experiment to determine the effects of teaching a replacement behavior functionally equivalent to the disruptive behaviors (e.g., tantruming, aggression, and SIB) and academic engagement of four children with disabilities. Based on the results of an FBA, the researchers taught the children to respond with phrases such as “I don’t understand” or “Am I doing good work” in order to properly gain adult attention rather than engaging in challenging behaviors. Using a reversal design, results indicated that all of the participants displayed lower instances of problem behavior and higher levels of academic engagement after receiving FCT and during subsequent sessions. For the first time, this landmark study based the intervention on the function of a behavior and taught an equivalent behavior for children with disabilities to communicate without engaging in problem behaviors.

In a more recent study, Schieltz et al. (2011) conducted a study to investigate the effects of FCT on the destructive and disruptive behavior of 10 young children with varying disabilities. Participants of this intervention were selected because they met the criteria for displaying both destructive and disruptive behavior. Although FCT was taught to address destructive behavior, such as self-injury, aggression, or property destruction, additional data were analyzed to address less aggravating disruptive behaviors, such as crying, screaming, swearing, and noncompliance. Using a reversal design with an extinction baseline, the participants learned to use a picture-card and a microswitch to communicate when they required a break from work or wanted to play. The results of the study indicated a functional relation between the use of FCT in the form of a picture-card and microswitch and a decrease in destructive behaviors as well as non-targeted disruptive behaviors.

In a final related study, Schmidt et al. (2014) conducted a study to determine the effects of discrete-trial functional analysis and FCT on the disruptive behavior of three students with ASD. The three participants ages ranged from 9 to 15 years old, lacked strong communication skills, and presented persistent problem behaviors that included aggression, noncompliance, and property destruction. A functional analysis revealed that the behaviors were reinforced or maintained by a “tangible-edible” for two participants and by attention for the other participant. During the intervention, each student was taught to express their needs through verbal or signed communication. Using a multiple-baseline design across participants, results of this study indicated that the participants displayed a functional relation between FCT and a decrease in disruptive behavior with two participants generalizing skills across settings.

Social skills instruction. Many students with disabilities engage in disruptive or challenging behaviors due to an overall deficit in social skills (Cook et al., 2008). The lack of social skills coupled with an increase in challenging behaviors often leads to poor postschool (National Longitudinal Transition Study–2, 2006) and academic outcomes (Lane, Carter, Common, & Jordan, 2012). The term social skills is broadly defined as engaging in pro-social behaviors, having positive relationships with peers and adults, and being socially accepted by peers (Gresham, Elliot, & Kettler, 2010). While interventions for students with disabilities who lack social skills can be implemented, they often are not congruent with the student's needs and lack the ability to be maintained or generalized in other settings (Gresham, 2015).

McKenna, Flower, and Adamson (2016) reviewed the current literature to determine the efficacy of function-based behavior interventions designed to teach replacement behaviors for students with deficits in pro-social behavior skills. Using the What Works Clearinghouse (WWC; Kratochwill, 2010) criteria for design and evidence standards, the researchers reviewed selected and reviewed 16 articles that met the specified criteria including (a) published in a peer-reviewed journal, (b) occurred in a K-12 school setting, (c) included students receiving special education services, and (d) based interventions on results of an FBA. Based on the WWC criteria, the results of the literature review indicated that while FBI interventions cannot currently be considered an evidence-based practice (EBP), there is sufficient evidence to be considered a promising practice. These findings indicate that the use of function-based social skills interventions may be effective for students that do not respond favorably to typical or traditional social skill programs.

Self-management. Self-management is described as applying behavior change principals and interventions to oneself to produce a desired change in behavior (Cooper et al., 2007). Additionally, Cooper et al. (2007) note that conducting an FBA to determine the function of the behavior can increase the efficiency and effectiveness of a self-management intervention. While self-management strategies vary according to individual needs and desired outcomes, research indicates that function-based self-management systems (e.g., self-monitoring) may be more effective than self-management strategies not based on the function of a behavior (Briere & Simonson, 2011).

In a related study, Hansen, Wills, Kamps, and Greenwood (2014) conducted a study to investigate the effects of a function-based self-management intervention on the problem behaviors and academic engagement of three students with EBD. With ages ranging from 7 to 12, each student displayed disruptive behaviors such as making distracting noises and gestures, inappropriately talking to other students, aggression, and SIB. Based on the results of an FBA, the function of the disruptive behavior for two of the students was escape, while the function for the third student was for peer and adult attention. The intervention consisted of a checklist of four appropriate behaviors each that student would record at preset intervals (a) following directions the first time, (b) ignoring others inappropriate behaviors, (c) staying in your seat, and (d) raising your hand to get teacher's attention. If the students satisfactorily met the requirements of the self-monitoring checklist and did not engage in disruptive behaviors, then they were given a ticket which allowed them a break with a friend. The consequence for abiding by the self-management plan served the same function that disruptive behavior did allowing for both escape from a task in addition to accessing peer attention. Using an ABCBCDC

reversal design, results indicated a functional relation with a decrease in disruptive behaviors, as well as an increase in on-task academic engagement.

Challenging behavior across disability categories. Research indicates FBIs are effective at decreasing challenging behavior for students with disabilities across disability categories (Dunlap & Fox, 2011). Challenging behaviors can include defiance, disruptive gestures or vocalizations, out-of-seat behavior, or noncompliance. FBIs have demonstrated a functional relation with a decrease in occurrences of targeted challenging behaviors for students with EBD (Lane, Kalberg, & Shepcaro, 2009; Turton, Umbreit, Liaupsin, & Bartley, 2007; Turton, Umbreit, & Mathur, 2011), ASD (Camacho, Anderson, Moore, & Furlonger, 2014; Reeves, Umbreit, Ferro, & Liaupsin, 2013), attention deficit hyperactivity disorder (ADHD; Cho & Blair, 2017; Whitfor, Liaupsin, Umbreit, & Ferro, 2013), and LD (McKenna et al., 2015).

FBIs in classroom settings. In addition to being implemented across skills, behaviors, and disability categories, FBIs have been shown to be successful across settings including the inclusive school environment (Walker, Chung, & Bonnet, 2017). Notably, Wills et al. (2010) designed an FBI that was implemented class-wide in a regular education setting. In this fourth-grade urban classroom, students were taught three skills: how to appropriately gain teacher attention, how to follow directions, and how to ignore inappropriate behavior as part of the class-wide function-based intervention team (CW-FIT) program. Using a system of rewards, students earned points for their "team" and redeemed those points later for predetermined activities, privileges, or tangible items. Using a reversal design, results indicated a functional relation with CW-FIT program and an increase of on-task behavior. While screening students, training teachers, and

implementing a class-wide behavior plan may be time-consuming, there does seem to be some benefit for the students. However, this particular intervention would require substantial supports that many districts, schools, and classroom teachers may not be able to access.

In an additional study, Gann, Ferro, Umbreit, and Liaupsin (2014) conducted a study to investigate the effects of a comprehensive function-based intervention across academic settings on the off-task, disruptive behaviors of an 11-year-old boy with ASD. His targeted behaviors included playing with objects in class, blowing on students, talking loudly, and hiding under desks. Results from an FBA determined the student's behavior was primarily maintained by adult and peer attention, while some of his behaviors functioned as a means for him to escape classroom activities and demands. The intervention consisted of three main components: teach a functionally equivalent replacement behavior, improve the classroom environment, and adjust the contingencies (i.e., the antecedent and consequences of the behavior) across four general education classrooms. Using a multiple probe across settings design, results indicated a functional relation with the multi-faceted FBI and an increase in on-task behaviors across all settings. Additionally, social validity measures indicated that practitioners found the intervention to be effective, appropriate, and feasible to implement in their classrooms.

Similarly, Germer et al. (2011) conducted a study to determine the effects of an FBI on the on-task behaviors of a second-grade student who was referred to administration to address issues of inattention, hyperactivity, and being considered high-risk for an EBD. The student's off-task behaviors included making inappropriate comments, getting out so seat, misusing classroom materials, and taking more than 30s to

prepare for a required task. Results from an FBA concluded that student's target behaviors were maintained by adult attention and an escape from classroom task. The intervention consisted of three components: antecedent adjustments (i.e., ability for student to request attention and breaks), adjustments to the reinforcement contingencies (i.e., researchers used a colored clothespin to signal when appropriate reinforcement was available), and extinction (i.e., not reinforcing inappropriate behaviors). Using a reversal design, results indicated a functional relation with the FBI and an increase in on-task behaviors for this student. Social validity measures indicated that both the teacher and participant found the intervention to be highly acceptable for decreasing disruptive behaviors and increasing classroom engagement.

Furthermore, not only can FBIs be implemented in a school setting (Walker et al, 2017), but research indicates that these interventions can be delivered with fidelity by classroom teachers (Trussel, Lewis, & Raynor, 2016), as well as para-educators in the general education classroom (Walker & Snell, 2017). Trussel et al. (2016) particularly stressed that classroom teachers can be trained to conduct FBAs, incorporate universal teacher practices (i.e., practices designed to meet the needs of most students), and implement FBIs with fidelity. Similarly, Walker and Snell (2017) concluded that through adequate coaching and professional development workshops, paraprofessionals can implement FBIs with fidelity in order to increase appropriate behaviors and decrease challenging behaviors in the classroom.

Antecedent-Based Interventions (ABI). As previously discussed in Chapter 1, ABIs alter the environmental events that precede a challenging behavior and mitigate their potentially detrimental effects to students, teachers, and classroom setting (Kern,

Gallagher, Sarosta, Hickman, & George, 2006; Wood et al., 2018). ABIs hold many advantages over the more traditional consequential behavior strategies by preventing the problem behavior from occurring, being relatively fast acting, correcting the setting events that may contribute to challenging behavior, and increasing the effectiveness of the learning environment (Kern & Clemens, 2007). Finally, ABIs may be targeted function-based interventions (e.g., HPRS, NCR, or presession access), but they may also include general behavior strategies that are not based on the function of a behavior such as employing beneficial and proactive seating arrangements (Baines, Kutnick, & Blatchford, 2008; Reinke, Lewis-Palmer, & Merrell, 2008), incorporating PBIS strategies such as explicitly teaching classroom procedures and expectations (Horner et al., 2010), and actively supervising students in the classroom and school environment (DePry & Sugai, 2002). Finally, some research suggests that ABIs may be more effective than function-based consequential management systems for addressing challenging behaviors such as disruption and noncompliance (von Shulz et al., 2018).

Choice-making. One targeted ABI that can be implemented to decrease occurrences of challenging behaviors is choice-making (Harding, Wacker, Berg, Barretto, & Rankin, 2002; Tiger, Toussaint, & Roath, 2010). Green, Mays, and Jolivette (2011) outlined key components of effective choice-making strategies that include embedding ample opportunities for students to select an appropriate response, carefully selecting what types of choices the students should be allowed to make based on their individuals abilities and needs, explicitly asking the child to make a choice, allowing for adequate response time, and using prompts to elicit a response if necessary. Further, Green et al.

(2011) maintained that choice-making strategies may be employed with students across disability categories and settings to prevent challenging behaviors.

High-probability request sequencing (HPRS). Another targeted ABI developed to address disruptive behavior and noncompliance in students with disabilities is called a HPRS (Luiselli, 2006; see Chapter 1 for a full description of HPRS). Banda and Kubina (2006) conducted a study to investigate the effects of a HPRS on the transition behavior of a 13 year-old middle school student with Autism Spectrum Disorder (ASD). The participating student portrayed poor transition-related skills, such as adhering to a timely schedule, independently moving from one class to another, and complying with teacher requests. Using an ABAB reversal design, the classroom teacher was instructed to deliver two or three high-probability requests followed immediately by a low-probability request during the intervention phase. Results indicated a functional relation between the high-probability request sequence and a decrease in total duration for the student to complete transition-oriented tasks.

In a related study, Jung, Sainato, and Davis (2008) examined the effects of high-probability request sequencing on the socialization skills of three elementary school students with ASD. Participants in this study were instructed to complete three high-p requests, followed by verbal praise, and then tasked to comply with a low-p request. Using a multiple-baseline across participants design, results indicated a functional relation between the use of high-probability request sequencing and an increase in positive social interactions between peers, as well as a decrease in disruptive classroom behavior. Additionally, each student who was observed during maintenance demonstrated generalization of these skills outside the intervention setting. Social validity measures

collected from three parents and three special education teachers indicated the intervention was reasonable to implement and beneficial for participating students.

Similarly, Pitts and Dymond (2012) conducted a study to investigate the effects of high-probability response sequencing, with and without programmed reinforcement, on compliance of three elementary-aged students with ASD. Using a combined alternating treatment with reversal design (ABACABAC), participants were asked to complete three high-p tasks on a fixed interval followed by a low-p request in the non-programmed reinforcement phase. During the programmed reinforcement phase of the intervention, participants were given verbal praise and an edible reward after completing each high-p request before being presented with a low-p request. Results indicated a functional relation between the completion of the high-p request sequences and compliance of low-p requests with a stronger relation emerging for the high-p request sequence with programmed reinforcement.

Additionally, not only ABIs can be successfully implemented in the general classroom setting (Kern & Clemens, 2007), but research suggests that ABIs can improve the academic performance of students with disabilities (Kruger et al, 2015). The remaining relevant ABIs prevalently used to address and mitigate challenging, disruptive behaviors, NCR and presession access, will be discussed in further detail in the following sections.

Summary of FBI and ABI

In summary, FBIs are behavioral plans and interventions based on results of an FBA considering the function of behavior and the surrounding environmental events that influence behavior (Oakes et al., 2018). Research indicates FBIs can be more effective

for addressing disruptive behaviors than interventions that do not consider function for mitigating undesired behaviors (Ingram et al., 2005; Newcomer & Lewis, 2004; Payne et al., 2007). FBIs may also decrease the use of punitive measures to address problem behaviors such as suspension or other removal from the classroom setting (Smith et al., 2012). Targeted FBIs such as FCT (Carr & Durand, 1985; Schieltz et al., 2011; Schmidt et al., 2014), social skills instruction (McKenna et al., 2016), and self-management (Briere & Simonson, 2011; Hansen et al., 2014) have been identified as having a functional relation with a decrease in challenging problem behaviors for students with disabilities. Further, FBIs can be implemented in the regular education setting (Gann et al., 2014; Wills et al., 2010; Walker et al., 2017) by general education teachers (Trussel et al., 2016) and paraprofessionals (Walker & Snell, 2017).

Similarly, ABIs address and alter setting events that precede a challenging behavior removing the potentially detrimental effects on students and teachers (Kern et al., 2006; Wood et al., 2018). ABIs hold many advantages over traditional consequential behavior systems and may be more effective for decreasing challenging behaviors than function-based consequential behavioral management systems (Kern & Clemens, 2007; von Shulz et al., 2018). Targeted ABIs including choice-making strategies (Green et al, 2011; Tiger et al., 2010) and HPRS (Banda & Kubina, 2006; Jung et al., 2008; Pitts & Dymond, 2012) have demonstrated a functional relation with a decrease in problem behaviors for students with disabilities. Finally, research suggests that ABIs can be successfully implemented in a general education classroom to decrease challenging behaviors (Kern & Clemens, 2007) and improve the academic engagement and performance of students with disabilities (Kruger et al., 2015).

