

AN EVALUATION OF DEFERRED TIME-OUT TO TREAT NONCOMPLIANCE IN THE  
CLASSROOM SETTING

by

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Time-out (TO) is a widely recommended behavioral management strategy that has been minimally researched in regards to its components and applications or training procedures for teachers (Ryan et al., 2007; Sterling-Turner & Watson, 1999). There is no published evidence for the use of direct training procedures to implement TO in the general classroom setting. Deferred time-out (DTO) is a specific TO training procedure developed to increase compliant behavior in children who were not responsive to the traditional TO strategy (Warzak & Floress, 2009). By providing consultative training, a specific TO procedure to follow, and adding the deferment component, DTO has the potential to increase TO effectiveness in the classroom setting. A multiple baseline design across participants was used to assess disruptive behavior, latency of compliance, and teacher acceptability of DTO procedures in the classroom. Overall, results indicate that the intervention was successful in reducing disruptive behavior for all three students and there were noted decreases in latency between when the DTO instruction was given and when the student initiated the TO. Additionally, teacher responses on acceptability measures indicated high social validity. Using procedures such as DTO to decrease disruptive behaviors allows for improved social functioning and increased educational time with better learning opportunities, not only for the target student, but the classroom as whole.



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Figure 1: Percent of Disruptive Behavior

## **CHAPTER I: INTRODUCTION**

Deferred time-out (DTO) is a specific time-out (TO) procedure developed to increase compliant behavior in children who were not responsive to the traditional TO strategy (Warzak & Floress, 2009). In the original study, the DTO process was initiated when a child was resistant to TO in the traditional form and a training procedure was needed. Initial studies of DTO strategies were conducted using single case design in a clinical setting. The results from the initial research indicate that the DTO strategy reduces TO latency without the need for putting children back in TO or using physical means in attempt to gain time-out compliance. As well as being more time consuming and less effective, physical strategies to force TO compliance are much less favorable to caregivers than a solution such as DTO that does not require other controversial means (Kazdin, 1980). In the school setting, similar concerns are present and strategies are needed to increase the feasibility of TO in the classroom (Rathvon, 2012; Cowan and Sheridan, 2003). The current study extends the results of previous evaluations of this new procedure by determining functional applications of DTO, adds to the standard behavioral strategy of TO by providing a training protocol, and updates literature on effectiveness and acceptability of TO. DTO was previously applied in a clinical setting with families seeking treatment, but is now implemented in the classroom setting with teachers and students (Warzak & Floress, 2009).

## CHAPTER II: LITERATURE REVIEW

### **Disruptive Behavior**

Disruptive behavior problems represent one of the most frequently occurring categories of childhood problems (Long, Forehand, Wierson, & Morgan, 1994; Schroeder & Gordon, 2002; Petitcherc & Tremblay, 2009). Disruptive behaviors may present as early as the first year of life and are often considered a normal component of childhood development; however, some children may display greater frequency or intensity of disruptive behaviors (Schroeder & Gordon, 2002). Child age and developmental level contribute to disruptive behaviors, which often include refusal, noncompliance, hitting, kicking, and other aggressive behaviors. Considering the school setting, a child will only learn effectively through complying with instructions given by the teacher (Martens & Kelly, 1993). Specifically, it has been determined that if a student's level of compliance falls below 40% it will limit opportunities for educational instruction and impede learning (Rhode, Jenson, & Reavis, 1993).

Noncompliance can be defined as refusal to comply with adult requests, in the form of either direct or indirect commands (McClellan, Cohen & Moffett, 2009). Aggressive behavior may take many forms, but can be defined as any unwanted physical contact toward another person. Aggression must be carefully assessed as its severity may affect the appropriateness of different interventions (Donaldson & Vollmer, 2011). For example, severe aggressive behavior may rule out TO as a possible treatment option due to the potential risk of increasing aggression that may cause harm to the child or others before target behaviors improve.

The presence of disruptive behavior alone does not ensure that parents or classroom teachers will seek treatment or assistance. Some degree of defiant behavior is normal, especially in the preschool-age group, and usually will not require a clinical intervention (Barkley, 1997).

Guidelines provided by Barkley (1997) in his *Defiant Children* training manual help parents and clinicians determine if they should seek a clinical intervention which often involves input from teachers and others who interact with the child on a regular basis. First, the problem behavior must occur to a significantly greater degree than is common for other children as determined through assessment, interviews and observation of the child's behavior by clinicians, teachers and parents. Second, the behavior must also result in a substantial degree of impairment in the child's functioning. In other words the problem behavior must interfere with the child's developmental expectations for adaptive behavior. Third, the behavior of the child must have a significant impact on the emotional stress or safety of the child, parents, siblings, caregivers, or peers of the child being referred for treatment (Barkley, 1997).

If disruptive behavior meets the abovementioned criteria it may also meet criteria for a specific disorder as described in the *Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition* (DSM 5; American Psychiatric Association, 2013). Severe cases may lead to a number of clinical diagnoses, particularly within the category of disruptive, impulse-control, and conduct disorders. A diagnosis of this nature indicates a pattern of undesirable and defiant behavior displaying a disregard for rules and social norms of behavior (Petitclerc & Tremblay, 2009). There are many interventions used to treat disruptive behavior; this review will focus on a common treatment procedure known as TO.

### **Time-out as a Strategy for Disruptive Behavior**

Over the past 30 years, research has demonstrated widespread use and effectiveness of TO as a parental behavior management strategy, which is commonly recommended by family practitioners (Everett, Hupp & Olmi, 2010). TO in various forms is also a frequently used strategy in the school setting (Morgan & Ellis, 2011; Rathvon, 2012; Vargas, 2013). TO is

typically considered a punishment-based technique that is defined as a period of time away from positive reinforcement (Brantner & Doherty, 1983). Yet TO can also serve as a negative reinforcer depending on the maintaining function maintaining the child's behavior (e.g., allowing escape from a task demand). The distinction between negative punishment and negative reinforcement is a significant nuance necessary to consider when designing a TO intervention.

Generally speaking, TO refers to time spent in a minimally reinforcing environment, different from what the child is accustomed. When placed in TO, the child does not always have to be removed from their immediate setting, but a noticeable stimulus change is necessary to mark its starting point. Release from TO is typically contingent upon the passing of a specific time period and/or display of acceptable behavior by the child (Kazdin 1980). TO is most commonly used with children between the ages of three and seven for the treatment of noncompliance with parental instructions (Everett et al., 2010).

Traditionally, TO takes three forms: isolation, exclusion, and non-exclusion. These three forms of TO strategy range along a continuum of aversiveness and restrictiveness (Brantner & Doherty, 1983). Isolation TO is the removal of the child from the setting and typically separates the child by placing him in another room. During exclusionary TO, the child is isolated but not actually removed from the setting. In this case separation may occur by way of a dividing screen or TO chair facing the corner. Non-exclusionary TO limits participation in a reinforcing activity but does not remove it completely; the child could observe an activity but would not be permitted to continue interaction. No matter which strategy is employed, a clear beginning to TO relies on a distinct stimulus change (Kazdin, 1980).

All three types of TO initiate this stimulus change immediately following a child's misbehavior, making the distinction between time-in and TO from a reinforcing environment.

Time-in must be a truly reinforcement-rich and consistent experience for the child, such that TO from this environment is an undesirable occurrence; this clear contrast is necessary for TO to be effective (Kazdin, 1980). The more enriching a time-in environment is, saturated with attention and access to enjoyable activities, the more significant removal will be for the child. This idea of saturation versus deprivation will also be most effective when it is individualized to what each child finds reinforcing. When working with multiple children in the same setting (i.e., classroom), this is not always possible, but as long as the child can be withdrawn from a reinforcement-rich environment and experience the aversive nature of TO, it can act as an effective behavioral strategy (Brantner & Doherty, 1983).

### **Effectiveness of TO**

Although TO is one of the most frequently used behavioral strategies, it is rarely studied as a standalone intervention (Everett et al., 2010). In a review of 65 TO interventions ( $N = 576$ ) Everett and colleagues (2010) found that 77% of studies included TO in combination with at least one other behavioral intervention, most often a type of positive reinforcement of appropriate behavior. Based on their review, the authors assert that TO is appropriate in the treatment of externalizing problems in children, particularly for children who are less than 7-years old and engage in noncompliance with parental instructions. TO procedures overall have been proven to be one of the most effective methods in reducing disruptive behavior in children and is one of the most commonly included elements in parent training programs and classes (Eaves et al., 2005; Everett et al., 2010). Though TO is commonly used, there are numerous interpretations of what should be included in such a program and the literature is lacking a singular standardized protocol.

The absence of standardized TO protocol and lack of consistency in training presents variation that makes establishing effectiveness of TO challenging, especially in classroom settings (Prochner & Hwang, 2008; Simonsen et al., 2008). Vegas and colleagues (2007) identified as many different procedures for TO as there were studies included within their own meta-analysis. Focusing on effectiveness of TO, researchers used percent of non-overlapping data (PND) to evaluate TO independently as well as when used along with other strategies. The overall effect size for all studies included ( $N = 25$ ) was  $.50$  ( $SD = .44$ ), suggesting that packaged strategies were effective in reducing disruptive behavior in the classroom. When TO alone was used, without additional positive reinforcement or skill acquisition procedures ( $N = 7$ ), the PND =  $.74$  ( $SD = .26$ ), suggesting a moderately effective treatment. Within the meta-analysis, the most frequent setting for TO occurred in self-contained classrooms and was found to be moderately effective ( $ES = .74$ ); however, the evaluation of TO in general education classrooms demonstrated that the intervention was meaningfully less effective ( $ES = .34$ ). In a similar manner, TO was found to be much more effective with boys ( $ES = .63$ ) than with girls ( $ES = .00$ ). Meta-analysis demonstrates that although TO can be an effective intervention in reducing the occurrence of disruptive behavior, the data support TO effectiveness primarily in self-contained classrooms with boys (Vegas et al., 2007).

### **Additional Strategies**

There are many strategies that have been developed and found to be effective additions to traditional TO procedures. Some are found to be more acceptable than others and often depend on the severity and function of undesired behavior. The following six strategy areas are not exhaustive; These and many others have been added to traditional TO with varying amounts of support.

