A Comparison of Two Function-Based Interventions: NCR vs. DRO in a Preschool Classroom

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A COMPARISON OF TWO FUNCTION-BASED INTERVENTIONS:
NCR VS. DRO IN A PRESCHOOL CLASSROOM

by

Zachary Charles LaBrot

A Thesis
Submitted to the Graduate School
and the Department of Psychology
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for the Degree of Master of Arts

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ABSTRACT

A COMPARISON OF TWO FUNCTION-BASED INTERVENTIONS:
NCR VS. DRO IN A PRESCHOOL CLASSROOM

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The purpose of this study was to determine the relative efficacy of non-contingent reinforcement (NCR) and differential reinforcement of other behavior (DRO) after behavioral functions have been identified through indirect, descriptive, and experimental assessment. Participants included three preschool-age children in center-based classrooms (Head Start) in a southeastern school district. Functional assessment data were used to inform treatment procedures, which were examined with an alternating treatments design. This study examined (1) relative differences in the efficacy of NCR and DRO in decreasing problem behaviors in preschool children, (2) relative differences in the efficacy of NCR and DRO in increasing appropriate behavior, (3) relative preference for functional assessment procedures, and (4) differential preference for NCR versus DRO for preschool teachers.
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CHAPTER I
INTRODUCTION

The first few years of a student’s education are critical for emotional and behavioral development. Unfortunately, upwards of 30% of preschool children will develop emotional and behavioral disorders such as anxiety, depression, and oppositional defiant disorder (Dunlap et al., 2006; Egger & Angold, 2006; Lavigne, LeBailly, Hopkins, Gouze, & Binns, 2009; McDonnel & Glod, 2003; Webster-Stratton, Reid, & Hammond, 2001). Preschoolers with early-onset behavioral difficulties are more likely to develop emotional and behavioral disorders, experience persistent peer rejection, drop out of school, and are more likely to exhibit behavioral problems in adolescence and possibly adulthood (Egger & Angold, 2006; Dunlap et al., 2006). Thus, it is essential to implement early intervention practices so as to alter the developmental trajectory of children exhibiting early onset emotional and behavioral difficulties (Webster-Stratton & Herman, 2009). Effective early behavioral intervention practices, however, are not likely to be implemented by teachers who are not trained in behavior management. Preschool teachers are often ill-equipped to deal with the unique behavioral issues that children in their classroom exhibit (Snell, Berlin, Vorhees, Stanton-Chapman, & Hadden, 2012).

Identifying the function of a child’s behavior could inform an effective behavioral intervention that teachers could implement within the classroom. Functional behavioral assessments (FBAs) are routinely used in educational settings to identify students’ problem behaviors and the contextual variables that trigger and maintain those behaviors so that a positive behavior support plan can be developed to effectively address those problem behaviors. Positive behavior support plans may include function-based
procedures that address the contextual variables responsible for problem behaviors that were identified during the functional assessment.

*Functional Behavioral Assessment*

Kern and Dunlap (1999) conceptualize function-based interventions as teaching an individual an alternative behavior that is functionally equivalent to the problem behavior or changing an individual’s environment when an antecedent stimulus is triggering behavior. Essentially, the goal of function-based interventions is to manipulate environmental stimuli that precede and follow a problem behavior so as to decrease the future occurrence of that behavior (Ingram, Lewis-Palmer, & Sugai, 2005). In order to develop a function-based intervention, however, it is important to conduct a functional behavioral assessment (FBA).

The 1997 amendments to the Individuals with Disabilities Education Act (IDEA, 1997) mandates the use of FBAs in educational settings under certain conditions, and those amendments were retained in the 2004 reauthorization, the Individuals with Disabilities Education Improvement Act (IDEIA, 2004). An FBA is conducted to identify contextual variables that influence problem behavior. Essentially, information regarding antecedents and consequences of target responses are collected to formulate hypotheses as to what is maintaining a specific behavior (Cooper, Heron, & Heward, 2007).

That is, FBA may be used to identify the relevant contextual variables that are responsible for an individual’s problem behavior. These relevant contextual variables include a number of possible reinforcers, discriminative stimuli, motivating operations, and the degree of response put forth to perform the behavior. Two commonly assessed
classes of reinforcement are positive and negative reinforcement. Positive reinforcement occurs when a behavior is directly followed by the presentation of a stimulus (e.g., attention, tangibles, activities), and the response is strengthened. Negative reinforcement occurs when a behavior is directly followed by the removal, cessation, or reduction of an aversive stimulus, and the behavior is strengthened (Cooper et al., 2007). In addition to reinforcement class, FBAs are also utilized to identify other contextual variables that influence behavior.

For instance, a discriminative stimulus is an incitement or stimulus that signals that reinforcement is available for a particular response (Cooper et al., 2007). Alternatively, FBA can help identify a stimulus delta, which is a stimulus that signals that behavior will not be reinforced. For example, the presence of a particular adult may signal social reinforcement for a child’s behavior (discriminative stimulus); however, attention seeking behaviors may be abated in the absence of the adult (stimulus delta). Correspondingly, motivating operations also alter behavior by either increasing (establishing operation) or decreasing (abolishing operation) the value of a particular reinforcer. By assessing for motivating operations, FBAs can answer the question as to why a particular stimulus is acting as an effective reinforcer (Langthorne & McGill, 2010). For example, deprivation may increase the value of a reinforcer, and thus increase the probability of responses that contact that reinforcer. Conversely, satiation may decrease the value of a reinforcer and thus decrease the probability of responses that contact that reinforcer.