Noncontingent Reinforcement

An additional antecedent-based intervention used to address and mitigate disruptive behaviors in students with disabilities is NCR (also referred to as interspersed or fixed-time reinforcement; Richman, Barnark-Brak, Grubb, Bosch, & Abby, 2015). NCR provides known reinforcers to a student (e.g., attention or a preferred tangible item) on a fixed or variable interval schedule independent of a student's behavior. Acting as an AO, NCR provides more substantial access to such reinforcers and diminishes the value they may hold for the student (Carr, Severtson, & Lepper, 2009; Michael, 2000). NCR has shown to be effective for increasing compliance (Richling et al., 2011) and task-engagement (Noel & Rubow, 2018), interrupting and preventing automatically reinforced behaviors (i.e., stereotypy; Sprague, Holland, & Thomas, 1997), mitigating severe behaviors (i.e., self-injury and aggression; Phillips, Iannaccone, Rooker, & Hagopian, 2017; Phillips & Mudford, 2011), and decreasing disruptive, destructive, and challenging behaviors maintained by attention or a tangible item for students with disabilities (Carr et al., 2009; Richman et al., 2015).

In one formative piece, Fisher, Ninness, Piazza, and Owen-DeSchryver (1996) conducted a study to investigate the effects of NCR on the destructive behaviors of a four-year-old with ASD and oppositional defiant disorder (ODD). The child's destructive behaviors included hitting, kicking, screaming, scratching, biting, throwing objects, and overturning furniture. Results of an FA determined the behavior to be maintained primarily by adult attention. During the NCR treatment phase, the participant was provided with 30s of attention (e.g., interactive play) on an initial 40s interval schedule that was gradually faded to 5-min intervals. The contingent attention phase only provided

the participant attention when destructive behaviors were present (i.e., a reprimand or related statement). Using a reversal design, results indicated a functional relation between NCR and a decrease in destructive behaviors compared to the contingent attention phase. During the baseline contingent phases instances of destructive behavior averaged 13.9 times per minute eliciting 11.7 responses from the interventionist. Whereas, during the NCR phase of the study, the participant average 0.9 occurrences of destructive behavior eliciting 0.3 responses per minute.

In a related study, Hanley, Piazza, and Fisher (1997) conducted a study to investigate the effects of NCR on the destructive behaviors of two individuals with moderate-severe intellectual disabilities, ODD, and ASD. The participants, ages 11 and 16, engaged in destructive behaviors ranging from hitting, kicking, hair pulling, biting, throwing objects and destroying property to aggression and SIB. One of the participants had adequate receptive and expressive language skills, while the other participant had no known means of communication. Resulting from the data of a FA, researchers determined that these destructive behaviors were maintained by a tangible item and by adult attention. The intervention consisted of two phases. First, a baseline phase wherein attention was only given contingent on the occurrence of a destructive behavior. The second phase consisted of an alternating treatment in which participants were allowed noncontingent access to a preferred tangible item (e.g., food for one participant and a computer game for the other) or attention on a continuous schedule. Using a reversal with an imbedded alternating treatment design, results indicated a functional relation with the use of NCR and a decrease in destructive behavior for both participants in both the conditions (i.e., attention and access to preferred item). For one participant, destructive

behavior decrease 86.6% during the NCR of attention phase and 100% during the NCR of tangible item phase from baseline. For the second participant, destructive behavior decreased 66.6% during the NCR of attention phase and 68.1% during the NCR of tangible item phase from baseline.

Additionally, Jones, Drew, and Weber (2000) conducted a study to investigate the effects of NCR of peer attention on the disruptive classroom behaviors of one 8-year-old with a medical diagnosis of ADHD. The student participated in various disruptive classroom behaviors such as talking with peers on unrelated topics, getting out of seat, walking around the classroom, or distracting peers. The results of an FA conducted in the classroom determined that the behaviors were maintained primarily by peer attention. In the baseline phase, peers were instructed to respond to the student whenever he was engaging in disruptive behavior with sayings such as "You are not working." During the intervention phase, at 90-s intervals all the students in the class were instructed to take a break and play with each other for 30 seconds. The students would then return to their seats for another 90 s until the next 30 s peer attention session for a total of 10-min of classroom instruction. Using a reversal design, results indicated a functional relation between NCR of peer attention and a decrease in targeted disruptive behaviors for this participant with ADHD.

Similarly, Hagopian, Crockett, van Stone, DeLeon, and Bowman (2000) conducted a study to investigate the effects of NCR on problem behavior of four children with disabilities. The participants' ages ranged from 4 to 13, diagnosed with various disabilities (e.g., ID, EBD, cerebral palsy), displayed limited communication, and presented problem behaviors including biting, scratching, throwing objects, and

damaging property by breaking, ripping, or shredding objects. Results of an FA suggested problem behaviors were maintained by attention for two participants and a tangible item for the others. The intervention included multiple treatment phases including a 30-s fixed-interval (FI) schedule of reinforcement without extinction, a 45-s FI schedule of reinforcement with schedule thinning, and two other conditions implementing extinction (i.e., not reinforcing the target behavior) and differential reinforcement of other behavior (DRO; i.e., reinforcing other pro-social behaviors). During each phase, participants were allowed access to either adult attention or a preferred tangible item identified in the FA. Using a multielement reversal design, results indicated a functional relation between NCR and a decrease is targeted problem behaviors across all participants. Although many treatments were utilized in this study, the most effective intervention based on data was NCR on a FI schedule of reinforcement.

In an additional study, Fisher, DeLeon, Rogriguez-Cattar, and Keeney (2004) conducted a study to evaluate the effectiveness of NCA and noncontingent access to preferred stimuli on the disruptive behaviors of three children and one adult with intellectual disabilities. The participants, with ages ranging from 5 to 33, all displayed challenging behaviors that including non-specified disruptive behaviors, destruction of property, aggression, and SIB. The data resulting from conducting an FA indicated these behaviors were maintained primarily by adult attention across all participants. Additionally, the researchers conducted a competing stimulus assessment in order to determine a preferred item or activity for each participant. Using a reversal multielement design, the researchers alternated interventions to include an NCA and an NCR of a

tangible item phase, as well as an extinction only (i.e., not reinforcing the behavior) phase. Results from the study indicated a functional relation between all treatment phases and a decrease in target behavior compared to the baseline phase. The NCA and NCR of a preferred item phases were equally effective across participants compared to the extinction only phase.

Additionally, Rasmussen and O'Neill (2006) conducted a study to determine the effects of FI reinforcement on the disruptive behavior of three elementary school students with emotional and behavioral disorders. The intervention took place in a classroom setting located in a psychiatric day treatment center with seven to nine other students. A functional analysis revealed that participants' behaviors were maintained by social attention, so researchers instructed the classroom teacher to deliver NCR in the form of verbal praise in 10s to 20s FI. Using an ABAB reversal design, results indicated a functional relation between the application of NCR and a decrease in disruptive behavior across participants. NCR of social attention continued to maintain a functional relation with a decrease in problem behavior for all participants after the interval of delivery was increased to 60s-90s.

Further, Doughty and Anderson (2006) conducted an intervention to evaluate the effects of NCR and FCT on the problem behavior and mands of two students with ID and developmental delay (DD). The participants, ages 13 and 2, had limited functional communication skills and engaged in disruptive behaviors including pinching, scratching, pulling hair, biting, throwing objects, screaming and banging objects together. Results of an FA determined that disruptive behaviors were maintained by attention for both participants. During the intervention, NCR of attention was initially delivered of a FI

schedule of 1-min with the schedule of delivery thinned as occurrences of disruptive behavior decrease. Additionally, alternative stimuli (i.e., cola for one participant and oatmeal for the other) were identified and administered on the same FI schedule as the NCR of attention. Finally, the participants were taught a series of functional signs to communicate their needs instead of engaging in disruptive behaviors. Using an alternating treatment design, results indicated a functional relation with the use of FCT and NCR and a decrease in disruptive behaviors as well as an inverse increase in manding from both participants. These findings suggest that NCR may be successfully paired with additional ABIs (i.e., FCT in this experiment) in order to further mitigate disruptive behaviors.

In a related study, Gouboth, Wilder, and Booher (2007) conducted a study to investigate the effects NCR, with and without signaling the presentation of a stimulus, on the destructive behaviors of two high-school aged students with disabilities. A functional analysis concluded that each student's behavior was maintained or increased by either social attention or through a tangible object. Using a multi-treatment with reversal (ABACABAC) design, researchers delivered a stimulus on a FI schedule (between 10s to 30s) during the first part of the intervention. In the second phase of the intervention, researchers delivered a stimulus on the same fixed interval but would also verbally announce the presentation of a stimulus before it was presented to the participant. Results indicated a functional relation between NCR of a stimulus and a decrease in aggressive behavior with a stronger relation emerging between NCR with stimulus-signaling and lower instances of aggression.

Austin and Soeda (2008) conducted a similar study to investigate the effectiveness of FI teacher attention on the off-talk behaviors of one typically developing third-grade student and one student with a diagnosed learning disability. Off-task behaviors for these students included talking and calling-out at inappropriate times, getting out of their seats, and disturbing other students. During the NCA phase, the classroom teacher administered attention for an unspecified amount of time in the form of praise for both participants on a FI schedule of 4-min as cued by vibrating device. The intervention was applied across subjects (e.g., math and language arts), as well as across settings by the classroom teacher. Using a reversal design, results indicated a functional relation between NCA and a decrease in off-task behaviors for both students. Social validity measures indicated the classroom teacher found the intervention easy to use, effective, and beneficial for her students.

In a related study, Tomlin and Reed (2012) conducted a study to investigate the effects of a FI schedule reinforcement strategy implemented by classroom teachers on the problem behaviors of four students with disabilities. The four participants ranged in ages from 5 to 14. Two students had been identified with EBD, one student was diagnosed with cerebral palsy and an ID, while the last participant was diagnosed with Down syndrome. Each of these students displayed problem behaviors in the classroom setting that included making distracting verbal noises, touching others, taking objects, grabbing objects, and inappropriate peer interactions. Based on the results of an FBA (i.e., classroom observations across settings), researchers determined the problem behaviors were maintained by attention. During the initial NCR intervention phase, each student was delivered NCR in the form of teacher praise at pre-determined intervals. The

intervals were calculated by averaging the latency of initial onset of the problem behavior during baseline and ranged from 26s to 63s. In the following treatment phase, the schedule of reinforcement was thinned for each participant with intervals ranging up to 4-min. Using a multiple baseline across participant design, results indicated a functional relation between NCR of teacher attention and a decrease in problem behavior across all participants and phases. These results suggest that NCR can be adjusted to meet individual needs and effective for reducing problem behaviors for children using a relatively thin schedule of reinforcement.

In an additional study, Banda and Sokolosky (2012) evaluated the effectiveness of NCR of teacher attention on the disruptive behaviors of a seven-year-old student with ADHD. The student's targeted behaviors included talking-out during a lesson, interrupting other students, and refusing to wait his turn during classroom activities. This study was conducted in a general education setting with 19 other students in the classroom and the intervention was delivered by the regular education teacher. The results of an FA indicated that the target behaviors were primarily maintained by attention. During the treatment phase, noncontingent reinforcement of attention (NCA) was delivered initially for 20s at the start of the class period. Subsequently, the teacher delivered 5s of attention (e.g., verbal praise or physical interaction) every 20s for the remaining 5min session. Using a reversal design, results indicated a functional relation with NCA and a decrease in the frequency of disruptive behavior. During the second baseline, the student displayed an average of 38.8 talk-outs during the session compared to the average of only 6.6 talk-outs during the second intervention session. Social validity

measures indicated that the teacher and aide found the intervention to be effective for decreasing disruptive behavior and reasonable to implement.

Falcomata and Gainey (2014) also conducted a study to evaluate the effects of NCR on the challenging behaviors maintained by multiple functions of a child with ASD. The four-year-old child with limited communication skills displayed many challenging behaviors including destruction of property, hitting, head-banging, and other SIB. The results from a FA determined that the child's behaviors were maintained by attention, a tangible item, and escape from a task. Therefore, the intervention included an initial baseline followed by two alternating treatment phases (ABC design). In the first alternating treatment phase, the child was provided NCA for 30s on a variable time (VT) schedule of approximately every 15s. The other intervention during this phase paired NCR with access to a preferred tangible item. During the second alternating treatment phase, the two previous interventions included a work condition in which the child was asked to perform a task or an unfavored activity. The results from this study indicated a functional relation for both NCA and NCA with access to a tangible item with a decrease in challenging behavior in both the phases of the alternating treatment. The largest reduction in challenging behavior occurred during the NCA with access to a preferred item intervention during both treatment phases of the study.

Finally, Noel and Getch (2016) conducted a study to investigate the effects of NCR on the disruptive behaviors of two students with ASD in an afterschool setting. The participants, ages 10 and 12, regularly attended the afterschool program for approximately 1.5 hours twice a week and both engaged in disruptive behaviors including negative talk (e.g., whining, mock statements, complaining, or making fun of others) and

destruction of property. Although no formal FA or FBA was conducted, researchers implemented NCR in the form of attention delivered on a 1 min interval schedule throughout a 10 min lesson on social skills. Using an ABAB reversal design, results indicated a functional relation between NCR of teacher attention and a decrease in disruptive behaviors for both participants.

Summary of NCR

In conclusion, NCR involves the presentation of a known reinforcer to a participant, and this reinforcer is not dependent on their behavior. Considered an AO, substantial access to a preferred reinforcer diminishes the maintaining values that the reinforcer may hold for a person (Carr et al, 2009; Michael, 2004). NCR has been shown to be an effective intervention for increasing student compliance (Richling et al., 2011) and task-engagement (Noel & Rubow, 2018), interrupting and preventing automatically reinforced behaviors (i.e., stereotypy; Sprague, Holland, & Thomas, 1997), mitigating severe behaviors (i.e., self-injury and aggression; Phillips, Iannaccone, Rooker, & Hagopian, 2017; Phillips & Mudford, 2011), and decreasing disruptive, destructive, and challenging behaviors maintained by attention or a tangible item for students across disability categories (Carr et al., 2009; Richman et al., 2015). However, more research is necessary to determine the effectiveness of NCR interventions on students with high-incidence disabilities in the classroom setting.

Presession Interventions

Presession interventions function under the principle of motivating operations (MOs). As previously discussed, an MO is any variable that alters (a) the reinforcing or punishing value of a stimulus and (b) the frequency of any behavior previously affected

by that reinforcing or punishing stimulus (Michael, 2004). By manipulating the MO (i.e., increasing or decreasing the reinforcing effects of a stimulus), it is possible to alter the behavior of students who present persistent challenging behaviors. According to Michael (2000), increased exposure (i.e., presession interventions) to an object, a behavior (i.e., stereotypy), or attention should act as an AO for the maintenance of those behaviors as defined by an FBA.