**Release contingency.** Donaldson and Vollmer (2011) conducted a multi-element (ABAC) reversal design to compare a fixed duration TO to a release contingency TO procedure for four children. A release contingency is a strategy that requires the absence of problem behavior for an entire TO interval, or no problem behavior for a certain amount of time at the end of the TO interval. The children, 3- and 4-year-olds, were referred by teachers or parents for displaying problem behaviors either at school or home. Sessions took place wherever these behaviors occurred most frequently for each child. TO-producing responses were identified for each student, as well as delay-producing responses (problematic responses occurring during a TO) that added time to the TO procedure before release. Data were collected through direct observation of the frequency of each child's target behavior, and inter-observer agreement was calculated for each session (Donaldson & Vollmer, 2011).

The four phases of the study included: baseline, fixed duration TO, return to baseline, and release contingency TO. Behavior was observed during each session for 10-minute intervals. Both TO procedures effectively reduced problem behavior for all participants. Two participants engaged in less problem behavior when the release contingency TO procedure was in place but it did not eliminate the occurrence of problem behavior. The other two participants engaged in disruptive behavior at approximately the same rate during both TO procedures. The purpose of the release contingency procedure is to avoid or reduce the likelihood that problem behavior in TO will be positively reinforced by release from TO; this hypothesis was not supported by the outcome data. The hypothesis that problem behavior exhibited in TO will continue once released from TO was also not supported by this study, as none of the participants engaged in problem behavior for the first minute after being released from TO (Donaldson & Vollmer, 2011).

Overall, the data do not suggest that a release contingency was a beneficial addition to a traditional TO procedure for these four children. The release contingency increased TO duration, and required more effort to implement than traditional TO. Further research may suggest the utility of implementing release contingency TO in certain situations or for other age levels. Despite the ineffectiveness of this procedure in their study, Donaldson and Vollmer (2011) did help extend TO research into school environments and found that traditional TO procedures were less aversive to caregivers and teachers than other punishment strategies.

**Contingent delay.** Contingent delay is a similar strategy to the release contingency discussed previously. Erford (1999) established contingent delay by creating the seven rules of the TO chair and adding these rules to traditional TO. The rules include feet on the floor, chair legs on the floor, hands in lap, buttocks on the chair, back against the chair, do not make a sound, and eyes open. If any of these rules were broken during TO, Erford (1999) suggested adding one minute per infraction to the total time of TO. His hypothesis was that, once children learn that they have the ability to make the TO process shorter by complying immediately, they would do so.

Participants included 36 boys (ages 4 to 8) presenting with non-compliant or defiant behavior, who took part in a study using a repeated measures experimental design. After initial intake and training sessions, participants were divided into three groups (control, regular TO, modified TO), and mothers were asked to record the frequency of episodes of non-compliant/defiant behavior over the course of the three-week study. The control group was taught to implement a command sequence as modified from Barkley's (1987) procedures in *Defiant Children*. The regular TO group was trained on this command sequence as well as TO

with release procedures, again according to Barkley (1987). The modified TO group was taught the seven rules of the TO chair, which if broken, added one minute to the TO being served.

Both the regular TO group as well as the modified TO group exhibited decreased occurrences of noncompliant/defiant behavior in weeks two and three. Furthermore, the modified contingent delay TO group resulted in fewer noncompliant episodes than traditional TO. Two noted differences might account for the increased effectiveness of contingent delay TO. First, parental vigilance to the additional rules of the TO chair increased the clarity of expectations and the immediacy of consequences. The second factor surrounds the child's previous experience of TO. Additional time potentially increases the aversiveness of the TO, or as Erford (1999) states, the level of "boredom" for the child. Erford indicated that with contingent delay, children learn quickly that their choices impact the TO and may learn to make choices that avoid the TO all together. This was supported by the trials of contingent delay TO resulting in significantly less noncompliant behavior compared to the trails of TO without contingent delay. More than half the children in the contingent delay group showed no misbehavior at the end of three weeks, and 80% of them displayed less than one behavioral episode per day (Erford, 1999). Although this study was conducted in the home setting, Erford suggested that the research findings support use of the contingent delay method in a school setting. Historically, TO research within school settings has been conducted less frequently than within home or clinical settings. Efforts to make the TO process feasible for an academic setting have been developed in other research endeavors.

**Time-out ribbon.** In order to facilitate TO use in school settings, Foxx and Shapiro (1978), developed a *time-out ribbon* for use with a classroom of students with severe intellectual disabilities. Exclusionary TO is often inappropriate in schools, so rather than removing the child

from the classroom, a ribbon was established as the discriminative stimulus for reinforcement. The study was conducted with five boys in a special education classroom using an ABCBC design, consisting of baseline, reinforcement, TO plus reinforcement, followed by reinforcement then TO plus reinforcement again. Following baseline, special emphasis was put on the reinforcement phases, as the effectiveness of TO is dependent on exclusion from a reinforcing environment (Foxx & Shapiro, 1978). After increasing the reinforcing value of the environment, the TO phase began, specifically, when a student displayed disruptive behavior his ribbon was removed and the student no longer received praise or edibles for good behavior. The two phases were then repeated in order to establish a more rigorous design.

The TO ribbon procedure was found to be effective in reducing disruptive behavior by Foxx and Shapiro (1978). Additionally, parents and caregivers viewed the procedure favorably. Not only did they recognize a decrease in disruptive behavior, but they were required to spend less time attending to these behaviors when they did occur, due to the nature of contingent reinforcement. Teachers also noted that the ribbon became a strong stimulus for reinforcement and student behavior quickly improved when the ribbons were present. After the study was completed, 40 individuals who were not involved with the study, but worked with similar populations across several states, completed a survey. Results showed that 85% of those surveyed said they would consider the TO ribbon procedure and would prefer it to other disciplinary strategies, including exclusionary TO within a school setting (Foxx & Shapiro, 1978).

**Escape extinction.** Time-out with escape extinction is an additional strategy added to a traditional TO procedure in order to reduce escape maintained noncompliance (Everett et al., 2007). As previously mentioned, TO may serve as negative reinforcement to some children when

behavior is maintained by escape of a stimulus. The Everett and colleagues (2007) study included the use of an escape extinction procedure to evaluate the potential effects of TO as negative reinforcement. In this study, escape extinction refers to the use of blocking access to escape from demands and ensuring compliance with a hand over hand procedure. The *Functional Assessment Interview Record for Parents* (FAIR-P) was used as a measure to determine function of the child's behavior and followed by procedures to evaluate TO with and without escape extinction. Participants included four children who were referred for noncompliance, where escape was determined to be a function of the noncompliant behavior. The multiple baseline design across participant study began with completion of FAIR-P and observations to gather information about the behavior. Data were then interpreted and hypotheses were formed. Parents were trained to conduct hypothesis based functional analysis (FA) on their children's behavior and respond with a TO, either with or without escape extinction. The verification phase evaluated both TO procedures (Everett et al., 2007).

The TO procedure was initiated following a 5-second latency of compliance by stating a brief reason for the TO, prompting procedure, ignoring, physically putting the child back in TO, and TO removal. For escape extinction, the same procedure was followed, with the addition of re-presenting the command that was not complied with initially, after the TO was served by the child. The child was then praised for compliance or sent back to TO for continued noncompliance with the command (Everett et al., 2007). Results showed that TO with escape extinction was effective for children who display escape-maintained noncompliance, as indicated by the FAIR-P and initial functional assessment. This is a position contrary to previous opinions held within the field, that TO is not an effective strategy for children with escape maintained

noncompliance. The strategy also increased compliance above baseline levels, as well as above levels of compliance during TO without escape extinction (Everett et al., 2007).

**Holding, restraints, and seclusion.** Other discipline strategies were analyzed by Sourander, Ellilä, Välimäki, and Piha, (2002), including holding, restraints, and seclusion as compared to TO. The study was conducted in an inpatient treatment facility in Finland with 504 children and adolescents. A multivariate analysis was conducted and it was found that aggressive acts were the strongest factor that initiated each kind of management technique previously mentioned. It was also found that for these patients, discipline strategies vary with the child's gender, age, and diagnosis. For some children the attention of implementing holding or restraint, although negative, can be reinforcing of its own accord. Furthermore, these physical means of enforcing TO are often used without proper research or support of their effect on children and thus are controversial (Sourander et al., 2002). These results call for future research to be conducted with TO that does not include using such means in an attempt to increase effectiveness of the strategy.

**Duration contingencies.** Using time and duration contingencies, Fabiano et al. (2004) studied the effects of TO duration on 71 children with Attention Deficit Hyperactivity Disorder (ADHD). Participants were referred through multiple avenues and inclusion was based on diagnosis of ADHD through semi-structured parent interview and parent/teacher rating scales. Four conditions were used in a crossover design lasting eight weeks. Conditions included: 5-minute fixed duration TO, 15-minute fixed duration TO, escalating and de-escalating TO, and response-cost only. By comparing the calculated means of problem behavior during the TO event and calculating effect sizes, results showed that TO significantly decreased rates of problem

behavior. All three TO procedures were effective in reducing disruptive behavior, over and above inclusion of additional procedures (i.e. response cost).

This research conducted by Fabiano and colleagues (2004) showed that the important TO components depend on removing a child from reinforcing activities and suspending social interaction with the child. Additionally, these elements seem to be more important and effective than supplementary components including duration of TO or other contingencies put into place. It was found that TO was effective in reducing negative behavior in children with ADHD as compared to no TO, but that length of the TO did not make a significant difference (Fabiano et al., 2004).

This study re-emphasizes a key factor shown in results of several studies discussed in this paper. That is, TO is effective based on the premise that the child typically experiences a reinforcing environment, from which exclusion is found to be aversive. The variations listed above and many others have been added to traditional TO but there is not sufficient research to support these variations. Additionally, factors that constitute their effective implementation are frequently misunderstood (Everett et al., 2010). One explanation is that proper replacement behaviors and acceptable responses have not been introduced and shaped to fit parental expectations (Brantner & Doherty, 1983). Regardless of the selected strategy, parents, caregivers, and teachers are often charged with implementation of these methods and their ability to do so effectively is often overlooked (Allen & Warzak, 2000).