Presession Access to a Tangible Item or Attention as an Abolishing Operation

The following studies pertain to presession access to a tangible item or presession attention as an AO to decrease the effectiveness of a stimulus. By increasing access to a preferred tangible item or attention, the participant(s) become satiated and the reinforcing effects are decreased accordingly. It is necessary to note that FBA/FAs are generally conducted to help inform the function of target behaviors.

Presession access to a tangible item as an abolishing operation. Some students present challenging behaviors to obtain or retain a preferred item. These items may provide entertainment or comfort, but generally students will display problem behaviors when the preferred item(s) are removed. The following studies were conducted to determine the effects of presession access to these items and the effect on disruptive behaviors.

Rapp (2004) conducted a study to determine the effects of presession access to tangible objects, as well as satiation of stereotypical behaviors on a student with disabilities. The participant was a nonverbal 10-year-old student with Down syndrome and moderate mental retardation who exhibited stereotypical behaviors (i.e., twirling phone and electrical cords and shirts), as well as challenging behaviors such as screaming

and aggression. An FA indicated that some of the behaviors were maintained by access to tangible items (e.g., guitar and music player). The intervention included a free-operant condition in which he could engage freely in stereotypical behaviors, a condition in which he was allowed presession access to music, and a condition in which he could access music and a guitar. Using a multielement design, the researchers reported a functional relation between presession access to preferred tangible items (i.e., music and guitar conditions), as well as allowing the participant to engage in stereotypical behaviors (i.e., the free-operant condition), and a decrease in challenging behaviors.

Adding to the body of research concerning presession access to a tangible item, O'Reilly et al. (2009) conducted a study to investigate presession exposure to tangible items on the problem behaviors of two students with ASD. Each of the two participants, ages 5 and 8 years old, displayed problem behaviors such as yelling and throwing objects. Using a multielement design, researchers determined through an FA that behaviors were maintained by preferred tangible objects (i.e., a children's book that played songs for one student and crayons and drawing paper for the other student). The participants were exposed to three experimental conditions including no access to tangible items, brief access (e.g., 5-min), and satiation of tangible as measured by three rejections of the item before data collection sessions. Results indicated a functional relation between presession satiation of an item and a decrease in problem behavior whereas the no access and brief access conditions showed no discernible differences.

Similarly, Lang et al. (2010) conducted a study to determine the effects of presession access to tangible items on the challenging behaviors (i.e., throwing toys, screaming, tantrums), stereotypic behaviors, and free play skills of four students with

disabilities. Each of the four participants, ages 3 to 8 years old and diagnosed with ASD, demonstrated automatically reinforcing stereotypic behavior such as swinging toys close to the eyes and face, counting and naming toys, and tapping toys together to create a sound based on FBA results. During one treatment phase participants were allowed access to toys, but were redirected before becoming satiated, whereas in the alternate phase participants were allowed free access to toys until satiation as measured by three rejections of the toy. Both phases included verbal attention in the form of praise delivered in 10s fixed intervals. Using an alternating treatments design, results indicated a functional relation between adequate presession access to toys to create satiation (i.e., abolishing operation) and a decrease in challenging behaviors and stereotypic behaviors.

Also addressing presession exposure to a tangible item, Rispoli et al. (2011) conducted a study to investigate the effects of presession engagement with a preferred tangible item, such as a toy of choice, on the occurrence of disruptive behavior on elementary school students with autism. The three students, one Asian American male and two African American males between the ages of 5 to 6 years old, demonstrated disruptive behaviors (e.g., loud yelling and throwing objects) maintained by a tangible item as indicated by an FA. Participants were allowed presession interaction with their preferred item (i.e., paper and crayons for one participant and a musical book for the other) until they rejected the item three times in the presession access phase. Alternately, during the restricted access phase of the intervention, participants were denied access to their preferred item for the duration of the day leading up to the lesson. Using an individual-participant multielement design, results indicated that all three students demonstrated a functional relation between presession interaction with their preferred

item and a decrease in problem behavior, as well as an increase in academic engagement during classroom sessions.

Additionally, Kelly, Axe, Allen, and Maquire (2015) conducted a study to investigate the effects of presession access of tangible items on the challenging behaviors and academic tasks of three students with disabilities. The participants, aged 9 to 11 years old and diagnosed with ASD, presented challenging behaviors in the form of crying, task refusal, self-injury, and aggression maintained by a tangible item as determined by an FA. A preference assessment identified a string of beads, a music box, and a ball as highly preferred objects. Using a multiple baseline across participants design, participants were given presession access to a preferred item for 2 to 4 min before completing a flashcard activity. Results indicated a functional relation between presession access to a preferred item and a decrease in challenging behavior and no discernible effects for correct answers on the academic task. The main limitation of this study was the small amount of maintenance and generalization measures completed.

Rispoli et al. (2016) conducted an additional study to determine the effects of presession access to tangible items on the challenging behaviors of three students with ASD. The participants, ages 4, 5, and 10 years old, displayed challenging classroom behaviors such as tantrums, elopement, and aggression maintained by a tangible item as determined by an FA. Using an alternating treatments design, participants were either restricted access to a preferred item or given free access to the item until satiation as measured by three rejections of the item. Data on disruptive behavior collected during a 90-min classroom session showed a functional relation between presession access to a preferred item and a decrease in challenging behavior across participants. Additionally,

the data showed that challenging behaviors increased concurrently with the length of the session, suggesting that the abative effect of presession access to a preferred item begins to dissipate with longer sessions. This study was limited by the length of the 90-min classroom sessions and by the fact that not all behaviors were maintained by tangible items as the FA revealed for one participant that behaviors were also maintained by an escape contingency.

Scalzo and Davis (2017) also conducted a study to determine the effects of presession access to a tangible item on the challenging behaviors of students with disabilities. The participants were four boys diagnosed with ASD who presented challenging behaviors including crying, screaming, hitting, and aggression maintained by tangible objects as determined by an FA. Using a multielement design, participants were either restricted from presession access to a preferred item (i.e., iPad), allowed access until one instance of item rejection, or finally allowed access until three instances of item rejection occurred. Results indicated a functional relation between presession access to a preferred tangible item and a decrease in target behavior with a much more considerate decrease during the three-rejection sessions. One limitation of this study is the feasibility of the time needed for some participants to become satiated before rejecting the item three times (up to an hour in some instances). Similarly, these participants were given limited access to the iPad, so full access could have taken away even more valuable instructional time.

In summary, presession exposure to a tangible item can serve as an AO by satiating the reinforcing value of physical or verbal interaction (Michael, 2000). Studies have shown that interaction with a preferred tangible object (e.g., a ball, a music box, or

an iPad) during presession resulted in a decrease in tangible-maintained challenging target behaviors (Lang et al., 2010; O'Reilly et al., 2009; Rispoli et al., 2011; Rispoli et al., 2016; Scalzo & Davis, 2017) including automatically reinforced stereotypic behaviors (Rapp, 2004).

Presession attention as an abolishing operation. While some students display challenging behaviors to access tangible items, other students may display challenging behaviors to gain adult or peer attention. The following studies examined the relation between presession attention and the challenging behaviors of students. Additionally, an FBA/FA is often conducted to determine the function of a student's behavior prior to beginning the study.

To begin, O'Reilly (1999) conducted a study to determine the effects of presession attention on the self-injurious behavior of one 20-year-old participant with severe intellectual disability with a history of screaming and hitting himself in the head. The participant's problem behavior was determined to be maintained by attention based on results of an FA. Using an ABAB reversal design, the participant was alternately exposed to noncontingent adult attention on a FI schedule of 30 s for an hour and then a no-attention phase whereby he was only allowed to interact with a preferred item for one hour. Results indicated a functional relation between the presession exposure to attention and a decrease in challenging behaviors during a 1 hour observation period. In fact, no problem behavior was observed after the presession attention sessions.

Additionally, Berg et al. (2000) conducted a similar study to determine the effects of presession exposure to attention on the challenging behaviors of two students with disabilities. The target behavior for the first participant, a nonverbal 4-year-old student

with Rett Syndrome, was hand-biting. The function of the behavior was maintained by attention based on ABC observational data. Using a multielement design, the participant was exposed to presession noncontingent attention in the form of verbal statements and hair-brushing for 5 min. During the second condition, the participant was given a task demand with a break of 30 s for any instance of problem behavior. Results indicated functional relation between presession contingent attention with hand-biting occurring during 6% of the intervals and an increase in the demand task condition with hand-biting occurring during 68% of the intervals. The target behavior for the second participant, a 22-month-old child with developmental disabilities, was self-injury and tantrums maintained by attention determined by informal observational data. Using a multielement design, the participant was exposed to 5 min of attention, diverted attention (an adult was present, but busy with other materials), and being alone before the observation period. Results indicated a functional relation between presession attention and a decrease in target behavior, where there was an increase in challenging behavior during the alone and diverted attention conditions.

Using presession attention as an AO, McComas, Thompson, and Johnson (2003) conducted a study to investigate the effects of presession attention on the instances of classroom problem behavior on students with various disabilities. Three students, male and female ranging in ages 8 to 11 years old with various disabilities (e.g., development disabilities, Down syndrome and moderate intellectual disability), demonstrated problem behaviors such as hitting, biting, spitting, and throwing tantrums maintained by adult attention as determined by FAs. The participants were ignored for 10 min during the first phase of the intervention and then given 10 min of continuous attention before a lesson

during the second treatment phase. Using an individual-participant multielement design, results indicated a functional relation between the presession-attention phase and a decrease in problem behavior compared to the ignore phase for all three participants.

Additionally, O'Reilly et al. (2007) conducted a study to investigate the effects of presession attention on the problem behaviors of a 20-year-old student with autism who functioned on a 4-year-old level according to the Vineland Adaptive Behavior Scales. The participant demonstrated challenging behaviors such as bizarre speech, shouting, elopement, and tantrums maintained by adult attention according to an FA conducted on site. The participant was either exposed to 15-min presession attention wherein a therapist would engage him continuously or a 15-min presession wherein he was alone in the treatment room. Data were taken in 10-s intervals on problem behaviors that presented during 5-min sessions. During these 5-min sessions, the participant was either by himself or with a therapist who did not interact with him because it was an attention-extinction session. Using a single-person multielement design, results indicated a functional relation between when the student was exposed to presession interaction with the therapist and a decrease of problem behavior as compared to both the alone and attention-extinction sessions.

Furthermore, Patterson (2009) conducted a study to determine the effects of presession small talk on out-of-seat behavior on a ninth-grade student with no known disabilities. The student was a 15-year-old African American male with a history of out-of-seat behavior and talking to the teacher during classroom sessions. Using a reversal design, the participant was exposed to two treatment conditions in which he was either engaged in 2 min of presession conversation or was ignored during the onset of class.

Results indicated a functional relation between the small talk treatment phase and a decrease of out-of-seat behavior compared to the baseline and withdrawal phases of the intervention. However, there were several limitations to this specific study including lack of treatment fidelity, interobserver agreement, and proper FBA or FA before beginning the intervention.

In addition, McGinnis, Houchins-Juarez, McDaniel, and Kennedy (2010) conducted a study to investigate the effects of presession attention on the problem behaviors (e.g., kicking, screaming, hair pulling, head banging, and inappropriate urinating) of three students with disabilities maintained by social attention determined by conducting an FA. Three students, age 6 years old with varying disabilities (i.e., developmental delay, autism, and behavioral/emotional disorder), were exposed to three phases during a 45-min presession in which attention was either withheld completely, delivered on a 15 s fixed interval schedule, or a 120 s fixed interval schedule. Using a multielement design, the researchers found that problem behavior increased as a result of withholding attention (EO) and that problem behavior decreased as a result of providing presession attention (AO) with the largest decrease in problem behavior occurring during the 15 s fixed interval phase.

Adding to the body of related research, Chung and Cannella-Malone (2010) conducted a study to examine the effects of presession interaction including attention, response blocking, and attention plus response blocking on the stereotypic behaviors of four students with disabilities. The participants, one boy and three girls ages 11 to 16 years old with multiple disabilities including autism and intellectual disability, all displayed automatically reinforcing stereotypic behavior including shirt biting, chair

scratching, tooth tapping, and putting hands in pants as determined by an FA. The intervention consisted of an alone condition, a condition in which the participants were engaged in presession attention (for intervals ranging from 5 to 15 min), and a condition in which participants were given attention, but not allowed to participate in stereotypic behaviors (i.e., response blocking). Using a multielement design, results indicated a functional relation between the presession attention condition and a decrease in challenging behaviors.

Edrisinha, O'Reilly, Sigafoos, Lancioni, and Choi (2011) conducted a similar study to determine the effects of presession stimuli on the challenging behavior of two participants, aged 16 and 37 years old, with developmental disabilities. One participant's challenging behavior was maintained by attention, whereas the other participant's behavior was maintained by a tangible object as determined by an FA and a preference assessment. Challenging behaviors for these participants included tantrums, screaming, and self-injury. Using a multielement design, results indicated a functional relation between 15 min of presession attention or access to a tangible and a decrease in problem behavior compared to a condition in which attention and a tangible object was withheld.

In a related study, Rispoli et al. (2014) evaluated the effects of presession satiation on the stereotypical behaviors of three students with disabilities. The participants were all males, aged 4 to 12 years old, with multiple disabilities including developmental delays and autism; all demonstrated stereotypic behaviors including making squealing noise, banging objects on tables and the ground, and destructing property. Using a multielement design, participants were allowed access to a tangible object such as a toy musical camera, ball, or a wooden cylinder, as determined by a

preference assessment, while receiving verbal attention on a 60-s FI schedule until they reached satiation by rejecting the item three times. The participants were then asked to complete a task of creating objects using modelling clay. Results indicated a functional relation between presession access to an item plus attention with a decrease in stereotypical behavior as well as an increase in task engagement.

Summary of Pressession Interventions

To conclude, exposure to presession attention has indicated a functional relation with a decrease in attention-maintained challenging behaviors (Berg et al., 2000; Edrisinha et. al., 2011; McComas et al., 2003; McGinnis et. al., 2010; O'Reilly et. al., 2007; Patterson, 2009) including automatically reinforced stereotypic behaviors (O'Reilly, 1999; Rispoli et al., 2014) for students with and without disabilities.

However, there exist several limitations with these current studies. First, many of these studies lacked data concerning maintenance and generalization to other settings. Also, many of these studies were conducted in a clinical setting, so it is difficult to predict if these reductions in challenging behaviors will generalize to a classroom setting. Second, there is no clear definition of satiation throughout the literature. For an abolishing operation to be effective, the participant must engage in the activity (i.e., presession access to a tangible item or attention) enough to achieve satiation thereby decreasing the reinforcing capacity of a stimulus. Many studies have clear definitions of satiation, whereas other studies just allowed a certain predetermined duration of interaction with an item or attention. Additionally, many studies did not conduct a full FA, but relied on informal observation or antecedent-behavior-consequence (ABC) descriptive data leading to the possibility of not fully understanding the function of the

behavior prior to the intervention. Additionally, very few studies include students with mild or high-incidence disabilities. The final limitation to these studies is that there is currently no literature comparing the effects of NCR and presession interventions on the challenging behaviors of students with disabilities.

Summary of Literature Review

Based on the pioneering works of early behaviorists and reiterated by Scott et al. (2012) behavior is learned, lawful, and capable of change. Additionally, all learned behavior serves a function (Cooper et al., 2007). In order to efficiently and effectively determine the function of a behavior, a knowledgeable person can conduct a direct or indirect FBA or an FA (O'Neill et al., 2007). Conducting an FBA or FA prior to implementing an intervention or behavior change plan can improve the outcomes for students (Filter & Horner, 2009; Payne et al., 2007; Umbreit et al., 2007). Interventions based on the function of a behavior, known as FBIs, have shown to be more effective than those interventions not based on function (Ingram et. al, 2005; Payne et al., 2007). FBIs may also decrease the use of punitive measures (Smith et al., 2012) as well as instances of challenging behaviors across disability categories (Lane et al., 2009) in the general education setting. Additionally, many FBIs such as ABIs can mitigate challenging behaviors before they manifest themselves in the classroom (Kern et al., 2006; Wood et al., 2018). One such ABI, NCR, has demonstrated effectiveness at increasing compliance (Richling et al., 2011) and decreasing disruptive behaviors (Carr et al., 2009; Richman et al., 2015) in students across disability categories. Finally, another ABI, presession attention, has shown to be effective in decreasing attention-maintained

challenging behaviors (McGinnis et al., 2010; Patterson, 2009) for students with and without disabilities.

CHAPTER 3: METHOD

The following chapter outlines the methodology that will be used to conduct this study. Each section will contain necessary information on how the study will be completed including information regarding the study participants and setting, research design, dependent variables and data collection, procedures of the experiment, measures of social validity, procedural fidelity, and data analysis.

Participant

The participant in this study was a purposefully selected elementary school student who is socially at-risk due to displaying disruptive behaviors in an inclusive classroom in a small private school in the Southeastern United States. The participant was selected based on teacher nomination of students exhibiting peer attention-maintained behaviors such as talking off-topic, making noises, or distracting gestures during instruction. The student, hereafter referred to as Jay, was selected because he demonstrated behaviors such as talking with his peers, playing with class materials, not paying attention to the instructor, looking away from instructional materials and the teacher, and some automatically reinforcing behavior such as rocking or swinging his legs and feet.

Jay (pseudonym) was a 10-year-old African American male in 4th grade at a small private school. He lived in a single-family household with his mother, who worked full time, and was an only child. His mother described him as “spirited” and reports that he has not been diagnosed with a learning disability, does not generally struggle with

academic tasks, but has been medically tested for ADHD. At the time of the study, Jay was not being medically treated for ADHD, but displayed some inability to pay attention and focus on his classwork based on parent and teacher descriptions, as well as classroom observations. Additionally, at the time of the study Jay did not have an Individualized Education Plan (IEP), a 504 academic plan, or a behavior plan in place. However, his disruptive behaviors put him socially at-risk as he had been removed from the classroom (e.g., sent to office, assigned to in-school suspension, and placed in out-of-school suspension) during this past school year.

Setting

The setting for this study was a small private school located in the southeastern United States. At the time of the study, the school's demographics were 53% male and had a racial makeup of 55% Caucasian, 36% African American, 4% Asian, 2% Hispanic, and 2% Arabic/other. The socio-economic status of the students is not known by administration. The intervention took place in an inclusive classroom environment consisting of 12 students, a licensed general education teacher, and licensed teacher's assistant during the reading/language arts instructional time. The intervention occurred mid-morning during the instructional day across all phases of the intervention as determined by the researcher and classroom teacher.

Experimenter and Interventionist

The experimenter, trainer, and primary data collector was a former special education teacher holding licensure in the area of K-12 General Curriculum with over seven years of experience working with students with high-incidence disabilities in

general education settings. The experimenter was currently a third-year doctoral candidate with a focus on working with students who require behavioral supports.

The interventionist was the general education classroom teacher in each phase of the intervention. The teacher holds licensure in K-5 education and has taught for over 20 years in both public and private schools. The classroom teacher was responsible for teaching all subjects throughout the day and had support from a part-time teacher's assistant.

Research Design

A single-case ABAC reversal design with an embedded alternating-treatments design (Cooper, Heron, & Heward, 2007) was used for this study. The purpose of the reversal phase and initial baseline, in addition to the alternating treatment, was to compare the effects of each treatment phase against a baseline (i.e., business-as-usual; BAU) condition. Once stable baseline conditions were established for a minimum of five data-collection sessions, the student entered the first phase of the intervention. Data were collected until the student had baseline data for five sessions and a minimum of 10 total sessions of alternating treatment between presession and interspersed attention (i.e., five sessions per treatment phase). Each phase continued until enough data were present to adequately determine the level, trend, and variability of the data. During the reversal phase, data were collected for a minimum of five sessions in a BAU condition. Additional data were collected for a "best-phase" condition (i.e., five sessions of presession attention as determined by the classroom teacher's preference).

Measurement

Dependent variable. The first dependent variable measured during this intervention was disruptive behavior displayed by the student during a classroom lesson or activity. Disruptive behavior was defined by (a) talking without permission or off-topic, (b) inappropriately engaging other students (e.g., touching another student or making gestures towards another student), (c) being out-of-seat for more than five seconds during lesson, (d) and any distracting noises emitted by the mouth (e.g., whistling) or by interacting with the physical classroom environment (e.g., tapping on classroom furniture with fingers or feet). The dependent variable was collected using partial interval recording measured in 10s intervals for each session observed.

The second dependent variable collected was the percentage of correct responses to teacher assigned tasks. This variable was measured by reporting the percentage of correct responses on assigned classwork during each session. Assigned classwork was defined as any written activity (e.g., worksheets, guided notes, or quizzes) requiring completion as directed by the classroom teacher. Percentage of correct responses was calculated by dividing the number of correct items by the total number of items required to complete.

Materials

The participant of this study did not require any specific materials for this intervention. Materials used to collect data on classroom participation were teacher-created worksheets pertaining to the daily lesson. The classroom instructor was provided a procedural fidelity checklist to ensure consistent implementation of the intervention. However, fidelity was measured and calculated by the interventionist. Each session was recorded using a device capable of capturing audio and video for fidelity measures.

Finally, a phone application (i.e., interval timer) was used in order to signal appropriate intervals for observing (i.e., 10s) and recording the dependent variable during data collection sessions.

Procedures

Functional behavior assessment. Prior to collecting baseline data, a functional behavior assessment was conducted to help determine the potential cause of disruptive behavior being displayed in the classroom. The functional behavior assessment consisted of conducting a teacher interview (Appendix B) and a series of direct observations (Appendix C) as outlined by O'Neill et al. (1997). The teacher interview provided insight into the manifestation of the problem behavior, when it occurred, and what happened after. The direct observations were used to corroborate the teacher interview and helped determine the events preceding the challenging behavior, as well as the consequences that immediately followed in order to determine that attention is being maintained by either the teacher or classroom peers.

Teacher training. The interventionist for the study was the classroom teacher. All training was conducted by the experimenter. The experimenter instructed the classroom teacher on how to (a) accurately implement each phase of the intervention, (b) when to use presession versus interspersed attention (i.e., schedule of alternating treatments), and (c) why it is important to follow the intervention as prescribed.

Baseline. Data were collected during the business-as-usual phase of the study to determine the number of occurrences of disruptive behavior. Students did not engage in planned presession or interspersed attention sessions and data was collected in 10s intervals for each instructor-led activity for a minimum of 5 sessions to establish a stable

baseline. After each lesson was complete, the researcher collected the assigned class materials (i.e., permanent product such as a worksheet or quiz) to calculate the completion percentage, as well as percentage of correct items.

Intervention. There were two independent variables in this study. The first independent variable was presession attention. During this treatment phase, all classroom students were placed in teacher-assigned pairs and engaged one another for a minimum of a two-minutes per session to discuss information relevant to the planned daily lesson as directed by the classroom teacher. This timed session immediately preceded any classroom instruction. No other interventions relating to the study occurred after the presession attention session during this treatment phase.

The second independent variable was interspersed attention. During this treatment phase, students were paired together and engaged one another for a minimum two-minute timed session to discuss information relating to the planned daily lesson as directed by the classroom teacher before instruction (i.e., similar to presession phase) and then again at a planned 10-min interval. The timed sessions occurred at approximately the 10 min mark after the presession intervention of each session as signaled by the experimenter to the interventionist.

During the initial baseline phase, data were collected by the researcher on the target student for all dependent variables in the business-as-usual classroom environment for a minimum of five sessions occurring on different days to establish a stable and predictable baseline.

During the initial alternating treatment intervention phase, the classroom teacher was asked to pair students so that they may engage each other with appropriate

conversations relating to the daily lesson. During the presession attention treatment phase, all students in the class engaged one another in pairs immediately preceding the daily lesson for a 2 min minimum session. No other intervention relating to this study will take place during the presession attention treatment phase. During the interspersed attention phase, all classroom students will first engage each other in pairs in conversation relating to the daily lesson prior to the start of the lesson and then again 10 min into the daily lesson for an additional 2 min minimum peer pairing session.

During the reversal phase, both interventions were discontinued by the researcher and classroom teacher as data were collected on the target student for all dependent variables in the return to business-as-usual phase.

During the final intervention phase, the presession attention intervention was selected as the best-fit by the classroom teacher and researcher. Five additional data collection sessions were conducted during the presession only treatment phase.

Finally, the schedule of alternating treatment was decided by flipping a coin to ensure random selection. The head-side of a quarter represented presession attention and tails represented interspersed attention. The alternating treatments and their appropriate schedule were determined by in pairs. For example, if the coin-toss results in a head, then the first treatment was presession attention and the following treatment will be interspersed attention by default ensuring that each treatment administered in equal numbers, but in random order.

Social validity. A social validity questionnaire based on the work of Briesch, Chafouleas, Neugebauer, & Riley-Tillman (2013) was provided to the instructor to determine the feasibility, effectiveness, and overall opinions regarding the small talk

intervention as well as recommendations for improving the presession small talk antecedent-based behavior management model (Appendix D). An additional social validity questionnaire was administered to the target student to determine if he believed the intervention to be academically beneficial and improved his classroom behaviors (Appendix D).

Procedural fidelity. Procedural fidelity was calculated for 100% of the treatment sessions. Using the procedural checklists, the experimenter viewed recorded sessions to calculate procedure fidelity by divided the number of correct steps by the total number of steps in the checklist and then multiplying by 100 (Cooper et al., 2007). Average fidelity score of 90% was considered acceptable for each phase of the presession and interspersed attention interventions (Appendix E).

Data Analysis

Data were collected by the experimenter each session. The experimenter then graphed the number of occurrences of disruptive behavior displayed by the participant during each phase of the study, classroom participation (i.e., percentage of correct responses on assigned class work), and percentage of student engagement during the class period. Visual analysis was conducted to determine trend, level, variability, immediacy of intervention effect, consistency across participants, and functional relationships between the dependent and independent variables (Appendix F).

Interobserver agreement. Interobserver agreement (IOA) was conducted during at least 20% of the sessions across intervention phases. During these sessions, a second observer (a doctoral student) collected and recorded data during a taped session. The observers' data sheets were compared to each other on an interval-by-interval basis

following the session. An agreement of 80% or higher will be acceptable for each session.

CHAPTER 4: RESULTS

This chapter discusses the results of presession and interspersed attention on the disruptive behaviors, correct responses on teacher assigned tasks, and student engagement of an elementary school student. Interobserver agreement and procedural reliability measure data are presented first, followed by the results of the FBA. Additionally, each research question regarding presession and interspersed attention as well as their comparative effects are outlined below. Results from social validity measures by both the classroom teacher and student are included.

Interobserver Agreement

Interobserver agreement (IOA) data were collected for each of the primary dependent variables (i.e., disruptive behavior and percentage of correct responses). IOA data were collected for 20% of the sessions across each phases of the intervention (i.e., baseline 1, presession, interspersed, baseline 2, and best phase) for the participant. All IOA sessions were conducted using videos recorded by the primary data collector that were later reviewed by a second scorer using the interval-by-interval agreement method. IOA collected had mean agreement of 86% with a range between 80% and 95% agreement. IOA data collected for baseline 1 condition had an agreement of 84%, for presession attention condition had a mean agreement of 90%, for interspersed attention had a mean agreement of 95%, for baseline 2 had an agreement of 82%, and for the final best-fit presession phase had an agreement of 80%.

IOA data were also collected for the academic measure of percentage correct on classroom assigned tasks. The assignments included diagramming and writing sentences in which the classroom teacher would designate a grade based on the number of correct responses divided by the total of responses. Additionally, students created sentences which were scored on a scale of one to five stars by the classroom teacher, and then converted into percentages. IOA data, collected by the primary data on video, were scored by a secondary collector for a total of 26% across each phase of study with a total agreement of 100%.

Table 1. Interobserver agreement for disruptive behavior. IOA was calculated interval-by-interval between the primary data collector and a secondary data collector scoring from a recorded video.

Session No. (Condition)	Agreement of intervals
5 (Baseline 1)	114/135 = 84%
8 (Presession attention)	137/152 = 90%
9 (Interspersed attention)	144/152 = 95%
20 (Baseline 2)	99/121 = 82%
24 (Presession attention)	97/121 = 80%

Table 2. Interobserver agreement for percentage of correct responses on assigned tasks. IOA was calculated by dividing the number of correct responses observed by the primary data collector by the number of correct responses observed by the secondary data collector

Session No. (Condition)	Agreement of intervals
6 (Presession attention)	18/18 = 100%
14 (Presession attention)	4/4 = 100%
15 (Interspersed attention)	3.5/3.5 = 100%
16 (Baseline)	4.5/4.5 = 100%
24 (Presession attention)	5/5 = 100%

Procedural Reliability

In order to assess reliable implementation of each intervention, a checklist was created to track and log procedural reliability (see Appendix E). Data on procedural reliability were collected on 100% of the presession attention, interspersed attention, and best-phase treatment sessions by the primary data collector. Procedural reliability was calculated by dividing the number of completed steps by the total number of steps necessary to implement the intervention. The procedural reliability was 100% across the initial presession attention phase, 95 % (range of 75%-100%) across the interspersed phase, and 100% across the final best-fit treatment phase (i.e., presession attention) of the intervention.

FBA Results

An FBA was conducted to determine the function of the participant's behavior using the model provided by Scott et al. (2007). The FBA included informal class observations, a telephone interview with the participant's mother, a scripted interview with the classroom teacher, and three formal ABC classroom observations across different days, times, and classroom subjects. The FBA indicated that the participant's behavior was maintained primarily by social reinforcement (i.e., making vocalizations and gestures to obtain teacher and peer attention), while some behaviors were maintained by automatic reinforcement (i.e., exaggeratedly swinging legs). For example, the student would often repeat words that the teacher has previous said (e.g., "twitch"), laugh out loud, and then look towards his peers for attention.

Dependent Variables

Presession Attention

Research Question 1: what is the effect of presession attention on the disruptive behaviors of an elementary student?