### **Teacher Concerns**

Time-out is considered a punishment or reductive strategy, as described in detail above, and when used in the school setting it is focused on reducing unwanted behavior in the classroom (Morgan & Ellis, 2011; Vargas, 2013). Generally, when choosing behavioral interventions for

their classrooms, teachers report preference for positive strategies, such as praise or tokens, rather than restrictive strategies like ignoring or TO (Rathvon, 2008; Cowan & Sheridan, 2003). Teachers have also expressed that using strategies that are simple, require less time to implement, and fit into their current classroom environment is important to them. Furthermore, teachers value these qualities even more so than existing research validating a given strategy (Rathvon, 2012). These concerns are important to address with teachers when introducing a new strategy to address disruptive behavior, in the same way a clinician would with parents and other stakeholders in a child's life (Allen & Warzak, 2000).

Concerns specific to TO have also been analyzed. Teachers shared concerns about the time commitment and supervision needed to administer TO, two things that are not always available in a classroom setting (Sterling-Turner & Watson, 1999). Some educators and parents are concerned with damaging effects on adult relationships with children. Morawska and Sanders (2010) investigated controversy and criticisms surrounding recommendations of TO. Evidence in their review showed the effectiveness of TO and highlighted the lack of support for the idea that TO is damaging to children and their relationships with caregivers. Additionally, withholding additional attention gives children a chance to practice calming themselves down without assistance, which is a valuable skill (Morawska & Sanders, 2010). Overall, major concerns have been refuted in the research and, when implemented appropriately, TO is a safe and effective option to use in response to disruptive behaviors.

### **Acceptability of TO**

Acceptability of treatment methods is an important factor to consider when recommending strategies to consumers of such treatments. Acceptability refers to the judgments of procedures by nonprofessionals, lay people, clients, and others on whether a certain treatment

is appropriate for the problem, whether it is fair, reasonable, non-intrusive, and consistent with conventional notions of what treatment should entail (Kazdin, 1980). When considering acceptability of TO procedures, researchers have found clear preference for the strategy overall, as well as varying degrees of acceptability depending on variations of treatment.

Among the participants surveyed by Kazdin in 1980, non-exclusionary TO was rated as more acceptable than exclusionary TO. Research also indicated that acceptability of the TO procedure can be altered by adding variations to the standard procedure such as ignoring undesired behavior or providing a warning before the TO is implemented. Brantner and Dougherty (1983) also found that reward procedures are more acceptable than punishment procedures. Positive reinforcement of appropriate behavior is a strategy that is often used in combination with TO, which rewards desired behavior and adds contrast to TO for undesired behavior (Everett et al., 2010). Additional implementation factors include verbalized explanation, warnings, instructional versus physical administration, location of TO, duration, TO stimulus, punishment schedule, and release from TO. With and without variations, TO was found to be more acceptable than other strategies of dealing with behavior issues in children (Kazdin, 1980).

Teachers report use of TO in classrooms throughout the United States to respond to a wide range of behaviors for many years (Costenbader & Reading-Brown, 1995; Ryan, Sanders, Katsiyannis, & Yell, 2007). Significant variations in procedures exist across settings and not all result in reduction of problem behavior. Vegas and colleagues (2007) identified 13 different procedures for TO within a single meta-analysis. This lack of specific training and knowledge leads to ineffective use of proven strategies in the classroom setting (Sterling-Turner & Watson, 1999). TO may seem simple, but it is a complex strategy to implement in the face of challenging

behaviors and is often ineffective without provision of the proper training (Ryan et al., 2007; Sterling-Turner & Watson, 1999). Vegas and colleagues (2007) assert that TO can be implemented easily, quickly decrease disruptive behavior in the classroom, and likely generalize to other settings. However it is documented elsewhere that teachers report several challenges with classroom implementation of TO and it is suggested that efficacy and acceptability may be increased if teacher training is improved (Donaldson and Vollmer, 2011; Rathvon, 2012).

### **Classroom Recommendations**

Despite the widespread use of TO, support for efficacy, and successful application to reduce various disruptive behaviors, training procedures to guide teachers in implementing the strategy are often overlooked (Costenbader & Reading-Brown, 1995; Rathvon, 2008; Ryan et al., 2007; Sterling-Turner & Watson, 1999). It is often assumed that teachers have specific knowledge of the behavioral strategy as well as the ability to implement necessary procedures independently in order to use TO effectively in the classroom setting. Similar to academic strategies introduced in the classroom, a teacher may implement a behavioral strategy and most children will be adherent, but there are typically some students who need additional support in order to meet classroom expectations and behave as expected (Morgan & Ellis, 2011).

In order to provide support for TO implementation in the school setting, Ryan and colleagues (2007) developed a guide explaining different types of TO, common problems, and tips for creating a TO policy. From an administrative standpoint, this guide is helpful in protecting both children and staff when using TO by establishing duration and space parameters as well as recommendations for documenting TO use with students. Similarly, Sterling-Tuner and Watson (1999) created a consultant's guide to assist in training others to use TO in the school setting. The authors attend to concerns with enforcing TO in the classroom setting and

consider common methods to gain compliance with TO procedures including spanking, holding, barriers, and child release; not all of which are appropriate in the school setting (Sterling-Tuner and Watson, 1999). However, neither guide speaks to the details of carrying out TO in the classroom in the form of teacher training. In fact, authors call for further research for TO parameters particularly as the strategy is implemented in the classroom setting (Ryan et al., 2007; Sterling-Tuner and Watson, 1999). DTO was specifically developed to promote effective use of TO through parent training for TO, without the use of controversial means to enforce the procedure. The goal of the current study is to use the DTO procedures to train teachers in the implementation of DTO in the classroom.

### **Deferred Time-out**

Presented as a type of TO, DTO provides an alternative to children who resist TO instruction and ignore parental direction to follow designated TO procedure. For example, if a child engages in disruptive behavior by throwing a toy, a caregiver using TO as a behavioral strategy would tell the child to stop or they must go to TO. If the child does not go to TO but continues to throw toys then the caregiver must find a way to enforce the TO instruction. Shouting and using physical means (i.e., put-backs, spanking, etc.) are the most common ways caregivers attempt to force TO compliance (Cowan & Sheridan, 2003; Rathvon, 2012). These types of strategies to gain compliance are often ineffective, tend to escalate disruptive behavior, and are unacceptable in some settings (Warzak & Floress, 2009). As an alternative to these strategies, DTO requires the caregiver to limit their engagement with the child until they demonstrate compliance with the TO instruction. According to the DTO procedure, once the TO instruction is given and the caregiver reminds the child what will not be available until the child serves TO, the caregiver limits interaction with child. They are instructed to ignore continuing

disruptive behavior as long as the child is safe. Further, the caregiver ignores any requests made by the child (e.g., access to toys, snacks etc.). When such a request is made the caregiver briefly reminds the child that TO needs to be served, maintaining a neutral tone and continuing to otherwise limit their attention. Once TO is served, the caregiver is encouraged to meet the child's request and foster interaction, re-establishing the difference between time-in and TO as well as time between TO instruction and completion of TO (Warzak & Floress, 2009).

To demonstrate the effectiveness of DTO in increasing compliance in young children, Warzak and Floress (2009) designed a study. Two subjects, Liam, 3-years, 11-months and Adam, 4-years, 10-months old, displayed various minor disruptive behaviors. Parental report indicated that they frequently escaped TO and the strategy was ineffective for their families. The treatment recommendation and independent variable for the study was the DTO procedure. The parents were taught how to effectively implement TO as well as the DTO procedure if the initial instruction was met with refusal. The instructions to parents were clear that during DTO, reinforcement in the child's environment is restricted and parents will not mediate their environment in any way. The parent also will not chase, physically put the child in TO, or give reminders about serving TO. Disruptive behaviors during this time are ignored. The disruptive behaviors of the boys were the dependent variable in this study. These behaviors were defined as noncompliance, verbal aggression, and minor physical aggression.

Differences were found between pre and post treatment and both families experienced changes in the boys' behavior. The measures used included TO latency, parent-child interaction, and parent satisfaction with the intervention process. Latency from when the instruction was given initiation of TO decreased significantly for both of the boys, Liam from 12 to 5 minutes and Adam from 25 to 10, then 2 minutes. Parent-child interaction was low (33%) for Liam's

family but remained high (83%) for Adam's family. The researchers were able to collect parent satisfaction only for Adam's mom, who found the DTO procedure to be effective and acceptable. Outcomes are promising in all of these aspects considered by Warzak and Floress (2009).

Concerning internal validity, the lack of tracking parents' treatment integrity to TO and DTO procedures is a limitation. Following instruction the parents implemented the intervention on their own and reported experiences. The measures used were effective in tracking occurrence of behavior and parent satisfaction with the procedure. Considering the small sample size, only two families with interventions implemented for one child each, the external validity cannot be ascertained. However, Warzak and Floress's study provides preliminary support for the use of DTO to reduce disruptive behaviors in children. The authors note that further studies are needed to support the effectiveness of the intervention for the general population.

### **Statement of the Problem and Significance of the Study**

The current study used the DTO procedure in a setting for which it has not yet been validated and examines its potential benefits as a TO training procedure in reducing overall disruptive behavior and TO latency. The DTO procedures described above were implemented with adaptations for the classroom environment. When the target student demonstrated disruptive behavior as described in the procedures section, the teacher was instructed to give one prompt to encourage desired behavior (e.g., "Sit in your chair or you owe me TO,") before issuing a TO instruction (i.e., "You owe me a TO"). If the student refused to comply with the initial instruction and the TO was issued, the teacher then reminded the student what was not available until the child served TO. In the classroom setting this included teacher attention, interaction with peers, enjoyable classroom activities (e.g., centers, snack, computer time), and any activity outside of the classroom. The teachers were instructed to ignore continued disruptive behavior as

long as the students were safe. Further, the teacher ignored requests made by the child (e.g., access to activities, snacks etc.). When such a request was made the teacher briefly reminded the student that TO needed to be served, maintaining a neutral tone and continuing to otherwise limit attention. Once TO was served, the teacher was encouraged to meet the student's request and foster interaction, re-establishing the difference between time-in and TO as well as time latency between TO instruction and completion of TO.