Results displaying the effects of presession attention on disruptive behaviors are shown in Figure 1. A visual analysis of the data indicated a functional relation between presession attention and a decrease in disruptive behavior. During the initial baseline condition, Jay demonstrated moderate levels of disruptive behaviors (M=46%) with some variability (39%-50%). The predicted data path without intervention would remain elevated. However, upon the introduction of the presession treatment phase of the study, Jay displayed lower levels of disruptive behavior (M=26%) with continued variability (21%-29%). During the return to baseline condition, Jay's disruptive behaviors increased

(M= 50%) with a range of 43%-56% of intervals displaying disruptive behavior which also served to verify the initial predicted data path consisting of elevated occurrences of disruptive behavior. The final best-fit phase of the intervention (i.e., presession attention) indicated a further reduction in Jay's disruptive behaviors (M=24%) with a range of 18% to 30% and served as a replication of the initial treatment effects of the presession intervention. The prediction of a stable initial data path, the verification of results during the reversal phase of the study, and the subsequent replication of effects during the final best-phase treatment stage of the intervention determined a functional relation between presession attention and a decrease in disruptive behaviors for the target student. Research Question 2: what is the effect of presession attention on percentage of correct responses on assigned tasks of an elementary student?

Results displaying the effects of presession attention on the percentage of assignment completion are located in Figure 2. An analysis of the data reveals aa slight increase in the percentage correct on assigned classroom tasks during the presession attention phase compared to an initial baseline. During the initial baseline condition, Jay received a moderate percentage of correct responses to assigned academic tasks (M=71%) with noted variability (65%-80%). However, upon implementation of the presession attention intervention, Jay was assessed by the classroom teacher as having higher percentages of correct responses in his assigned class work (M=83%) with continued variability (76%-94%). With the return to baseline condition, Jay's percentage of correct responses decreased slightly (M=80%) with a variable range of correct responses (50%-90%). The final best-fit condition (i.e., presession attention), concluded with a marked increase in correct responses (M=100%) on the last two assigned tasks.

Interspersed Attention

Research Question 3: what is the effect of interspersed attention on the disruptive behaviors of an elementary student?

Results displaying the effects of interspersed attention on disruptive behaviors are shown in Figure 1. A visual analysis of the data indicated lower levels of disruptive behavior during the interspersed attention condition compared to baseline phases. During the initial baseline condition, Jay demonstrated moderate levels of disruptive behaviors (M=46%) with some variability (39%-50%). Upon the introduction of the presession treatment phase of the study, Jay displayed lower levels of disruptive behavior (M=19%) with continued variability (15%-24%). During the return to baseline condition, Jay's disruptive behaviors increased (M= 50%) with a range of 43%-56% of intervals displaying disruptive behavior.

Research Question 4: what is the effect of interspersed attention on the percentage of correct responses on assigned tasks of an elementary student?

Results displaying the effects of interspersed attention on the percentage of assignment completion are located in Figure 2. An analysis of the data revealed a slight increase in the percentage of correct responses on assigned classroom tasks throughout the interspersed attention condition. During the initial baseline condition, Jay received a moderate percentage of correct responses to assigned academic tasks (M=71%) with noted variability (65%-80%). However, upon implementation of the presession attention intervention, Jay scored was assessed at higher percentages of correct responses in his assigned class work (M=73%) with continued variability (70%-78%). With the return to

baseline condition, Jay's percentage of correct responses X (M=80%) with a variable range of correct responses (50%-100%).

Comparative Effects

Research Question 5: what are the comparative effects of presession attention versus interspersed attention on the disruptive behaviors of an elementary student?

Results displaying the effects of presession and interspersed attention on disruptive behaviors are located in Figure 1. During the alternating treatment condition presession attention sessions, Jay displayed disruptive behaviors an average of 26% (range of 21%-29%) of recorded intervals. Concurrently, during the interspersed attention sessions, Jay engaged in disruptive behaviors an average of 19% (range of 15-24%) of recorded intervals. Comparing these conditions to an elevated initial baseline of displayed disruptive behaviors (M=46%; range 39%-50%), both treatments demonstrated a decrease in mean disruptive behaviors across a recorded session. When compared to each other, interspersed attention demonstrated a larger reduction (M=27%) than presession attention (M=20%) in recorded intervals which disruptive behaviors occurred.

Research Question 6: what are the comparative effects of presession attention versus interspersed attention on the percentage of percent of correct responses on assigned tasks of an elementary student?

Results displaying the effects of pressession and interspersed attention on the percentage of assignment completion are located in Figure 2. During the alternating treatment condition presession attention sessions, Jay scored 85% correct (range of 76%-94%) on assigned academic tasks. Additionally, during the interspersed attention sessions, Jay scored 73% correct (range of 70%-78% on classroom assignments. The

initial baseline percentage of correct responses (M=71%; range of 65%-80%) was lower than both treatment conditions indicating a functional relation for presession attention, as well as interspersed attention, and an increase in correct responses on academic tasks. As the interventions are compared with each other, the data suggest that presession attention has a higher increase (M=14%) in correct academic responses than the interspersed attention condition (M=2%).

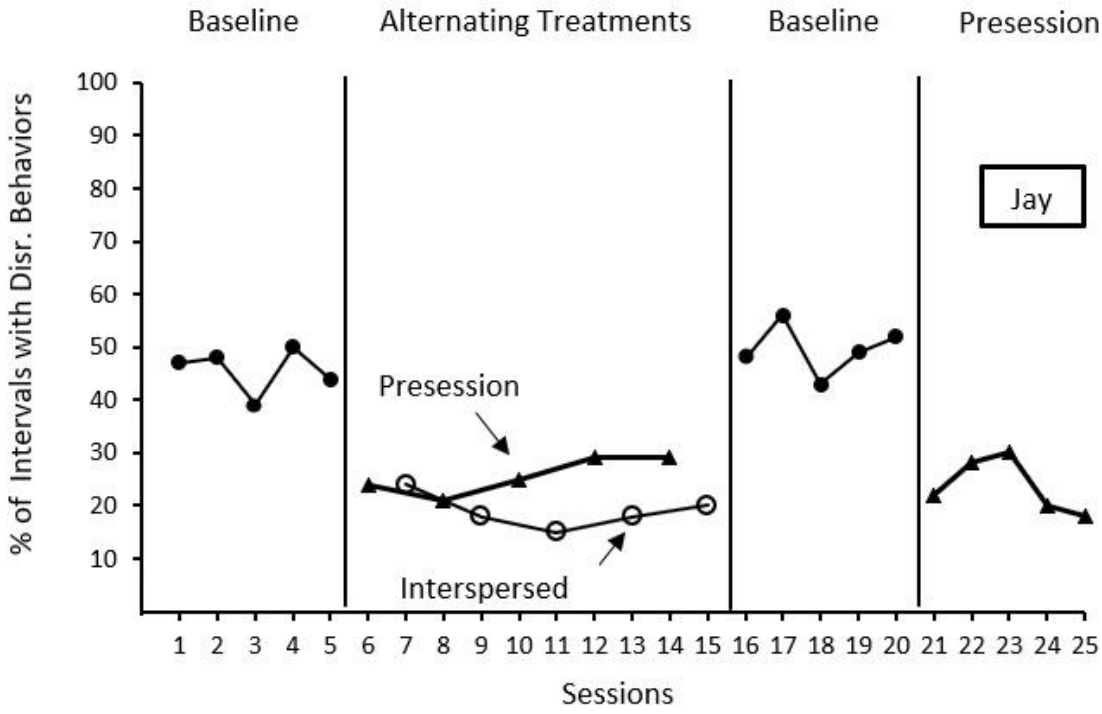

Figure 1. Percentage of intervals of disruptive behavior by Jay across all phases.

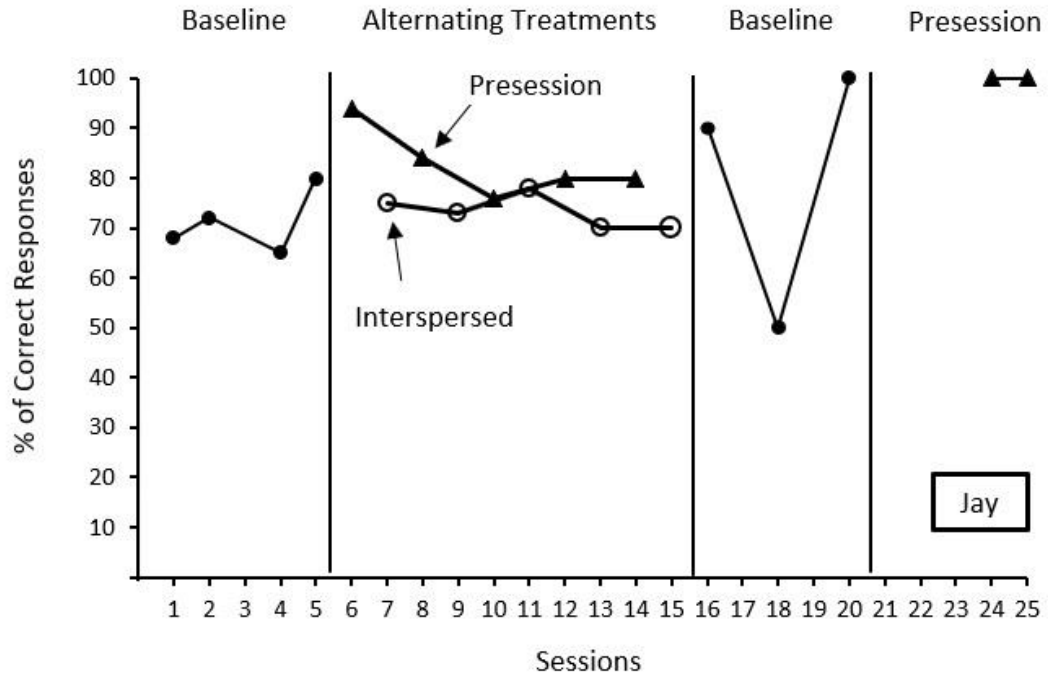

Figure 2. Percentage of correct responses on assigned tasks by Jay across all sessions.

Student Engagement across class period

Research Question 7: what are the comparative effects of presession attention versus interspersed attention on disruptive behavior across an instructional session?

Results displaying the effects of pressession and interspersed attention on disruptive behavior are located in Figure 3. This data was generated by adding all intervals that contained disruptive behavior every 12 intervals (i.e., 2 minutes) for all sessions for each condition (i.e., baseline, presession, and interspersed attention), and then dividing by the total intervals to obtain a mean. For example, during the interspersed attention condition, to obtain the first data point, the researcher added all intervals containing disruptive behavior during the first two minutes of every interspersed attention session, and then divided by the total amount of intervals to report a mean. This process

was repeated for the baseline and presession attention conditions and then reported on the figure below. The baseline data show moderately high, variable levels of disruptive behavior throughout the session. The presession attention data show lower, more stable levels of disruptive behavior across the same time period throughout the session. Finally, the interspersed attention data show slightly lower, more variable levels of disruptive behavior with slight increase occurring at the 10 and 20-min mark.

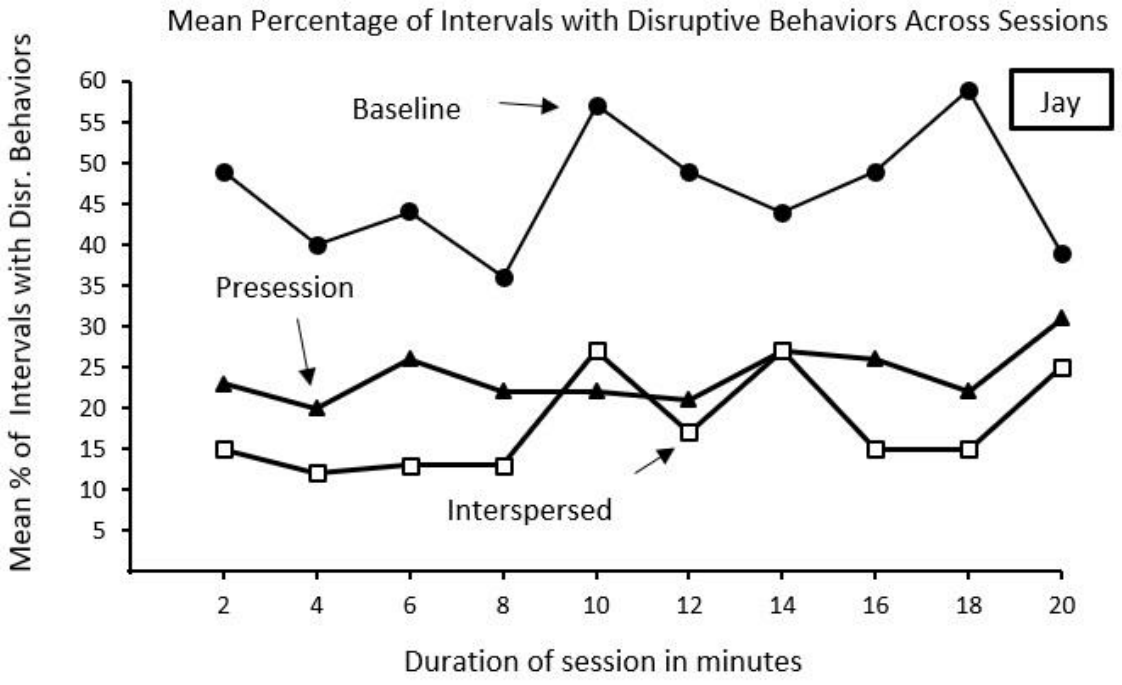

Figure 3. Average percentage of disruptive behavior displayed by Jay across sessions as measured in 2 min intervals.

Teacher's Perceptions and Attitudes

Research Question 8: what are the teacher's opinions on the procedures and outcomes of the interventions on students' behavior?

The classroom teacher was instructed to complete an empirically based social validity measure (Briesch, Chafouleas, Neugebauer, & Riley-Tillman, 2013) in order to

determine her perceptions on the feasibility and effectiveness of each classroom intervention. The measure consisted of 10 statements (i.e., five statements per intervention) and the responses are located in Table 3 below. Each response was ranked on a Likert scale of 1-5 in which (1) designates a value of "strongly disagree" and (5) indicates a value of "strongly agree." When asked about the presession attention intervention the classroom teacher indicated that she somewhat agreed with the statements that presession intervention was a good way to handle the child's behavior, that she would implement with a good deal of enthusiasm, that the intervention would not disrupt other students, and that she would have positive attitudes implementing the intervention. Additionally, the teacher strongly agreed with the statement that the presession intervention would easily fit in with her current practices. When asked about the interspersed attention intervention the classroom teacher indicated that she somewhat agreed with the statements that she would implement the intervention with a good deal of enthusiasm, that the intervention would easily fit into current practices, and that she would have positive attitudes about implementation. The teacher indicated that she would neither agree nor disagree with the statement that the interspersed intervention was a good way to handle the student's behavior. Additionally, the results from the social validity questionnaire indicated that the teacher strongly agreed with the statement that the interspersed intervention would not be disruptive for other students.