As previously described, TO latency is a secondary dependent variable, defined as the time elapsed between when the TO instruction is given and when the TO is served by the child. This focuses on previously reported teacher concerns that the amount of time and effort it takes to enforce TO procedure in the classroom is unacceptable. The DTO training procedure was implemented in the classroom setting with students identified as non-responders to standard classroom discipline strategies, according to teacher report.

TO is a commonly used behavioral management strategy that has been minimally researched in regards to its components and applications as well as its specific training procedures for teachers (Everett et al., 2010; Sterling-Turner & Watson, 1999). Overall, a decline in TO research is evident, with the majority of published studies prior to the year 2000 and with noted gaps in the literature (Everett et al., 2010). Specifically, there is no published evidence that direct training procedures have been used to implement any form of TO in the general classroom setting. This study not only helps to develop the literature needed in this area (Ryan et al., 2007; Sterling-Turner & Watson, 1999), but may also make the process acceptable to teachers by reducing frustration that often accompanies TO. Direct training should enhance acceptability because specific instruction and consultation throughout the intervention process will provide needed teacher support.

Including the latency measure will help to determine whether DTO promotes more rapid compliance than traditional TO due to the aversive nature of the deferment period. If so, this will address an important teacher concern. This process also addresses previously reported teacher concerns (Cuenin & Harris, 1986; Rathvon, 2008) by allowing the teacher to attend to other students and classroom activities rather than spending an extended period of time trying to enforce TO compliance for one child. Furthermore, by providing consultative training, a specific TO procedure to follow, as well as adding the deferment component, DTO has the potential to increase TO effectiveness in the classroom setting and do so more efficiently. Using procedures such as DTO to decrease minor disruptive behaviors early in development may improve social and educational outcomes, and help prevent more serious behavioral issues later in life.

**Research questions.** The following research questions were addressed by this study:

1. Does the DTO procedure reduce the overall occurrence of disruptive behavior for students as compared to their baseline display disruptive behavior?
2. Does the deferred TO strategy decrease latency between TO instruction and initiation of TO by the student, relative to student baseline?
3. Is the DTO training procedure acceptable to teachers, leading to satisfaction in the recommended discipline strategy?

**Hypotheses.** Based on the previous literature, it is hypothesized that:

1. It is hypothesized that the DTO procedure will reduce the overall occurrence of disruptive behavior for students as compared to their baseline display disruptive behavior.
2. It is hypothesized that the DTO strategy will decrease the latency between when the TO instruction is given and when the student initiates TO, following likely extinction burst.

3. It is hypothesized that the DTO training procedure will be acceptable to teachers, leading to satisfaction in the recommended discipline strategy.

## CHAPTER III: METHOD

### Participants and Setting

Participants were recruited through an elementary school in a rural area in the southeastern United States. Recruitment focused on preschool and kindergarten classrooms in need of intervention to address noncompliance and other minor disruptive behavior displayed by children between the ages of 2-7 years old. The school housed four preschool rooms, four general education kindergarten classrooms, and one special education classroom including kindergarten and first grade students. Teacher recruitment was challenging, as many reported feeling overwhelmed and unwilling to take on an additional commitment to the study. Of the nine possible teachers, three agreed to participate. These teachers were asked to commit to learning DTO training procedures, completing data forms, allowing classroom observations, and participating in research training meetings as needed. They offered recommendations of students who experienced difficulty responding to previously established classroom behavior strategies, including various reward systems, removal of privileges, and removal from the classroom. Additionally, teachers completed the *Sutter-Eyberg Student Behavior Inventory- Revised (SESBI-R)*; Eyberg & Pincus, 1999) to gain their assessment of student behavior.

Parental consent was sought for nine students, three per classroom, who were identified by their teacher as being in need of additional behavioral support in the classroom setting. Consent was successfully obtained for three students, one from each of the classrooms, resulting in three student-teacher dyads. Each student met inclusionary criteria for the study as specified in study procedures. The three students presented with disruptive behavior including noncompliance, verbal aggression, and minor physical aggression. Brief functional assessment (BFA) was conducted to gather information on student behaviors of concern and environmental

factors surrounding the occurrence of such behavior. BFA included a teacher interview, behavior inventory, and behavioral observation. Direct student observation using partial interval recording was conducted to determine antecedents and consequences likely maintaining disruptive behavior in the majority of occurrences in the classroom (Dunlap et al., 1993; Iwata, 1982). These types of functional assessment procedures are used to provide information regarding the relationship between child behavior and environmental factors (Derby et al., 1992; Dunlap et al., 1993). Functional assessment is also recommended in the school setting as a sufficient and feasible procedure to determine if TO is an appropriate intervention strategy for disruptive behavior (Sterling-Turner & Watson, 1999).

The three students included in the study were all 6-years old and nearing the end of kindergarten. Student 1 was an African American girl, student 2 was an African-American boy, and student 3 was a White boy. Of the three students, none exhibited presence of pervasive developmental disorder, severe intellectual disability, or displayed significant aggressive behavior. For the purpose of this study, aggressive behavior was defined as physical contact initiated by the child including hitting, kicking, or biting that may result in injury and endanger the child or others if not addressed. If such physical aggression was present it would likely put the child or others at risk for harm and DTO would not have been an appropriate strategy to implement at the time of the study.

## **Measures**

**Sutter-Eyberg Student Behavior Inventory.** The *Sutter-Eyberg Student Behavior Inventory, Revised* (SESBI-R; Eyberg & Pincus, 1999) is designed to evaluate 36 common problem behaviors in children ages 2 to 18. Teachers indicate the frequency with which the student exhibits the described behaviors on a 7-point scale (Intensity score) and whether these

behaviors are considered to be problematic (Problem score). In some cases these scores may be discrepant within a single rating form. A low intensity score and high problem score may indicate teacher frustration with the student. The opposite may indicate teacher indifference of the child's behavior problems or even defensiveness about the teacher's ability to manage classroom behavior.

By evaluating the variety and frequency of behaviors commonly exhibited by all children, the instrument distinguishes normal behavior problems from conduct-disordered behavior in children and adolescents. Both the Intensity and Problem scales demonstrate high internal consistency, Cronbach's alpha of .98 and .93, respectively (Querido & Eyberg, 2003). Significant test-retest reliability was demonstrated with correlations above .80 for both scales, and significant inter-rater reliability, as well as convergent and discriminant validity were established (Eyberg & Pincus, 1999; Querido & Eyberg, 2003). Normative data including a range of ethnic and socioeconomic backgrounds and norms for chronically ill children and other special populations are available (Burns & Patterson, 2001). Significance is determined by intensity scores of 151 or higher or Problem scores of 19 or more. Factor analysis conducted by Burns and Patterson (2000) revealed separate factors for identifying Oppositional Defiant Behavior toward Adults, Conduct Problem Behavior, and Inattentive Behavior. Teachers completed the SESBI-R to determine the presence and level of disruptive behavior pre and post intervention. The SESBI-R was used as a measure of treatment progress along with classroom behavior observations (Eyberg & Pincus, 1999).

**Intervention Rating Profile-15.** The *Intervention Rating Profile* (IRP-15; Martens, Witt, Elliott, & Darveaux, 1985) is a 15-item single factor scale that assesses treatment acceptability. Specifically, it has been used to evaluate satisfaction of interventions that have been

implemented to address problem behaviors of children. Those who implemented the intervention are asked to answer 15 questions regarding acceptability of the chosen procedure, responding to each statement on a 6-point scale with anchors strongly disagree to strongly agree. Strong reliability is reported as measured by a Cronbach's alpha of .98. The IRP-15 has been used in various classroom settings in order to measure acceptability of procedures following implementation of school-based interventions (Lane et al., 2009; McCurdy & Cole, 2014; Scattone, Wilczynski, Edwards, & Rabian, 2002). Teachers completed the IRP during the post-treatment assessment to determine if DTO was acceptable to them and led to overall satisfaction in the recommended discipline strategy.

### **Independent Variable**

Due to the focus on the specific DTO training process, similar procedures were used as found in Warzak and Floress (2009) to train classroom teachers. The implementation of DTO includes five steps of instructions given to parents (See Appendix A). For the purposes of this study, the DTO procedure took place in a classroom setting and the following instructions were directed towards teachers and students rather than parents and children. Teacher training occurred prior to intervention implementation. Teachers were instructed to give one warning in the form of the following statement, "Do (this) or you owe me a TO," with the specific instruction inserted in the statement regarding rule violation (e.g., "Sit in your chair or you owe me a TO,"). They were further trained to notify other adults in the room that the target student owed a TO and that all interaction with the student should be limited. Teachers were instructed to ignore disruptive behavior commonly following refused requests. TO began when the student went to the designated TO spot in the classroom with release contingent on appropriate behavior and was not to exceed three minutes. Following TO, the teacher was instructed to reinforce the

next occurrence of appropriate behavior so that the student experienced a difference between time-in and TO. Understanding of intervention was determined by the teacher's ability to explain DTO procedures and model the intervention accurately during training sessions with the researcher (Warzak & Floress, 2009).

### **Dependent Variables**

Occurrence of disruptive behavior was the primary dependent variable, as measured by partial interval observation. SESBI-R scores were reported as an additional measure of disruptive behavior as reported by the teacher ratings pre- and post-intervention. TO latency was a secondary dependent variable, defined as the time elapsed between when the TO instruction was given by the teacher and when the TO was served by the child. As mentioned above, teacher concerns with TO include the amount of time and effort it takes to enforce TO procedure in the classroom. The time between when a TO instruction was issued and when the child complied with the instruction and began TO was tracked by the teacher. By recording TO latency, we gain information about both the teachers' and the students' behavior changes over the course of the study.

### **Operational Definitions**

Operational definitions were developed for terms to be used throughout the study. *Disruptive behavior* described student non-compliance, aggressive behavior, or tantrum behavior. *Noncompliance* was defined as the student failing to initiate an instruction within 5-seconds of the instruction being issued. *Aggressive behavior* was defined as making bodily contact with another person without permission or using an object to make contact (e.g., throwing a toy at another person). *Tantrum behavior* included yelling, falling to the floor, flailing arms, and/or kicking legs. TO has been established as time away from reinforcing activity.

Specific TO procedures are described for this study in both independent variables and design sections of this document. *TO instruction* was defined as the specific statement given upon occurrence of disruptive behavior, for example, “TO for not listening.” *Initiation of TO* by the child was defined as the child’s bottom making contact with the designated TO spot (i.e., TO chair or established TO spot on the floor), for a minimum of three seconds.

## **Design**

The current study employed a multiple baseline design (MBD) across participants with a primary dependent variable of disruptive behavior, operationally defined above. MBD allows for establishing experimental control and increases the strength of study procedure without the need for withdrawal of the independent variable to verify that a change in behavior is the result of the intervention (Cooper, Heron, & Heward, 2007). Beginning treatment at different times strengthens cause-and-effect assumptions; in other words, it allows researchers to infer that observed changes are more likely due to the treatment rather than to a chance factor. The method follows single case design (SCD) standards, which requires at least six phases with a minimum of three data points per phase (Kratochwill et al., 2010). Baseline data collection continued until stability was noted in the primary DV, disruptive behavior, based on classroom observation of target students. The treatment phase began with teacher training followed by implementation of the DTO procedure. The DTO training procedure followed the five-step protocol as described in Warzak and Floress (2009). The teachers informed the target students of the new behavior management strategy. The researcher observed this interaction to ensure that the teacher explained the DTO protocol appropriately. The occurrence of disruptive behavior was measured in the treatment phase through direct observation conducted in the classroom setting. TO latency

and the number of TO instructions issued by the teacher was measured in the treatment phase across participants.

## **Procedures**

**Recruitment strategies.** Participants were recruited from pre- kindergarten and kindergarten classrooms of a local school district. Following IRB approval (See appendix B), classroom teachers were approached and asked to be involved in intervention procedures. Candidate teachers then nominated students in their classroom who seemed appropriate for the study based on presence of disruptive behavior. A letter was sent home with these students to inform their parents about the opportunity for research participation, and ultimately the opportunity for additional behavioral support. The researcher contacted the families in order to provide more information and gained consent for child participation in the study. School personnel required individual consent, as the observations and intervention procedures identified specific children, rather than the classroom as a whole.

**Pre-treatment assessment.** Formal agreement for teacher participation was obtained at the initial training meeting with the teachers. Each teacher was asked to recommend students who did not responded to classroom-wide behavior management strategies and might benefit from additional behavioral training. Parents of recommended students were contacted, the purpose of the study explained, and consent established for three families who agreed to have their child involved in the study.

Pre-treatment assessment, including interview and observation, was conducted in the classroom to determine what procedures the teacher typically employed in response to disruptive behavior in the classroom. All three of the kindergarten teachers had similar classroom strategies in place to manage disruptive behavior. This was likely a result of the cooperative nature of

grade level teachers throughout the elementary school. Classrooms strategies, including specific rules, reward programs, loss of privileges, being sent to sit in the office or hallway, and using a "bounce" (sending the student to another kindergarten classroom), were similar strategies employed across the classrooms. The bounce strategy was described as a form of TO that was used if the teacher did not feel that the student's behavior could be managed within her own classroom. The student would sit in the hallway outside of the classroom or were sent to one of the other kindergarten teacher's rooms in the same hallway for an unspecified amount of time. All three teachers reported sending the selected student out of their classroom on a daily basis, resulting in significant disengagement from their learning environment. Teachers also completed the SESBI-R (Eyberg & Pincus, 1999) to determine the presence as well as perceived significance level of disruptive behavior for each student, according to teacher report.

**Intervention procedure.** DTO procedures as specified above were used to train classroom teachers. Teachers were observed while they informed the target student of the new strategy to ensure DTO protocol was explained correctly. Using a multiple baseline design, the current study included baseline initiated in the classroom during the same day for all participants, followed by staggered implementation of the DTO procedure based on data stability. Partial interval direct observations of participating students occurred in the general education classroom throughout school days. After stability of baseline data was established for the first student, their teacher began implementing the DTO intervention in the classroom, while the other students and teachers remained in the baseline phase. The second student-teacher dyad began the intervention after maintaining a stable baseline for occurrence of disruptive behavior and the third dyad followed. Skewness and kurtosis were assessed and all scores fell safely between +2 and -2  $z$ , indicating normality. Stable baselines were determined by calculating the proportion of data

below or above two standard deviations of the mean and examining the data for unusual distributions due to outliers. Multiple baseline SCD requires staggered the introduction of the intervention phase across different time points for each student-teacher dyad (Kratochwill et al., 2010).

Data collection occurred in the classroom setting for the length of the study through behavioral observations using partial interval recording. Data points represent the percent of disruptive behavior occurrence during each observation. Disruptive behavior data drove the design and was collected until there were at least five data points per phase and stability of data was established (Kratochwill et al., 2010). Additionally, teachers used a stopwatch to record latency in seconds of TO instruction compliance for each TO instruction issued.

**Post treatment assessment.** After completion of study phases, a satisfaction survey was administered, the *Intervention Rating Profile*, IRP-15 (Martens, Witt, Elliott, & Darveaux, 1985). Teacher satisfaction with the DTO process is vital in the training and treatment process and may impact the effectiveness of the intervention. This information is also important for future use to improve the treatment process as well as determine appropriate recommendations for the DTO procedure. The SESBI-R was repeated at the completion of the study, allowing the researcher to compare pre and post treatment data for each teacher-student dyad.

**Procedural integrity.** To ensure integrity throughout the study, a procedural checklist developed by the researcher was used in the classroom setting. These served as reminders to teachers as well as provided a record of adherence to study protocol. If procedural integrity fell below 80%, retraining would have occurred, however this was not needed for any of the teachers as they maintained procedural integrity based on checklist responses.

**Treatment integrity.** Treatment integrity was checked at teacher training meetings by demonstration of teacher skills under researcher observation. It was calculated by comparing the percentage of time that example target behaviors were followed by correct DTO procedure to the percentage of time that target behaviors were not followed by correct DTO procedure. If treatment integrity fell below 80%, retraining would have been conducted. Based on teacher demonstration during teacher training meetings, retraining was not required.

**Data collection training.** Primary and secondary data collectors were trained to assess disruptive behavior, the primary dependent variable, across baseline and intervention phases. The secondary data collector observed 30% of all observations to obtain inter-observer agreement (IOA), as required by SCD standards (Cooper et al., 2007; Kratochwill et al., 2010). Primary and secondary data collectors practiced observations via video recordings and within the classroom setting to meet IOA levels of at least 80%, per common SCD practice (Cooper et al., 2007). Practice observations within the classroom took place for approximately one week before beginning data collection to familiarize observers to the classroom and to decrease student and teacher reactivity to observers. An interval-by-interval scoring method was used to calculate IOA, comparing intervals in agreement divided by the total number of intervals for the primary DV. The overall agreement for observations was 86%, which met the set standard for this study of 80%.

**Social Validity.** Acceptability of treatment methods is an important factor to consider when recommending strategies to consumers of such treatments. Teachers often report challenges with classroom implementation of TO and it is suggested that efficacy and acceptability may be increased if teacher training is improved (Donaldson and Vollmer, 2011; Rathvon, 2012). Higher scores on the IRP-15 indicate greater levels of social validity (IRP-15;

Martens, Witt, Elliott, & Darveaux, 1985). The scores obtained from the IRP-15 were used to assess acceptability and satisfaction of the assessment procedures, training procedures and intervention procedures.

### **Data Analysis**

Systematic analysis of data included initial visual analysis followed by mean comparisons, slope analysis, and estimates of effect size. Single Case Design (SCD) research traditionally relies on visual analysis of the resulting data to consider the relationship between the independent and outcome variables (Cooper et al., 2007; Riley-Tillman & Burns, 2009). Specific criteria were developed to evaluate causal relationships through manipulation of the independent variable across phases of the study (Kratochwill, et al., 2010). The method of single subject design is focused on determining if the independent variable, and nothing else, is responsible for the observed change in the dependent variable. Furthermore, analysis of the data aims to determine if that change makes a meaningful difference; in other words, if it is clinically important (Riley-Tillman & Walcott, 2007). Baseline logic is the foundational reasoning of SCD including three elements prediction, verification, and replication (Cooper et al., 2007). The goal within the prediction phase is to gather enough data to establish a stable baseline, indication that if no intervention was implemented the behavior would continue as observed. The verification of this original prediction reduces the possibility that a confounding variable is responsible for change in the observations. For Multiple Baseline Design (MBD), the continuation of stable baseline for other subjects provides evidence that without intervention no change was observed. Finally, the replication phase points to the reliability of the effects and adds to the internal validity of the experiment (Cooper et al., 2007; Riley-Tillman & Walcott, 2007).

Concurrent multiple baseline design is appropriate for SCD interpretation because this format allows the opportunity to assess a causal relationship through staggering the intervention implementation across time and establishing experimental control (Baer, Wolf, & Risley, 1968; Kratochwill et al., 2010; Thompson & Iwata, 2005). MBD is recommended when instruction of intervention procedures cannot be reversed or when target behaviors have improved and it is preferable to maintain the intervention (Riley-Tillman & Walcott, 2007). Using systematic visual analysis, as recommended by Cooper, Heron, and Heward (2007), and established peer review criteria of SCD (Kratochwill et al., 2010), the researcher can determine the strength, level, trend, and variability of the experimental data within and across phases of intervention. Immediacy of the intervention effect, overlap of data points, and consistency in data patterns across phases are also important factors in analysis of data (Kratochwill et al., 2010).

To address the primary research question, if the DTO procedure reduces the overall occurrence of disruptive behavior for students as compared to their baseline display disruptive behavior, visual analysis was employed. It was hypothesized that the intervention would decrease the occurrence of disruptive behavior for each student. Results of partial interval observation were analyzed to determine changes in trend, variability, immediacy, and level for each student. When data are collected in multiple settings and the intervention is implemented at different times, baseline logic dictates that if changes in the target behavior coincide with intervention implementation across participants, a causal relationship is established. If a third variable were responsible for observed changes, it would show across settings at the same time despite introduction of the intervention (Cooper et al., 2007; Riley-Tillman & Walcott, 2007).