Finally, the social validity questionnaire included two open response questions for the teacher to include her own perceptions, attitudes, and opinions. In response to the question that stated, "What other comments do you have regarding this intervention(s)," the teacher noted that these interventions were already used as part of the instructional

day, but allowed her to be more deliberate or intentional regarding their implementation. Also, in response to the question that asked, “Do you have any concerns about the intervention(s),” she answered that the interventions must not be so “orchestrated,” but must be “fluid” in their implementation so they are seen as routine. Additionally, the teacher commented that the interventions were not intrusive and that the class maintained or even increased productivity as a result.

Table 3: Teacher's perceptions on presession and interspersed interventions.

Social validity statement	Response (1-5)
The presession intervention is a good way to handle the child's behavior problem	4
I would implement the presession intervention with a good deal of enthusiasm	4
The presession intervention would not be disruptive to other students	4
The presession intervention procedures easily fit in with my current practices	5
I would have positive attitudes about implementing the presession intervention	4
The interspersed intervention is a good way to handle the child's behavior problem	3
I would implement the interspersed intervention with a good deal of enthusiasm	4
The interspersed intervention would not be disruptive to other students	5
The interspersed intervention procedures easily fit in with my current practices	4
I would have positive attitudes about implementing the interspersed intervention	4

Note: 1= Strongly Disagree, 2= Somewhat Disagree, 3= Neither agree or disagree, 4= Somewhat agree, 5= Strongly agree

Student's Perceptions and Attitudes

Research Question 9: what are student's opinions on the procedures and outcomes of the interventions?

The participant was provided a social validity measure to collect data on his perceptions regarding the effectiveness and satisfaction with the presession and interspersed attention interventions. The measure consisted of 6 questions (i.e., 3 questions per intervention) and the responses are located in Table 4 below. Each response was ranked on a Likert scale of 1-5 in which (1) designates a value of "strongly disagree" and (5) indicates a value of "strongly agree." The participant indicated that he "strongly agreed" (i.e., 5) with the following statements: a) I liked talking with my friends about a lesson before the lesson started, b) I liked talking with my friends at different times during the lesson, c) I liked talking with my friend before the lesson, and d) I feel that talking with my friends helps my behavior be better. He respond that he somewhat agreed (i.e., 4) with the statement: I feel that talking with my friends helps my classwork be better. Finally, the participant responded that he strongly disagreed (i.e., 1) with the statement: I liked talking with my friends during the lessons better.

Table 4: Student's perceptions of presession and interspersed interventions

Social validity statement	Jay's Response (1-5)
I liked talking with my friends about a lesson before the lesson started.	5
I liked talking with my friends at different times during the lesson.	5
I liked talking with my friends before the lesson better.	5
I liked talking with my friends during the lessons better.	1
I feel that talking with my friends helps my behavior be better.	5
I feel that talking with my friends helps my classwork be better.	4

Note: 1= Strongly Disagree, 2= Somewhat Disagree, 3= Neither agree or disagree, 4= Somewhat agree, 5= Strongly agree

CHAPTER 5: DISCUSSION

The purpose of this study was to investigate the effects of presession and interspersed attention on the disruptive behaviors of an elementary student in a general education classroom. Using an ABAC reversal design with an embedded alternating treatment, this study compared presession attention and interspersed attention on the disruptive behaviors and percentage of correct responses on assigned tasks across an instructional session of an at-risk elementary student. Additionally, measures of social validity were collected from the classroom teacher and student to determine their perceptions on the feasibility and effectiveness of the interventions. Throughout this chapter, each research question will be addressed, as well as this study's contributions to literature, limitations, suggestions for future research, and implications for practice.

Presession Attention

Research Question 1: What is the effect of presession attention on the disruptive behaviors of an elementary student? Results of this study indicated a functional relation between presession attention and a decrease in disruptive behavior demonstrated by the target student. During initial baseline conditions Jay was moderately disruptive (M=46%) during each session. Immediately after implementing the presession attention intervention, Jay's disruptive behavior decreased to 24% of intervals with disruptive behaviors and remained consistently lower (M=26%) during the treatment phase. Michael (2000) stated that providing presession access to reinforcer (e.g., social attention or tangible item) can act as an abolishing operation, and thereby reducing its

reinforcing effects. The results of the FBA for Jay indicated that his disruptive behaviors were predominately maintained by peer attention. Therefore, the results of this study indicated that by providing presession access to peer attention, Jay may have been less motivated to initiate disruptive behaviors in order to gain attention. This hypothesis is verified during the reversal phase of the intervention in which Jay displays even higher levels of disruptive behavior (M=50%) compared to the initial baseline phase. Finally, the initial findings were replicated in the final presession attention phase in which Jay demonstrated a further reduction in disruptive behaviors during his last five sessions (M=24%) in which he was partnered with a peer before instruction.

These results are congruent with previous research that indicated presession attention has shown a functional relation with a decrease in disruptive behaviors (Berg et al., 2000; Edrisinha et al., 2011; McComas et al., 2003; McGinnis et al., 2010; O'Reilly et al., 2007; Patterson, 2009). Similar to Patterson's (2009) study, this study focused on a single student in a general education classroom and used presession attention as an abolishing operation to diminish the reinforcing value of social attention. However, this intervention demonstrated that social attention could be delivered by peer partners in a whole group setting, required little training for the interventionist, and employed an academic intervention (i.e., Think, Pair, Share; Kagan, 1994; Tyminski, Richardson, Winarski, 2010) so as not to detract from the learning environment. Although the intervention was designed for the benefit a single student, Jay was not singled-out during implementation, and neither he, nor his peers, realized that he was being targeted for intervention. The inclusive nature of the intervention, ease of implementation, and effects

on decreasing disruptive behavior make presession attention a viable option for general education teachers.

Research Question 2: What is the effect of presession attention on the percentage of correct responses to assigned tasks of an elementary student? Results of this study indicated an increase in correct responses on teacher-assigned classwork during the presession attention condition. The percentage of correct responses on Jay's in-class assignments increased from an average of 71% during the initial baseline condition to an average of 83% correct responses during the presession intervention condition of the alternating treatment phase. Additionally, Jay correctly responded to 100% of assigned tasks during the final presession phase compared to 80% during the return-to-baseline phase of the intervention.

The presession attention intervention may have allowed for the increase in correct responses for a number or reasons. First, the actual intervention was for students to discuss topics relating to the assigned task (e.g., review a previous session or make predictions about the day's lesson). This would allow students time to work with each other and adequately prepare for the upcoming lesson. Second, by receiving positive social attention from a peer, Jay was less likely to engage in disruptive behaviors allowing him to focus on his assigned classroom tasks. By engaging in and better understanding the lesson, Jay was then more successful in completing his classwork. However, during the return-to-baseline and final presession conditions, academic measures were not always available to the researcher. For example, during the final presession condition only two assessments were completed on the final two sessions in which Jay was quite successful. While enough data were present to determine an increase

in correct academic responses during the presession condition, more research is necessary to determine a functional relation between variables. Additionally, it must be noted that the presession attention intervention did not seem to detract or negatively impact the classroom or learning environment.

Interspersed Attention

Research Question 3: What is the effect of interspersed attention on the disruptive behaviors of an elementary student Results of this study indicated a decrease in disruptive behaviors displayed by the target student throughout the interspersed attention condition. During the initial baseline condition, Jay demonstrated moderately elevated disruptive behaviors (M=46%) with variability (39%-50%) across sessions. The percentage of intervals during the baseline condition was consistent, and relatively stable throughout the initial data collection process. Comparatively, during to the interspersed attention intervention, Jay displayed lower levels of disruptive behavior (M=19%) with slightly less variability (15%-24%). The consistency of these data across sessions and lack of overlap from the initial baseline condition indicated the interspersed attention intervention was effective at decreasing disruptive behaviors for Jay. The findings are posited to be the result of Jay receiving appropriate peer attention both before, and approximately 10-min into, the lesson. By receiving attention in the form of a "partner talk" or "pair-and-share," Jay was less likely to engage in behaviors to receive attention.

Additionally, during the reversal phase of the study, Jay demonstrated elevated intervals of disruptive behaviors (M=50%) with continued variability (43%-56%). In fact, these findings indicated that not only did Jay's disruptive behaviors increase, but were

consistently higher across sessions. By not receiving appropriate peer attention before and during a session, findings indicated that Jay was more likely to engage in inappropriate behaviors to seek attention. The results from the reversal phase of the study serve as verification of baseline conditions and as a further indication that interspersed attention is associated with a decrease in disruptive behaviors. Without replication of the interspersed attention phase (i.e., a second implementation of the intervention), it is not possible to state that the results demonstrated a functional relation. However, the results showed an overall decrease in disruptive behavior for the target student when interspersed attention was used.

These findings are aligned with previous research that indicated interspersed attention in the form of NCR has demonstrated a functional relation with a decrease in disruptive behaviors (Austin & Soeda, 2008; Banda & Sokolosky, 2012; Carr et al., 2009; Gouboth, Wilder, & Booher, 2007; Richman et al., 2015; Tomlin & Reed, 2012). However, much of the prior research in the area of interspersed attention (i.e., NCR) has focused on students with severe disabilities (Phillips, Iannaccone, Rooker, & Hagopian, 2017; Phillips & Mudford, 2011), in a clinical or day setting (Doughty & Anderson, 2006; Rasmussen & O'Neill, 2006), and implemented short intervals of reinforcement (i.e., 15s-30s; Banda & Sokolosky, 2012; Falcomata & Gainey, 2014; Tomlin & Reed, 2012). These previous findings are worth noting because this intervention was implemented in a general education class by age-appropriate peers using a thin (i.e., approximately10 minutes) schedule of reinforcement.

Research Question 4: What is the effect of interspersed attention on the academic performance of an elementary student? Results of this study indicated that a

modest overall increase in percentage correct on academic tasks (M=73%) during the interspersed attention condition compared to the initial baseline phase of this study (M=71%). However, during the reversal phase (i.e., baseline phase) of the intervention, Jay increased his percentage of correct responses (M=80%) on his assigned classroom tasks. This disparity could be explained by a number of factors in the classroom environment. All data were collected during the Language Arts portion of Reading class which encapsulated grammar, sentence diagramming, and later sentence and paragraph composition. During the reversal phase, students were instructed to compose their own sentences and those were subjectively scored by the classroom teacher using a star-rating system of one to five stars including half-star ratings. The researcher then converted the star-rated assessments to percentages correct. Additionally, for two of the five return-to-baseline conditions no assessments were available to score, so the sample is smaller for this condition than the previous baseline as well in interspersed attention condition.

While the results of this study cannot conclude a functional relation with interspersed attention and an overall increase in percentage of correct responses on assigned tasks, findings indicated that this intervention did not hinder the student from academic performance. In other words, this intervention did not appear to have an adverse effect on the student's overall ability to accurately complete classroom assignments. Since the interspersed attention intervention was based off an academic intervention (i.e., Think, Pair, Share), it is reasonable to conclude that little academic time was lost due to classroom implementation.

Comparative Effects of Presession and Interspersed Attention

Research Question 5: What are the comparative effects of presession attention versus interspersed attention on the disruptive behaviors of an elementary student? While many studies have been conducted to measure the effects of presession attention (Berg et al., 2000; Chung & Cannella-Malone, 2010; Kelly et al., 2015; Lang et al., 2010; McGinnis et al., 2010; O'Reilly et al., 2007; Rispoli et al., 2014; Scalzo & Davis, 2015) and interspersed attention (Austin & Soeda, 2008; Banda & Sokolosky, 2012; Britton et al., 2000; Fisher et al., 2004; Gouboth et al., 2007; Jones et al., 2000; Moore et al., 2016; Rasmussen & O'Neill, 2006; Tomlin & Reed, 2012) on the disruptive behaviors of students, no study has compared these two interventions. Results of this study indicated the participant's disruptive behavior was at a lower level for both presession and interspersed attention compared to the initial baseline condition (M=46% disruptive intervals).

When compared to the interspersed attention condition, the presession attention intervention data demonstrated a slightly more elevated level of disruptive behaviors with a noted increasing trend. Jay consistently engaged in more disruptive behaviors during the presession condition than the interspersed condition, and there is a noticeable separation in the data paths as the alternating treatment phase of the study progressed. Alternately, the interspersed attention data reflect a lower level of disruptive behaviors with less variability and no discernible trend. These results indicated that peer attention in the form of a Think, Pair, Share may be an effective abolishing operation for attention-seeking behaviors, but may not have had a strong enough abative effect to last the duration of an instructional session. The interspersed attention condition allowed Jay to

appropriately engage his peers again 10 minutes into the session, gain the attention that he desired, perhaps experience a break in his classwork, and then continue with the rest of the session with a decreased motivation to engage in disruptive behaviors. To conclude, while both interventions were associated with a decrease in disruptive behaviors, the interspersed attention consistently decreased disruptive behaviors for Jay compared to the presession attention intervention.

Research Question 6: What are the comparative effects of presession attention versus interspersed attention on the percentage of correct responses on assigned tasks of an elementary student? When compared to an initial baseline condition (M=71% correct responses), results of this study indicated an increase in the percentage of correct responses on assigned classwork for the participant in each condition. Compared to the interspersed attention condition, the presession condition data illustrate slightly higher percentages with more variability. The percentage of correct responses on assigned tasks during the interspersed condition are lower than the presession condition, but also more stable and with no discernible trend.

Additionally, the presession intervention data report a 14% overall increase in correct responses compared to a 2% increase during the interspersed attention phase. One possible explanation for these results may be that the interspersed attention condition was too distracting for the participant to actively engage in his assigned work. The first paired partner-talk session often centered on reviewing a previous lesson or helping a peer with something they did not understand. These sessions provided attention for the target student, but also helped focus their attention on the academic topic. However, the

interspersed attention session 10 minutes into a lesson, while beneficial for providing attention, may have actually served as a distraction for the participant.

Research Question 7: What are the comparative effects of presession attention versus interspersed attention on disruptive behavior across an instructional session? Results of this study indicated a decrease in disruptive behavior across an instructional session across the presession and interspersed attention conditions. To measure this dependent variable, every 2 minutes of instructional time (i.e., 12 intervals) were averaged to report the mean percentage of off-task behaviors. As shown in Chapter 4, Figure 3, data in the baseline condition were variable throughout the sessions with marked increases at the 10 min and 18 min time points. However, no discernible pattern emerged regarding a consistent increase or decrease in disruptive behavior as the lesson continued.

The presession attention condition demonstrated the most stable data throughout with a slight increasing trend towards the end of the sessions. Interestingly, during the first 10 minutes of the averaged sessions, the presession condition consistently showed slightly elevated instances of disruptive behavior compared to the interspersed intervention during the same time frame. These results are notable because both the presession and interspersed attention interventions are implemented identically until 10 minutes into the session in which students are directed to pair with a partner during the interspersed condition. Additionally, the student was not informed of the condition (i.e., presession attention or interspersed attention) throughout the course of the study and therefore would not be anticipating another peer attention session during the interspersed condition.