Additionally, an effect size is described as a useful supplement to visual analysis (Parker, Vannest, & Brown, 2009), particularly when it is critical to summarize effects within a single-

case design study (Busk & Serlin, 1992). Though parametric measures are typically preferred, they assume a normally distributed dependent variable; an assumption that may be inappropriate due to the sometimes limited number of data points in SCD (Ma, 2006; Parker et al., 2011). Regarding the use of a nonparametric measure of the effect, one advantage is that nonparametric measures are not based on assumptions about the dependent variable. One such effect size method suggested by Parker and Vannest (2009), is the percent of data points exceeding the baseline median (PEM). This method first identifies the median level of the data in the first phase and then calculates the percent of the data in the intervention phase above or below the initial level. Although several effect sizes exist, PEM is appropriate for data demonstrating central tendency, where the median is a good summary of phases (Parker et al., 2011). Considering variability inherent in student disruptive behavior, being able to clearly compare mean or average level of behavior pre and post intervention lends to clinically meaningful interpretation for teachers. An advantage to using PEM is that it can be computed even if floor or ceiling effect occurs in the data, additionally, a single outlier will not drastically impact the calculation as in other estimates of effect size (Ma, 2006), further allowing for likely variability in student behavior. The null hypothesis of PEM is that if the intervention has no effect the data points will fluctuate around the middle line in the treatment phase (Ma, 2006). In this study, PEM allows for focus on the average level of disruptive behavior and, based on hypotheses, highlighting meaningful differences in reduction of that behavior.

Teachers also completed data to allow for further analysis of student behavior as well as study procedures. The *Sutter-Eyberg Student Behavior Inventory- Revised, SESBI-R* (Eyberg & Pincus, 1999) was used to assess classroom behavior before and after intervention procedures. This served as a secondary measure to monitor the presence of disruptive behavior as well as

teacher perceived severity of the students' behavior. The second research question focused on the latency between when the TO instruction was given and the students' initiation of TO. It was hypothesized that the DTO procedure would decrease this latency overall, though initial data would likely show increased latency due to potential extinction burst from the student. Latency was recorded through the use of a stopwatch with the time recorded by the teacher on the procedural checklist. Finally, the third research question was set to determine if DTO training procedure was acceptable to teachers and would lead to satisfaction with the recommended discipline strategy. It was hypothesized that DTO training and strategy would be acceptable to teachers. This was determined by completion of the IRP-15 (IRP-15; Martens, Witt, Elliott, & Darveaux, 1985).

## CHAPTER IV: RESULTS

### Intervention for Disruptive Behavior

The primary research question aimed to determine if the DTO procedure would reduce the overall occurrence of disruptive behavior for students as compared to their baseline display disruptive behavior. This question was assessed using (a) visual analysis; (b) baseline-to-treatment phase slope; (c) the percent of data points exceeding the baseline median (PEM); and (d) pre- and post-intervention measures of the *SESBI-R*. The percentage of disruptive behavior displayed in the classroom was determined via partial interval observation and is shown in Figure 1. This percentage was calculated by dividing the number of intervals in which the target student displayed disruptive behavior, divided by the total number of intervals during the 10 minute observation; there were 60 intervals in total. Several observations were conducted over the course of three weeks.

The disruptive behavior data from partial interval observation for all students is shown in Figure 1. Visual analysis of trend, level, and variability, comparison of calculated means, and nonparametric estimates of effect sizes were used to assess the data. Student data demonstrated decreases in the percent of disruptive behavior displayed by the student during partial interval observations from baseline to intervention phases. The ranges, or difference between the highest and lowest percentage of disruptive behavior displayed by each student, per phase, were variable. Student 1's baseline calculated mean decreased from 51% (Range = 20.0, 73.3) of intervals engaged in disruptive behavior, to 25% (Range = 0.0, 90.0) during the intervention phase. Student 2 demonstrated a similar pattern, with a calculated mean of 52% at baseline (Range = 40.0, 61.7) decreasing to a mean of 20% during intervention (Range = 1.7, 48.3). Similarly, student 3 displayed 51% disruptive behavior (Range = 13.3, 83.3), which decreased to 10%

during intervention phase (Range = 0.0, 16.7). Student 3’s data resulted in a smaller range during intervention, indicating less variability in behavior during this phase.

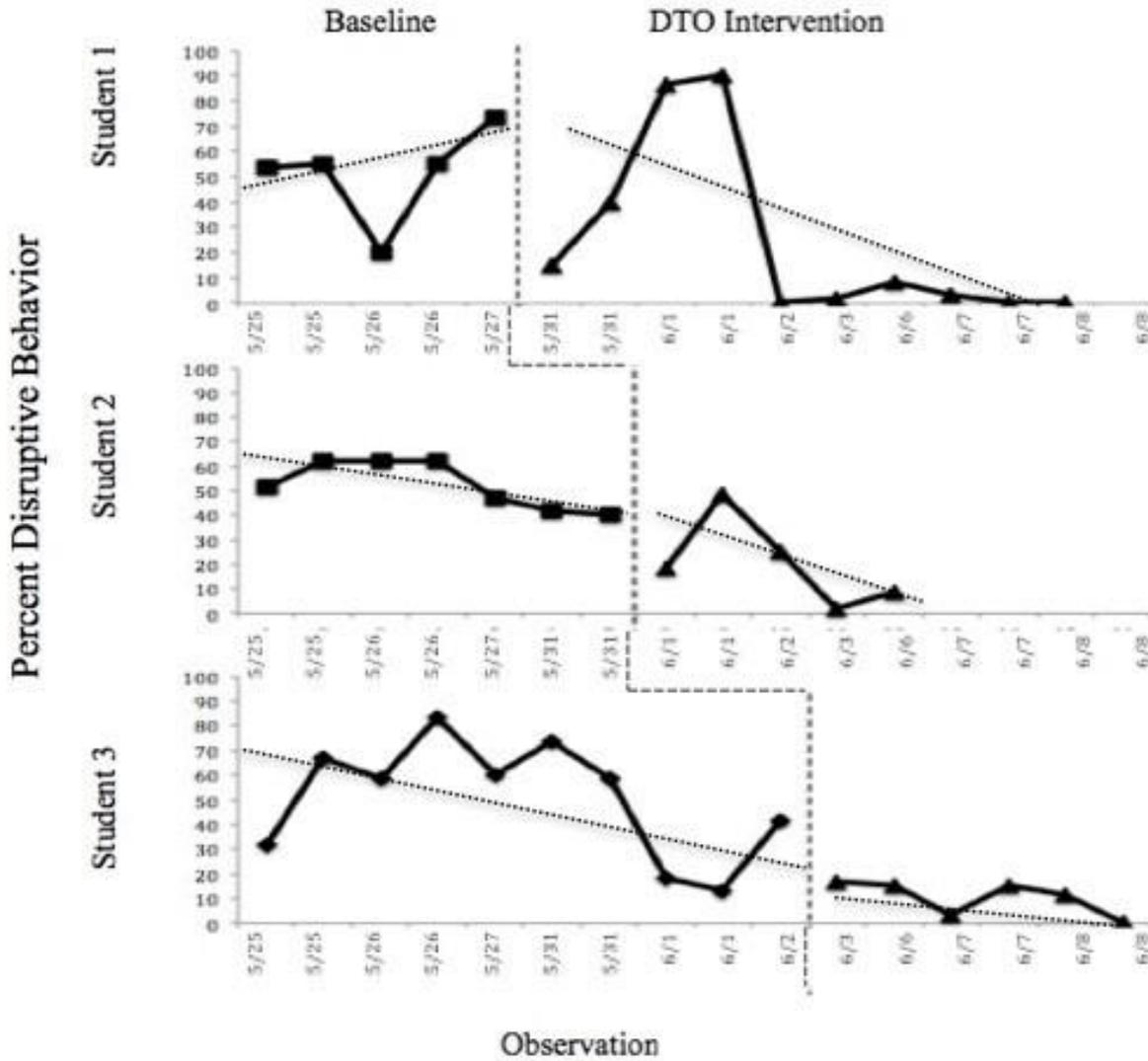


Figure 1. Percent of Disruptive Behavior

Regarding level of disruptive behavior, the data reflect a decrease in overall level of disruptive behavior from baseline to intervention. The median percent of disruptive behavior during baseline and during intervention for student 1 was 55% and 5%, respectively, a difference of nearly 50%; medians for student 2 were 52% and 10%, a difference of 42% and for student 3

medians were 58% and 8%, a difference of 50%. Determining normality of data presents a challenge in small sample size; however, estimates of data skew and kurtosis between  $-2$  and  $2$   $z$  indicate normality. Across all phases of data collection, measurements for skew and kurtosis fell into this acceptable range. Despite this assumption of normality, given the low number of data points in this SCD overall, a non-parametric measure of effect (PEM) was calculated.

PEM effect sizes were calculated for the data using the median percent of disruptive behavior in the first phase and then calculating the percent of disruptive behavior in the intervention phase below the initial level. According to the PEM results for student 1, the intervention was moderately effective,  $PEM = 0.80$ , indicating 80% of the intervention data was below the baseline median. Data for Student 2 indicated that the intervention was very effective,  $PEM = 1.00$ , meaning 100% of the intervention data was below the baseline median. Similarly, according to the PEM results for student 3, the intervention was very effective,  $PEM = 1.00$ , again indicating that 100% of the intervention data was below the baseline median.

Data were also collected via the *SESBI-R* (Eyberg & Pincus, 1999) to assess clinical meaning and teacher perception of behavior. The intensity score measures how often the rater observes a specific behavior on a 7-point scale from *never* to *always*; a raw score of 151 or higher is the intensity cut-off score. The Problem score is determined by responses indicating whether or not the behavior is a problem for the rater; 19 or more yes responses is the problem cut-off score. These raw scores are converted to *T*-scores, with 60 and above distinguishing normal behavior problems from conduct-disordered behavior in children and adolescents. Teachers completed this rating form before initiation of direct observation and after completion of data collection (See Table 1). For all but one teacher rating, pre-intervention scores were above the cut-off and post-intervention scores fell below the cut-off. This denotes meaningful

differences in behavior as perceived by each teacher from pre to post intervention, as compared to same-age peers.

Table 1

*SESBI-R Results*

Teacher	Intensity Score		Problem Score	
	<u>Pre</u>	<u>Post</u>	<u>Pre</u>	<u>Post</u>
1	61*	59	64*	58
2	60*	58	70*	63*
3	62*	52	61*	57

*\*Indicates score above the cut-off according to SESBI-R manual*

**TO Latency**

To address the second research question, does the DTO strategy decrease latency between TO instruction and initiation of TO by the student, teachers were instructed to collect data each time a TO instruction was given to the target student. A stopwatch was provided for them to start timing when instruction was given and stop timing when the student initiated the TO. These data showed a decrease in latency for two teacher-student dyads. Teacher 1 recorded initial TO latency as 2-minutes, 10-seconds. By the end of data collection she reported that her student began to comply with DTO instruction immediately, with no measurable latency following DTO instruction. Teacher 3 recorded the longest latency period the first time DTO was implemented, 9-minutes, 42-seconds. By the end of data collection she also reported that her student began to comply with DTO instruction immediately, with no measurable latency. Teacher 2 reported that she did not have to issue a DTO instruction to her student. After teaching DTO to her student, he followed all teacher instructions by the warning statement for DTO. Because no TOs were owed by this student, latency could not be measured.

## **Acceptability**

The final research question was posed to determine if the DTO training procedure was acceptable to teachers, leading to their satisfaction in the recommended discipline strategy. Following the completion of data collection, each teacher completed the IRP-15. Despite initial challenges with teacher recruitment (only three out of nine potential teachers agreed to participate), the teachers who did use the DTO procedure found it largely acceptable. All three teachers agreed with all items presented, giving ratings of agree to strongly agree to statements such as finding the procedure effective, recommending it to others, no negative side-effects. The total possible score on the IRP-15 is 90 and higher scores indicate greater levels of social validity. Teacher ratings were all high, 82, 81, and 79, respectively, indicating high teacher acceptability.

## CHAPTER V: DISCUSSION

### Summary of Results and Relevant Implications

The current study had three specific goals: to determine if DTO reduced student disruptive behavior, if DTO reduced latency of compliance with TO instruction, and if the DTO strategy was acceptable to teachers. Overall, results indicate that the intervention was successful in reducing disruptive behavior for all three students. Based on the results of the MBD, the effectiveness of the DTO intervention in the classroom is supported. Changes in target behavior (i.e., reduction in disruptive behavior) were observed when the intervention was implemented in each setting, and remained stable otherwise. This suggests that it was the intervention, and not a third extraneous variable, that was responsible for the observed change in student behavior.

Regarding latency, two teachers were able to collect data on latency with TO compliance and the third reported immediate response to intervention. Data for both students with measurable latency times showed a decrease between when the DTO instruction was given and when the student initiated the TO. Additionally, teacher responses on measure of acceptability indicated high acceptability for all three teachers. The results supported the hypotheses posed prior to investigation.

The impact of DTO on student disruptive behavior was substantial, as measured via partial interval observation and teacher completion of the *SESBI-R* pre- and post-implementation of DTO procedures in the classroom. Analysis of multiple baseline design data indicates that following intervention implementation at different time points, each student demonstrated less disruptive behavior during direct observations. Considering the calculated mean number of intervals that each student engaged in disruptive behavior during baseline as compared to the intervention phase, student data showed disruptive behavior reduction of 27%, 31%, and 40%,

respectively. It was previously noted that when a student's level of compliance in the classroom falls below 40% it limits opportunities for educational instruction and impede learning (Rhode, Jenson, & Reavis, 1993). Although it is unreasonable to assume that any given intervention would completely remove disruptive behavior, DTO shows significant decrease in display of disruptive behavior. It is likely that improved student behavior leads to more rewarding classroom interactions. This also allows for increased educational time with better learning opportunities, not only for the target student, but the classroom as whole.

Data for student 3 showed the least behavioral variability in the intervention phase and data from student 2 show slight variability, while data from student 1 showed variability that likely demonstrated an extinction burst. An extinction burst is the initial increase in the target behavior following the removal of positive, negative, or automatic reinforcement (Cooper et al., 2007). DTO procedures dictate removal of teacher attention as well as restricted access to any reinforcement in the environment after the TO instruction is given to the student. In the current study, data from student 1 show an increase in disruptive behavior following teacher implementation of DTO. The extinction burst is followed by decrease in target behavior and when observed clinically this pattern can often be the first sign of effectiveness. It signifies an immediate impact on behavior; first as an increase in disruptive behavior but, as the intervention continues to be implemented with consistency, it shows the desired impact of reducing targeted disruptive behavior (Lerman, Iwata, & Wallace, 1999).

The effect sizes presented for all student data provide the clearest report of intervention efficacy for the current study. PEM results for the student data indicated the DTO intervention was moderately to very effective in reducing the occurrence of disruptive behavior for these students in general education classroom settings. Previous research primarily demonstrates that

TO has been found to be effective in highly controlled clinical settings (Kazdin, 1980). It has also been demonstrated that TO can be an effective intervention in reducing the occurrence of disruptive behavior in in the school setting (Vegas et al., 2007); however, it was found to be most effective in self-contained classrooms, offering limited support for TO in general education settings. Meta-analysis also suggested that TO procedures in the classroom were most effective with boys under the age of seven (Vegas et al., 2007). The current study demonstrated effectiveness for a girl under 7-years of age, and in general education classrooms, suggesting that TO is appropriate for a diverse group of students and settings.

TO is not a commonly used procedure in the general classroom setting for various reasons, including appropriate regulations against student seclusion or separation, concern with physical means of enforcing TO, and the length of time it often takes to implement traditional TO (Cowan & Sheridan, 2003; Rathvon, 2012). Other common concerns regarding the use of TO in the classroom setting are presented by Vegas and colleagues (2007) in their meta-analysis including that it is restrictive in nature, requires additional personnel for supervision of child in TO, and it is often inappropriately used, making it ineffective. These issues are frequently highlighted and additional strategies often used to force TO compliance (i.e., put-backs, spanking, etc.) are time consuming, ineffective, and unfavorable to caregivers as well as teachers (Kazdin, 1980; Warzak & Floress, 2009). Different strategies are needed to increase the feasibility of TO in the classroom, though little research has been completed in this area. The current study demonstrates that TO can be used as an effective strategy in a general classroom setting. The DTO procedure avoids several concerns previously noted by teachers and is shown to be an effective intervention to decrease disruptive behavior, even with students who did not respond to previous classroom discipline strategies. Though the scope of the current study is

limited, there was notable decrease in student disruptive behavior without the use of physical means to gain compliance. Due to the unique deferment element of DTO, additional time and personnel are unnecessary for the successful implementation of the strategy in the classroom.

Furthermore, evaluation of specific TO training provided to teachers is something notably lacking from the literature. TO is a complex strategy to implement in the face of challenging behaviors and is often ineffective without provision of the proper training (Ryan et al., 2007; Sterling-Turner & Watson, 1999). Teachers report several challenges with classroom implementation of TO (Rathvon, 2012) and lack of training and support leads to ineffective use of proven strategies in the classroom setting (Simonsen et al., 2008; Sterling-Turner & Watson, 1999). DTO is first and foremost a training procedure and the current study was designed to make classroom implementation of TO more feasible for teachers. Rather than requiring additional personnel to implement the strategy in the classroom (i.e., teacher's aide, behavioral specialist), DTO training was intentionally provided to teachers outside of their classroom and practiced until they demonstrated treatment fidelity and felt comfortable implementing the strategy in their classroom independently. Considering future implementation of DTO, offering a teacher training that does not require individualization for each student could be an effective and efficient manner to provide behavioral support to teachers. Additionally, teacher reports of the DTO intervention as measured by the IRP-15 indicated high social validity. As with any classroom intervention, teacher acceptability is of utmost importance.

### **Limitations of the Present Study**

The current study posed several potential limitations related to the design, analysis, participants, and interventionists.

**Design and analysis.** There is no single, widely accepted method for evaluating individual behavioral change or analyzing small-*N* research designs. Though MBD has been determined to be an appropriate and useful method of evaluating behavioral data, there are several limitations to consider (Cooper et al., 2007). MBD can demonstrate a functional relationship between target behaviors and the independent variable, allowing for experimental control. However, the benefit of being able to maintain an intervention that decreases the target behavior is juxtaposed with the lack of this verification or withdrawal phase. The duration of time collected for the present study is also a limitation. Though data were stable, extended data collection would have been beneficial. This is especially true for student 2; behavioral observation was limited during the intervention phase as the student did not return to school during the last week of data collection and the family could not be reached. An additional limitation with this student was the lack of collection of latency data. Without this information, it is difficult to determine if the intervention was the key to decrease in disruptive behavior or if other factors were responsible for this change (i.e., student observers, teacher behavior, etc.).

**Participants and interventionists.** The recruitment of teachers and students from a convenience sample within one school setting presents a limitation of this study. These student-teacher dyads may not be representative of the overall population within the school and are certainly not representative of the larger population. The concurrent multiple-baseline design was selected to maximize internal validity for the intervention study; however, results from a small sample size are less generalizable. Further research is needed to determine generalizability of the intervention to a wider scope of students and teachers. For the teachers who implemented the DTO procedure, treatment integrity was collected via self-report measure. It is difficult to determine accuracy of self-report, and observers were not able to be present throughout the entire

day to observe every DTO implemented. Throughout observations, only one DTO occurrence was observed in its entirety. Additional resources would be beneficial to allow for further assessment of adherence to the DTO protocol.

### **Implications for Practice and Future Research**

DTO procedures demonstrated substantial impact on student disruptive behavior as measured via partial interval observation and scores on the *SESBI-R* pre- and post-implementation of DTO procedures in the classroom. In addition to effectively reducing disruptive behavior for all three students included in the study, DTO also addressed teacher concerns with intervention of TO in the classroom. Though generalizability is limited, results suggest that DTO procedures could be an effective option for teachers to manage disruptive behavior in their general education classrooms. DTO provides a specific training procedure that can be introduced to teachers through brief training and then implemented by the teacher in the classroom independently. This presents a feasible option for school systems that often experience staffing limitations and need evidence-based strategies that can be disseminated efficiently. Implementing procedures, such as DTO, to decrease disruptive behaviors early in development may improve social and educational outcomes. Reducing disruptive behavior may even help prevent more serious behavioral issues later in life by reducing behaviors that lead to clinical diagnoses including disruptive, impulse-control, and conduct disorders (Barkley, 1997).