Finally, while the interspersed attention condition demonstrated lower levels of disruptive behavior across an instructional session when compared to the presession condition, this condition was also more variable. There was a notable increase in disruptive behaviors at the 10 and 20-min mark indicating that perhaps the abolishing effects of peer attention were beginning to wane. Although this increase in disruptive behavior was not mirrored during the presession-only condition for this same duration of time. The increase in disruptive behavior at the 10-min mark also coincided with an increase in disruptive behaviors occurring during the baseline conditions as well. Additionally, after the interspersed condition (i.e., partner talk) was implemented 10 minutes into the session, there was a 10% decrease in disruptive behavior in the following two-minute time period. However, an 8% decrease occurred over the same time in the baseline condition.

Social Validity

Research Question 8: What are the teacher's opinions on the procedures and outcomes of the interventions on students' behavior? Social validity measures collected from the classroom teacher (who also served as the interventionist) indicated overall satisfaction with both interventions. The teacher was asked to rate her level of agreement with five statements about the interventions. She somewhat agreed (i.e., 4 on a scale of 1-5) with the statements: "I would implement the intervention with a great deal of enthusiasm" and "I would have positive attitudes about implementing this intervention" for both the presession and interspersed intervention. These statements indicated that the teacher was excited about implementing both of these interventions and that she viewed them favorably.

However, the results from the social validity questionnaire do convey that overall, the teacher favored the presession attention intervention. The teacher ranked the statements, “the intervention is a good way to handle the child’s behavior problem” and “the intervention procedures easily fit into my current practices” higher for the presession attention condition than she did for the interspersed attention condition. These answer selections indicated that the presession attention intervention was easier to incorporate into existing lessons and the teacher perceived the presession as a more appropriate way to address the student’s behavior than the interspersed attention intervention. Finally, the classroom teacher indicated that she strongly agreed that interspersed attention would not disrupt other students and only somewhat agreed that this was true for the presession attention intervention. Although the reasoning for this statement is unclear, perhaps the teacher felt that it was more distracting to have just a presession intervention at the beginning of the class, than for students to pair throughout the lesson.

Research Question 9: What are the student’s opinions on the procedures and outcomes of the interventions? Social validity measures collected from the participant indicated overall satisfaction with both interventions. The participant reported that he strongly agreed to statements that expressed he enjoyed talking with his friends about a lesson both before and during a lesson (i.e., presession and interspersed attention). Surprisingly, the questionnaire also indicated that he preferred talking with his friends prior to engaging in a lesson (i.e., presession attention) better than during the lessons (i.e., interspersed attention). While answering this question the participant commented that he liked talking with his peers before the lessons, but did not provide insight on why he preferred this to the interspersed attention. Additionally, the participant somewhat agreed

with the statement that talking with friends helped him complete his classwork. This perception indicated that the participant believed these academic interventions helped him more accurately complete his work. Finally, the participant strongly agreed that these interventions helped his behavior be better. Again, this response indicated that the student was aware of the interventions and he believed they helped him to behave better throughout the lessons.

Contributions

This study contributes to the body of literature concerning presession and interspersed attention as well as motivating operations through a number of findings. First, although previous presession and interspersed attention interventions have demonstrated a functional relation with a decrease in disruptive behavior (Edrisinha et. al., 2011; Falcomata & Gainey, 2014; McComas et al., 2003; McGinnis et. al., 2010; Noel & Getch, 2016; O'Reilly et. al., 2007; Patterson, 2009), most of these studies have been conducted with older students with severe disabilities in a separate setting. Results from this study indicated that presession and interspersed attention interventions can potentially decrease the instances of disruptive behaviors a general education elementary student. This finding is significant because many elementary-aged students with or without disabilities in the inclusive classroom setting may display disruptive behaviors maintained by attention that detract from the overall learning environment.

Another substantial contribution of this study is that it demonstrates that presession and interspersed attention interventions can occur in a general education classroom. While a few studies concerning FBIs and ABIs have been successfully implemented in the general education setting (Banda & Sokolosky, 2012; Patterson,

2009; Tomlin & Reed, 2012), many others have been conducted by highly trained personnel in clinical environments (Chung & Cannella-Malone, 2010; Fisher, DeLeon, Rogriguez-Cattar, & Keeney, 2004; O'Reilly et al., 2007; Rasmussen & O'Neill, 2006). In fact, presession interventions and NCR (i.e., interspersed attention) occurring in a general education classroom is the exception in the literature with most student interventions being implemented in a separate setting (Berg et al., 2000; Doughty & Anderson, 2006; Falcomata & Gainey, 2014; Fisher et al., 1996; Fisher et al., 2004; Hagopian et al., 2000; Hanley et al., 1997; McComas, Thompson, & Johnson, 2003; McGinnis et al., 2010; Rispoli et al., 2014).

In an additional contribution, these interventions were implemented by the general education teacher. In similar studies (Patterson, 2009; Walker & Snell, 2017), ABI and FBIs have successfully implemented by classroom teachers; however, the contribution of this study is important because the intervention was delivered to the whole group using peers instead of a targeted intervention. The target student was included in the intervention without the teacher having to address him directly or individually because a peer was responsible for actually delivering the attention. This related contribution demonstrated that presession and interspersed attention interventions could use peers as a successful delivery mechanism. This peer-mediated system of delivering attention occurred in a previous study by Jones, Drew, and Weber (2000) in the form of peer accountability (i.e., saying, "You are not working.") and by providing planned 30s breaks for aversive tasks, but not by providing attention specifically as an abolishing operation.

A further contribution of this study is that it employed a dependent variable to measure accuracy of completed assignments. During all phases of the study, the participant attempted and completed all teacher-assigned tasks, so the measure was created to determine how accurate (i.e., percentage correct) his attempts were. Although a few related studies have measured academic variables (Chung & Canella-Malone, 2010; Kelly et al., 2015; Noel & Rubow, 2018), this study remains the only one in which the participant was addressed in a general education setting and completed teacher-assigned tasks related to the curriculum. In previous studies, however, participants were given researcher-assigned tasks to be completed in a separate setting. Additionally, previous studies found no discernible functional relation between the intervention and an increase in academic accuracy or proficiency.

The final contribution of this study was to determine the comparative effects for both the presession and interspersed attention antecedent interventions. Many studies have provided support for the effectiveness of presession attention (Edrisinha et. al., 2011; (McGinnis et al., 2010; Patterson, 2009) and interspersed attention (Carr et al., 2009; Noel & Getch, 2016; Richman et al., 2015) on the disruptive behaviors; however, no study has compared these two interventions using multiple dependent variables. The presession and interspersed attention interventions were selected because they are simple interventions that teachers can implement with little or no training in a general education setting. Additionally, many teachers may already be implementing these interventions to increase academic engagement and achievement in the classroom without knowing the possible benefits of decreasing disruptive behaviors. Additionally, practitioners may not feel comfortable implementing a “peer-delivered behavioral intervention,” but may be

more open to incorporating an academic intervention such as Think, Pair, Share or a turn-and-talk activity which may yield similar results. Although the results were mixed as to which intervention was the most effective in terms of behavior and academic accuracy, this study provides a foundation on which further research can be conducted regarding these two interventions.

Limitations

Results from this study indicated several possible limitations. First, although multiple participants were identified as meeting the requirements for inclusion in this study, only one student completed and returned consent. After multiple attempts, the researcher decided to continue the study with the single participant because he was and ideal candidate for the study and the classroom teacher was appropriate for and willing to participate in the intervention. Conducting a study with a single participant impedes the ability to generalize the results to other students who demonstrate similar attention-seeking behaviors and eliminates the possibility of comparing the results with other participants in the classroom.

Second, the study is limited by the ability to generalize across settings. Since only one teacher was responsible for the implementation of the intervention, there are no data to support this intervention would be effective in a separate setting with a different teacher. The students are taught all subjects by their general education teacher; however, it would have been possible to generalize to an elective teacher who teaches music or art. Additionally, this intervention was conducted during the same time of day and during the same classroom subject (i.e., reading) for continuity and to control the number of variables that could alter the intervention. For this reason, generalization data across

subjects (i.e., math or science) are not available for consideration in the findings of this study.

Third, another noted limitation was the setting of the classroom. A total number of twelve students were present, on average, throughout the course of the study. Although this group is heterogenous in their academic achievement levels, race, gender, and socio-economic status, it may not represent the average public-school general education classroom solely because of the small number of students. Due to the number of students, the classroom teacher could perhaps provide more attention, feedback, and supervision for each student. Additionally, a classroom teacher's assistant, and often more than one, was generally available to provide academic or behavioral assistance if necessary.

Fourth, this study was limited due to the fact that the researcher could not obtain consent to collect data on non-targeted students. Although the intervention was designed for targeted students who met specific inclusion criteria, the researcher wanted to collect additional data (i.e., on-task engagement) using momentary time sampling on non-target students. However, the researcher did not obtain the consent necessary to address this research question, so there are no data to draw any conclusions as to the effectiveness of the interventions on the behavior of the other students.

Fifth, the final limitation is that the academic variable for assignment accuracy was flawed in several ways. The measure was intended to be taken on completed, assigned classroom tasks, and not an arbitrary researcher-created measure. However, as the year and lessons progressed, so did the difficulty. This fact did not hinder the participant's ability to complete the tasks, but may have effected his scoring (i.e., percentage correct) of the assessments. For example, the students started out the term

identifying parts of speech, continued to create their own sentences, and finally were asked to develop entire paragraphs. Additionally, all tasks were scored by the classroom teacher. At first, scores were calculated as the number of correct divided by the number possible to determine a percentage. However, as the students were asked to develop sentences and paragraphs the teacher would subjectively score the students on a system of one to five stars with five being the highest ranking. No rubric was provided for the students as this was informal classroom work. The stars achieved were divided by five (i.e., the total number of possible stars) by the researcher to determine a percentage. Finally, a scored classroom task was not available for every session.

Suggestions for Future Research

Results from this study lead to several suggestions for future research. The first suggestion is to replicate this current study systematically to collect more data on presession and interspersed attention interventions. This study should be replicated in a general education setting using a diverse group of students that meet the inclusion criteria. Replication can lead to generalization of results across students and settings, as well as add to the body of research concerning function-based antecedent interventions (Horner et al., 2005). Similarly, this study should be replicated using alternate classroom practitioners. For example, the classroom teacher and teacher's assistant could both participate in initiating and overseeing the implementation of the peer-mediated intervention. In this manner, results can be generalized across more than one practitioner and perhaps increase the social validity of this intervention by demonstrating that it can be implemented by more personnel than the general educator.

Second, another suggestion for future research is for researchers to investigate the overall schedule of how long each peer-mediated session lasts and how often it occurs. Although the range of each peer discussion varied, the duration of these sessions was more than initially intended to be. Future research should focus on determining a suitable length of each peer discussion that does not detract from the classroom environment, and is still beneficial for reducing disruptive behaviors and potentially increasing academic engagement. Similarly, the duration between the paired sessions during the interspersed attention phase (i.e., 10 minutes) was derived from research based on the previous literature. However, future research should be attentive to the possibility of increasing or decreasing this schedule of reinforcement to best suit the needs of the participants, the classroom teacher, and overall learning environment.

Third, future research concerning presession and interspersed attention research should determine the effects of these interventions on non-targeted students. While these interventions are developed specifically for students with disruptive behaviors, the potential benefits for the other students in the classroom is currently widely unknown. Data should be collected to report the effects of these interventions on the classroom engagement and academic achievement of other students who do not meet the inclusion criteria for a targeted intervention. A classroom teacher may be more likely to engage in a behavioral practice such as presession or interspersed attention if there is evidence to support their effectiveness for the entire class instead of a small group of students.

Fourth, future research should address the effects of presession and interspersed interventions on disruptive behavior maintained by other functions (i.e., escape and automatic reinforcement). The participant in this study demonstrated disruptive behaviors

predominately maintained by adult and peer attention; however, peer-mediated attention sessions may also provide support for students with escape-maintained behaviors. These pre-planned breaks in direct instruction may alter the motivating operation by providing temporary relief from an aversive task (i.e., the teacher's instruction) and temporarily decrease students' disruptive behaviors to avoid those conditions. Currently no research has been conducted to determine the effects of presession and interspersed attention interventions on escape-maintained disruptive behavior and academic engagement. Finally, although there is an existing body of research (Chung & Cannella-Malone, 2010; Rispoli et al., 2014; Scalzo & Davis, 2017) that suggests a functional relation between presession and interspersed attention interventions and a decrease in automatically reinforced behaviors (e.g., rocking or moving feet back and forth), further research is necessary to determine the mechanism for this relation and to generalize the results.

Implications for Practice

Results from this study indicate several implications for practice. First, presession and interspersed attention interventions can be successfully implemented by a classroom teacher in a general education setting to decrease disruptive behavior in some targeted students. Teachers have indicated a desire to further incorporate cooperative learning strategies (i.e., TPS; Slavin, 1995) in their classrooms to meet the needs of their students (Saborit, Fernandez-Rio, Estrada, Mendez-Gimenez, & Alonso, 2016). With little training, a general educator can deliver these interventions to the whole class concurrently, rather than to a specific student or students. Many targeted Tier 2 PBIS interventions (i.e., ABIs and FBIs) can often be time consuming and overwhelming for classroom teachers to implement. General education teachers are increasingly teaching

students with challenging behavior needs in the general education setting and many struggle to teach and manage behaviors at the same time (Agran, Wehmeyer, Cavin, & Palmer, 2010). The ability to manage a classroom is particularly essential for general educators who are new to the teaching profession and may lack classroom management skills (Freeman, Simonsen, Briere, & Macsuga-Gage, 2014; Oliver & Reschly, 2010) or are in need of effective behavior management interventions (Westling, 2010).

The second implication for practice is to consider the use of peers as delivery agents for presession and interspersed attention interventions. For students who engage in disruptive behaviors to gain attention from the teacher or other students, peer-mediated interventions can be implemented to deliver attention in a prosocial manner. Peers do not require any specific training or understanding of the interventions to be beneficial to their classmates. Additionally, peer-delivered interventions can save the teacher time by allowing paired students to deliver attention to each other, rather than the teacher engaging students individually.

The final implication for practice is that presession and interspersed attention sessions can be academically related to classroom content. This intervention demonstrated that students can share and discuss content related to the lesson in the general education classroom as a means of delivering attention to a target student. General education teachers should consider pairing students together, not to discuss a preferred or nonrelated topic, but to engage each other in a short review of a previous session, a reaction to recently learned classroom content, or perhaps provided feedback on each other's classroom work. In this manner, classroom time is being put to good

work by keeping students focused on academic tasks while also engaging each other in appropriate conversation.

Summary

The purpose of this study was to evaluate the effects of presession and interspersed attention in the disruptive behaviors and academic achievement of an elementary school student with disruptive behavior. Social validity measures were also conducted at the completion of the study to determine the student's perception of the intervention as well as the teacher's opinions pertaining to the feasibility of implementation and overall effectiveness of the intervention. Visual analysis of results indicated a decrease in disruptive behaviors during both presession and interspersed interventions, as well as an overall increase in academic achievement across treatment conditions. Social validity measures indicated the student was satisfied overall with the intervention and felt that it had a positive impact on his classroom behavior. Additionally, social validity measures completed by the classroom teacher indicated that while both interventions were reasonable to implement, appropriate for addressing the student's disruptive behaviors, did not detract from the learning environment, and possibly improved classroom productivity, she preferred the presession attention intervention based on its simplicity and ease of implementation.