With the noted decline in TO research (Everett et al., 2010) and no published evidence that direct training for TO procedures have been used in the general education classroom setting, the current study furthers the development needed in this area of research (Ryan et al., 2007; Sterling-Turner & Watson, 1999). Regarding future DTO research, studies are needed to assess effectiveness for a wider scope of children and teachers and increase generalizability of results.

This has the potential to promote significant behavioral and academic improvements for students and schools, particularly since the initial study was conducted with students considered non-responders to general classroom management strategies. With additional support, DTO could be offered as an evidence-based strategy available to teachers to decrease disruptive behavior and increase productive learning time in the classroom.

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## APPENDIX A: DTO PROCEDURE

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(Warzak & Floress, 2009)

5 steps of instructions:

- Give the time-out instruction for a rule violation. If the instruction is met with refusal, remind the child what you will not do for them until the time-out is served. It is important that the caregiver does not chase the child, physically put the child into time-out or give repeated reminders to serve time-out.
- Notify other adults that the child owes a time-out there should be no mediation of the child's environment.
- Expect and ignore disruptive behavior that will commonly follow refused requests. Calmly remind child that a TO is owed and then turn their attention to another activity.
- TO begins when child responds affirmatively that they are ready to serve the time-out and adult directs them to a designated place to sit for a designated amount of time, not to exceed three minutes.
- After the child is released from time-out, it is important to reinforce the next occurrence of appropriate behavior so that the child experiences a difference between time-in and time-out.

\*Adapted from Warzak & Floress (2009), Time-Out Training Without Put-Backs, Spanks, or Restraint: A Brief Report of Deferred Time-Out.

## APPENDIX B: IRB APPROVAL



**EAST CAROLINA UNIVERSITY**  
**University & Medical Center Institutional Review Board Office**  
4N-70 Brody Medical Sciences Building · Mail Stop 682  
600 Moye Boulevard · Greenville, NC 27834  
Office 252-744-2914 · Fax 252-744-2284 · [www.ecu.edu/irb](http://www.ecu.edu/irb)

### Notification of Amendment Approval

**From:** Social/Behavioral IRB  
**To:** [Jessica Buzenski](#)  
**CC:** [Jennifer Kazmerski](#)  
**Date:** 5/13/2016  
**Re:** [Ame2\\_UMCIRB 13-000913](#)  
[UMCIRB 13-000913](#)  
An Evaluation of Deferred Time-out to Treat Attention-Maintained Noncompliance

Your Amendment has been reviewed and approved using expedited review for the period of 5/13/2016 to 9/13/2016. It was the determination of the UMCIRB Chairperson (or designee) that this revision does not impact the overall risk/benefit ratio of the study and is appropriate for the population and procedures proposed.

Please note that any further changes to this approved research may not be initiated without UMCIRB review except when necessary to eliminate an apparent immediate hazard to the participant. All unanticipated problems involving risks to participants and others must be promptly reported to the UMCIRB. A continuing or final review must be submitted to the UMCIRB prior to the date of study expiration. The investigator must adhere to all reporting requirements for this study.

Approved consent documents with the IRB approval date stamped on the document should be used to consent participants (consent documents with the IRB approval date stamp are found under the Documents tab in the study workspace).

The approval includes the following items:

Document	Description
Buzenski Dissertation IRB.docx(0.01)	Study Protocol or Grant Application
Informed Consent S2016.doc(0.01)	Consent Forms
Faculty Supervisor Added: Golden	
Faculty Supervisor Removed: Kazmerski	
Other Study Staff Added: Louloudis	

The Chairperson (or designee) does not have a potential for conflict of interest on this study.

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IRB00000705 East Carolina U IRB #1 (Biomedical) IORG0000418  
IRB00003781 East Carolina U IRB #2 (Behavioral/SS) IORG0000418



## APPENDIX D: OBSERVATION FORM- OPERATIONAL DEFINITIONS

### Observation Form Pre/Post behavior- Operational Definitions

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#### Antecedents

- D: Demand – Instruction to complete educational work or an assignment given to complete (ex. “Get to work”, “Turn your books to page...,Teacher hands out a worksheet.
- C: Command – Behavioral instruction (ex. “Sit down, Be quiet, Go to your desk, Stop talking, Look at me”)
- T: Transition – moving from one location to another in the classroom or school. Switching from one assignment to another (Ex. Walking from the classroom to the lunchroom, moving from a desk to the reading circle/area. Switching from a math assignment to spelling assignment)

#### Target Behaviors

- NC: Non-compliance will be defined as failing to initiate an instruction within five seconds of instruction delivery. NC will be coded until the next CI of I is given.
- T: Tantrum behavior will be defined as screaming, falling to floor, and thrashing arms or legs, etc.
- A: Aggressive behavior will be defined as bodily contact with another person using hands, feet, or object (e.g., throwing an object at another).

#### Consequences

- E/A: Escape/Avoidance – student is allowed to refrain from working on or completing the assignment; teacher takes the assignment away; teacher does not make the student comply (follow through or complete) with a command.
- Tan: Tangible- student receive physical object (ex. pencil, paper, toy etc.)
- Teacher Attention: TAttn  
Teacher Positive Attention (smiles, praise statements, proximity following appropriate behavior, physical touch for appropriate behavior, “Good Job”) OR Teacher Negative Attention (frowns, reprimands, redirections, interruptions, proximity following problem behavior, physical touch for problem behavior, ex: “Stop it!” Tap on shoulder for talking without permission)
- Peer Attention: PAttn  
Peer Positive Attention (Smiles, praises, proximity, and physical touch for appropriate behavior) OR Peer Negative Attention (Frowns, put downs, name calling “dummy, butt head”, proximity following problem behavior, physical touch following problem behavior ex. pushing, hitting, kicking, touching)

#### Calculation of Performance of Behavior:

1. NC: \_\_\_\_\_ / 30 x 100 = \_\_\_\_\_ % of the intervals
  2. T: \_\_\_\_\_ / 30 x 100 = \_\_\_\_\_ % of the intervals
  3. A: \_\_\_\_\_ / 30 x 100 = \_\_\_\_\_ % of the intervals
- Total Disruptive Behavior: \_\_\_\_\_ / 90 x 100 = \_\_\_\_\_ % of the intervals



## APPENDIX F: INTERVENTION- OPERATIONAL DEFINITIONS

### Intervention Observation Form- Operational Definitions

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#### Antecedents

CI: Cued Instruction – Teacher is prompted by researcher to give the child a directive (i.e., “Give me the red block”, “Sit down”)

I: Instruction- Teacher issues a directive to the child without prompting (i.e., “Give me the red block”, “Sit down”)

TI: TO Instruction – Teacher issues a TO instruction to child in response to disruptive behavior (i.e., “TO for not listening”)

#### Target Behaviors

NC: Non-compliance will be defined as failing to initiate an instruction within five seconds of instruction delivery. NC will be coded until the next CI or I is given.

T: Tantrum behavior will be defined as screaming, falling to floor, and thrashing arms or legs, etc.

A: Aggressive behavior will be defined as bodily contact with another person using hands, feet, or object (e.g., throwing an object at another).

#### Consequences

TO: Timeout- TO is initiated by the child (i.e., Child’s bottom makes contact with chair or designated TO spot) as a result of TO instruction being issued by the teacher.

TAttn: Teacher/Adult Attention- defined as adult initiated physical contact (e.g., touch, restraint), audible verbal statement or vocalization (e.g., reprimand, praise, laughter, moan), eye-contact (i.e., another individual and the child both make eye-contact), or gesture (e.g., pointing to child) directed toward the target child alone.

PAttn: Peer Attention- defined as peer initiated physical contact (e.g., touch, restraint), audible verbal statement or vocalization (e.g., reprimand, praise, laughter, moan), eye-contact (i.e., a peer and the child both make eye-contact), or gesture (e.g., pointing to child) directed toward the target child alone.

#### Calculation of Performance of Behavior:

NC: \_\_\_\_\_ / 30 x 100 = \_\_\_\_\_ % of the intervals

T: \_\_\_\_\_ / 30 x 100 = \_\_\_\_\_ % of the intervals

A: \_\_\_\_\_ / 30 x 100 = \_\_\_\_\_ % of the intervals

Total Disruptive Behavior: \_\_\_\_\_ / 90 x 100 = \_\_\_\_\_ % of the intervals

APPENDIX G: TREATMENT INTEGRITY FORM (RESEARCHER)

Treatment Integrity Form (Researcher)

Setting:

Individuals present:

Considering observation in classroom today, did the teacher...

	Yes	No	Comments
TO instruction given (TO for...)?			
<i>Length of time between when instruction was issued and child initiation of TO:</i>			
Respond to child's behavior in any other way?			
Notify other adults the TO is owed?			
Restrict mediation of child's environment?			
Provide calm reminders if necessary?			
Turn attention to another activity?			
Direct child to TO spot when they were ready to serve TO?			
<p style="text-align: center;">Did child complete TO?</p> <p style="text-align: center;">How long did TO last?</p>			
Reinforce next occurrence of appropriate behavior?			

Behavior observed: Non-compliance (describe)-

Other disruptive behavior (describe)-

Teacher response: (Please describe)

APPENDIX H: TREATMENT INTEGRITY FORM (TEACHER)

Treatment Integrity Form (Teacher)

Completed by:

Number of TOs issued today:

Considering just one occurrence of Disruptive behavior today, did you...

	Yes	No	Comments
Give simple TO instruction (TO for...)?			
<i>Length of time between when instruction was issued and child initiation of TO:</i>			
Respond to child's behavior in any other way?			
Notify other adults the TO is owed?			
Restrict mediation of child's environment?			
Provide calm reminders if necessary?			
Turn attention to another activity?			
Direct child to TO spot when they were ready to serve TO?			
Did child complete TO? How long did TO last?			
Reinforce next occurrence of appropriate behavior?			

Behavior observed: Non-compliance (describe)-

Other disruptive behavior (describe)-