To conclude, students who display challenging classroom behaviors maintained by peer or adult attention may benefit from teacher-directed, peer-mediated presession or interspersed attention interventions. Findings from the present study are consistent with previous results indicating that these interventions demonstrate a functional relation with a decrease in challenging behaviors (Kelly et al., 2015; McGinnis et al., 2010; Rispoli et

al., 2014), and in increases in academic achievement (Chung & Canella-Malone, 2010). Further, according to social validity measures, these interventions are simple, effective, and well-tolerated. Ultimately, determining an appropriate behavioral intervention requires an FBA, proper planning, and some discretion by practitioners. However, presession and interspersed attention interventions should be considered by classroom teachers as a potentially effective strategy for decreasing disruptive behaviors and increasing academic achievement.

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Appendix A- Sample Data Collection Sheets for Dependent Variables

Disruptive Behavior

- Detracting from the learning environment by distracting the instructor, other students, or self from engaging in classroom materials
- Talking that is not related to current activity/lesson
- Bothering other students by touching, kicking, poking, making noises

25-30 minute observation
Partial Interval Recording for Disruptive Behavior
Observer: _____
Date: _____
Circle –Disruptive or Not Disruptive
10s Observe 5s Record **10s Observe 5s Record**

Time (Min.)	**Interval 1 (1-10s)**	**Interval 2 (16-25s)**	**Interval 3 (31-40s)**	**Interval 4 (46-55s)**
1	Disrupt Not	Disrupt Not	Disrupt Not	Disrupt Not
2	Disrupt Not	Disrupt Not	Disrupt Not	Disrupt Not
3	Disrupt Not	Disrupt Not	Disrupt Not	Disrupt Not
4	Disrupt Not	Disrupt Not	Disrupt Not	Disrupt Not
5	Disrupt Not	Disrupt Not	Disrupt Not	Disrupt Not
6	Disrupt Not	Disrupt Not	Disrupt Not	Disrupt Not
7	Disrupt Not	Disrupt Not	Disrupt Not	Disrupt Not
8	Disrupt Not	Disrupt Not	Disrupt Not	Disrupt Not
9	Disrupt Not	Disrupt Not	Disrupt Not	Disrupt Not
10	Disrupt Not	Disrupt Not	Disrupt Not	Disrupt Not
11	Disrupt Not	Disrupt Not	Disrupt Not	Disrupt Not
12	Disrupt Not	Disrupt Not	Disrupt Not	Disrupt Not
13	Disrupt Not	Disrupt Not	Disrupt Not	Disrupt Not
14	Disrupt Not	Disrupt Not	Disrupt Not	Disrupt Not
15	Disrupt Not	Disrupt Not	Disrupt Not	Disrupt Not
16	Disrupt Not	Disrupt Not	Disrupt Not	Disrupt Not
17	Disrupt Not	Disrupt Not	Disrupt Not	Disrupt Not

18	Disrupt	Not	Disrupt	Not	Disrupt	Not	Disrupt	Not
19	Disrupt	Not	Disrupt	Not	Disrupt	Not	Disrupt	Not
20	Disrupt	Not	Disrupt	Not	Disrupt	Not	Disrupt	Not
21	Disrupt	Not	Disrupt	Not	Disrupt	Not	Disrupt	Not
22	Disrupt	Not	Disrupt	Not	Disrupt	Not	Disrupt	Not
23	Disrupt	Not	Disrupt	Not	Disrupt	Not	Disrupt	Not
24	Disrupt	Not	Disrupt	Not	Disrupt	Not	Disrupt	Not
25	Disrupt	Not	Disrupt	Not	Disrupt	Not	Disrupt	Not
26	Disrupt	Not	Disrupt	Not	Disrupt	Not	Disrupt	Not
27	Disrupt	Not	Disrupt	Not	Disrupt	Not	Disrupt	Not
28	Disrupt	Not	Disrupt	Not	Disrupt	Not	Disrupt	Not
29	Disrupt	Not	Disrupt	Not	Disrupt	Not	Disrupt	Not
30	Disrupt	Not	Disrupt	Not	Disrupt	Not	Disrupt	Not
31	Disrupt	Not	Disrupt	Not	Disrupt	Not	Disrupt	Not
32	Disrupt	Not	Disrupt	Not	Disrupt	Not	Disrupt	Not
33	Disrupt	Not	Disrupt	Not	Disrupt	Not	Disrupt	Not
34	Disrupt	Not	Disrupt	Not	Disrupt	Not	Disrupt	Not
35	Disrupt	Not	Disrupt	Not	Disrupt	Not	Disrupt	Not
36	Disrupt	Not	Disrupt	Not	Disrupt	Not	Disrupt	Not
37	Disrupt	Not	Disrupt	Not	Disrupt	Not	Disrupt	Not
38	Disrupt	Not	Disrupt	Not	Disrupt	Not	Disrupt	Not
39	Disrupt	Not	Disrupt	Not	Disrupt	Not	Disrupt	Not
40	Disrupt	Not	Disrupt	Not	Disrupt	Not	Disrupt	Not
	Total:		Total:					

Notes and observations:

Sample Data collection sheet for assignment completion.

Session	**Participant 1**		**Participant 2**		**Participant 3**	
(Bas, Pre, or NCR)	**% Comp.**	**% Correct**	**% Comp.**	**% Correct**	**% Comp.**	**% Correct**
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						

19						
20						
21						
22						
23						
24						
25						
26						
27						
28						
29						
30						
Total:						

Appendix B- Teacher Interview

Interviewer(s)_____Date(s) _____ Student(s) _____ Respondent(s)_____Title _____

1. Describe or define the behavior of concern.
2. How often does the behavior occur? How long does it last?
3. What is happening when the behavior occurs (setting events) ?
4. *When/where is* the behavior *most/least* likely to occur?
5. With whom is the behavior *most/least* likely to occur?

6. What conditions are most likely to precipitate ("set-off') the behavior?

7. How can you tell the behavior is about to start?

8. What usually happens after the behavior? Describe what happens according to adult(s), peers, and student responses.

9. What is the likely function (intent) of the behavior; that is, why do you think the student behaves this way? What does the student get or avoid?

10. What behavior(s) might serve the same function (see question 9) for the student that is appropriate within the social/environmental context?

11. What other information might contribute to creating an effective intervention plan (e.g., under what conditions does the behavior not occur)?

12. Who should be involved in planning and implementing the intervention plan?

Appendix C: ABC Assessment Form

Student Name: _____ **Date:** ____ **Observer:** _____ **Session #:** ___

Setting Information:

Setting Events:

Time	Antecedents (A)	Behavior (B)	Consequences (C)

Hypothesis:

Appendix D-Social Validity Measures

Teacher Social Validity Questionnaire.

Instructor Name: Date:

Please indicate how much you agree or disagree with each of the following statements:

	Strongly disagree	**Somewhat disagree**	**Neither agree nor disagree**	**Somewhat agree**	**Strongly agree**
1. The presession intervention is a good way to handle the child's behavior problem	1	2	3	4	5
2. I would implement the presession intervention with a good deal of enthusiasm	1	2	3	4	5
3. The presession intervention would not be disruptive to other students	1	2	3	4	5
4. The presession intervention procedures easily fit in with my current practices	1	2	3	4	5
5. I would have positive attitudes about implementing the presession intervention	1	2	3	4	5
6. The interspersed intervention is a good way to handle the child's behavior problem	1	2	3	4	5
7. I would implement the interspersed intervention with a good deal of enthusiasm	1	2	3	4	5
8. The interspersed intervention would not be disruptive to other students	1	2	3	4	5

9. The interspersed intervention procedures easily fit in with my current practices	1	2	3	4	5
10. I would have positive attitudes about implementing the interspersed intervention	1	2	3	4	5

11. What other comments do you have regarding the intervention(s)?

12. Do you have any concerns about the intervention(s) or any ideas how it could be improved?

Thank you so much for your participation in and contribution to this important study.

Student Social Validity Questionnaire.

	Strongly disagree	**Somewhat disagree**	**Neither agree nor disagree**	**Somewhat agree**	**Strongly agree**
1. I liked talking with my friends about a lesson before the lesson started.	1	2	3	4	5
2. I liked talking with my friends at different times during the lesson.	1	2	3	4	5
3. I liked talking with my friends before the lesson better.	1	2	3	4	5
4. I liked talking with my friends during the lessons better.	1	2	3	4	5
5. I feel that talking with my friends helps my behavior be better.	1	2	3	4	5
6. I feel that talking with my friends helps my classwork be better.	1	2	3	4	5

Appendix E-Fidelity Checklist

Step Completed	*Session* ___	*Session* ___	*Session* ___	*Session* ___	*Session* ___
Presession-TPS Before Class	Y/N	Y/N	Y/N	Y/N	Y/N
Session Lasts two minutes	Y/N	Y/N	Y/N	Y/N	Y/N
Interspersed TPS 1	Y/N	Y/N	Y/N	Y/N	Y/N
Session 1 Lasts two minutes	Y/N	Y/N	Y/N	Y/N	Y/N
Interspersed TPS 2	Y/N	Y/N	Y/N	Y/N	Y/N
Session 2 Lasts two minutes	Y/N	Y/N	Y/N	Y/N	Y/N
Interspersed TPS 3	Y/N	Y/N	Y/N	Y/N	Y/N
Session 3 Lasts two minutes	Y/N	Y/N	Y/N	Y/N	Y/N
Steps Complete/Total X 100	**/ X100=**	**/ X100=**	**/ X100=**	**/ X100=**	**/ X100=**

Appendix F-Teacher Consent

UNC CHARLOTTE
College of Education

Department of Special Education and Child Development

9201 University City Blvd, Charlotte, NC 28223-0001
t/ 704.687.8828 f/ 704.687.2916 www.uncc.edu

Date: January XX, 2017

Teacher Informed Consent for
The Effects of Small Talk on Off-Task Behavior

You are invited to participate in a research study conducted by Kerry Kisinger, a Ph.D. student at UNCC. The purpose of this research study is to understand how academic activities, such as Think, Pair, Share, can increase classroom engagement and participation.

You will be asked to lead a brief behavioral intervention in which you will pair students either before or during a lesson in a Think, Pair, Share activity. The research team may observe and/or record these lessons using audio or visual recordings. All recordings will be stored confidentially and shared only with the research team.

There are no known risks associated with this research and the researchers will make every effort to make this a comfortable information gathering process. The project may involve risks that are not currently known.

This research will be beneficial in several ways. Your students will continue to participate in typical activities. They will not be pulled out from the classroom. The study

may enhance on-task behavior in the participants. This study may also help other teachers and administrators better understand how to increase student engagement in lessons.

The decision to participate in this study is completely up to you. If you decide to be in the study, you may stop at any time. You will not be treated any differently if you decide not to participate in the study or if you stop once you have started. Please return a signed copy of this consent form in whole if you agree to participate in this study.

Any identifiable information collected as part of this study will remain confidential to the extent possible and will only be disclosed with your permission or as required by law.

UNC Charlotte wants to make sure that you are treated in a fair and respectful manner. Contact the university's Research Compliance Office (704-687-1871) if you have questions about how you are treated as a study participant. If you have any questions about the actual project or study, please contact Kerry Kisinger at kksinge@uncc.edu.

I have read the information in this consent form. I have had the chance to ask questions about this study, and those questions have been answered to my satisfaction. I am at least 18 years of age, and I agree to participate in this research project. I understand that I will receive a copy of this form after it has been signed by me and the principal investigator of this research study.

Participant Name (PRINT) DATE

_____

Participant Signature

_____ _____

Investigator Signature DATE

Appendix G-Parent Consent

UNC CHARLOTTE
College of Education

Department of Special Education and Child Development

9201 University City Blvd, Charlotte, NC 28223-0001
t/ 704.687.8828 f/ 704.687.2916 www.uncc.edu

Date: January XX, 2017

Parent Informed Consent for

The Effects of Academic Small Talk on Off-Task Behavior

You are invited to have your child participate in a research study conducted by Kerry Kisinger, a Ph.D. student at UNCC. The purpose of this research study is to understand how academic activities, such as Think, Pair, Share, can increase classroom engagement and participation.

If you volunteer to have your child participate in this project, you will need to complete this consent form and return this form to your child's teacher. If your child participates in the study, he/she will also be observed in the classroom for approximately 20 minutes for approximately five sessions a week led by their classroom teacher. The classroom teacher will be using an established academic strategy such as Think, Pair, Share in order for students to engage in conversation with one another before and during a classroom lesson. The idea is that this will help your child concentrate better on the lesson and may increase participation.

There are no known risks associated with this research and the researchers will make every effort to make this a comfortable information gathering process. The project may involve risks that are not currently known.

This research will be beneficial in several ways. Your child will continue to participate in typical activities. He/she will not be pulled out from the classroom. The study may enhance on-task behavior in the participants. This study may also help teachers and administrators better understand how to increase student engagement in lessons. Finally, the use of audio and video recording may take place, however it will not be shared with anyone outside the research team or posted anywhere in public or private. All information will be stored in password protected computers and locked cabinets.

The decision to have your child participate in this study is completely up to you. If you decide to have your child participate in the study, you may stop at any time. You will not be treated any differently if you decide not to participate in the study or if you stop once you have started.

Any identifiable information collected as part of this study will remain confidential to the extent possible and will only be disclosed with your permission or as required by law.

UNC Charlotte wants to make sure that you are treated in a fair and respectful manner. Contact the university's Research Compliance Office (704-687-1871) if you have questions about how you are treated as a study participant. If you have any questions about the actual project or study, please contact Kerry Kisinger at kksinge@uncc.edu.

—

I have read the information in this consent form. I have had the chance to ask questions about this study, and those questions have been answered to my satisfaction. I am at least 18 years of age, and I agree to have my child participate in this research project. I understand that I will receive a copy of this form after it has been signed by me and the principal investigator of this research study.

_____ _____

Participant Name (PRINT) DATE

_____

Participant Signature

_____ _____

Investigator Signature DATE

Appendix H-Student Assent

The University of North Carolina at Charlotte

9201 University City Boulevard

Charlotte, NC 28223-0001

College of Education

Dept of Special Education & Child Development

Phone: 704-687-8492

Fax: 704-687-2916

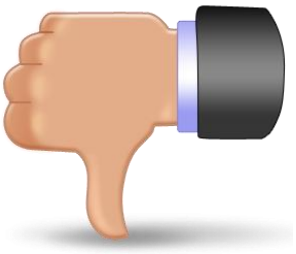
Date: January XX, 2017

Student ASSENT

Academic Small Talk

“My name is Kerry Kisinger and just like you are a student at this school, I am a student too. I wanted to know if you would want to help me with a study I am doing? In the study you will get to talk with your friends before a group lesson. You do not have to help me if you don’t want to, it will not change your grades. It is your choice and no one will be mad at you if you do not want to. Would you like to join the study?”

An adult has read this to me. My choice is:

YES	NO
	

_____ _____ ____

Student Name Student Signature Date

This form was approved for use by the UNCC internal Review Board on _____, expires _____.