Finally, an FBA can help identify the amount of effort or force an individual exerts to perform a behavior (i.e., response effort). Friman and Poling (1995) suggest
that behavior is rooted in a cost-benefit matrix in which behaviors are based on the magnitude of a reinforcer, the rate of reinforcement, and the response effort needed to perform the behavior. That is, human beings engage in behavior that produces the most reinforcement, with the most rapid delivery, and with the least effort put forth. FBA procedures, then, can be designed to identify these relevant contextual variables for the sake of developing a positive behavior support plan. However, FBA is not a singular test, but a comprehensive and methodological technology that includes indirect, direct/descriptive, and experimental procedures (Gresham, Watson, & Skinner, 2001; Kern & Dunlap, 1999).

For instance, indirect functional assessment methods, the first step in the FBA process, may include structured interviews with children’s significant others, reviews of archival records, behavioral rating scales/checklists, and questionnaires for initial hypothesis development of contextual variables that may maintain problem behavior (Cooper et al., 2007; Gresham et al., 2001). This type of assessment method is called “indirect” because data gathering is removed in time and place from the occurrence of behavior. As a result, indirect functional assessment methodology should not be the sole component used to inform function-based interventions (Cooper et al., 2007; Sterling-Turner, Robinson, & Wilczynski, 2001). Instead, Sterling-Turner et al. (2001) suggest using indirect functional assessment methods as a preliminary guide to identifying behavioral functions. Information such as a child’s prior behavioral history, interventions that have been previously attempted, and times of day a behavior is more likely to occur can inform when and where the direct/descriptive functional assessment methods should be conducted (Gresham et al., 2001; Sterling-Turner et al., 2001).
The descriptive aspect of FBA requires behavioral observations of the child in an environment in which the target behavior is likely to occur (Cooper et al., 2007). It is essential that clear and concise operational definitions of behavior are developed as informed by the indirect assessment methods, so observers are clear as to what aspects of behavior to record (Sterling-Turner et al., 2001). Typically, Antecedent-Behavior-Consequence (ABC) continuous recording methods are utilized in educational settings. This direct assessment method requires an observer to record the occurrence of a target response and relevant contextual variables (i.e., antecedents and consequences) that occur in close temporal proximity to the behavior of interest (Cooper et al., 2007).

After descriptive assessment data are collected, the results can be analyzed to determine if there is a correlation between antecedents and consequences and the target behavior (Cooper et al., 2007; Sterling-Turner et al., 2001). Conditional probabilities, for instance, allow an observer to calculate how often specific environmental stimuli (i.e., antecedents and consequences) occur in close temporal proximity to the target behavior (Cooper et al., 2007; Sterling-Turner et al., 2001). The results obtained from the data of descriptive assessment procedures are then used to formulate hypotheses about what environmental stimuli are likely maintaining problem behavior. These hypotheses can be verified through the use of an experimental assessment called functional analysis (FA).

An FA is the controlled, systematic manipulation of contextual variables that are associated with problem behaviors. FAs are implemented so as to temporarily evoke target responses through the systematic manipulations of an individual’s environment (Cooper et al., 2007). Generally, FA conditions include attention contingent on the occurrence of the target behavior, escape contingent on the occurrence of the target
behavior, access to tangibles contingent on the occurrence of the target behavior, an alone condition, and a control condition (often called the play condition). More precisely, (1) the contingent attention condition tests for positive reinforcement in the form of access to attention, (2) the contingent escape condition tests for negative reinforcement in the form of task demand termination or escape, (3) the contingent tangible condition tests for positive reinforcement in the form of access to certain tangibles or activities, (4) the alone condition tests for automatic reinforcement, (5) and the control (play) condition gives an individual access to attention and tangible reinforcement while no demands are placed so there are abolishing operations in place for those reinforcers and behavior is expected to occur at a low level (Cooper et al., 2007). Data are recorded for each condition of the analysis and visually inspected in order to determine which environmental conditions elicited the greatest number of responses of the target behavior (Cooper et al., 2007).

The original FA study involved four conditions (contingent attention, escape from demands, alone, and control) and was used to determine the function of individual’s self-injurious behavior (Iwata, Dorsey, Slifer, Bauman, & Richman, 1982). This, more traditional, type of FA was repeated over several sessions per condition and required a considerable amount of time. On average, a typical FA can take as long as six and a half hours (Lydon, Healy, O’Reilly, and Lang, 2012) of assessment time over several days. The extensive amounts of time FAs typically necessitate are a limitation to their use, in that they are not as feasible in many applied settings (e.g., schools, outpatient treatment centers; Lydon et al., 2012). In response to this limitation, brief functional analyses (BFA) were developed in order to control for the considerable amount of time a typical FA takes to implement (Northup et al., 1991).
BFAs require fewer sessions to implement, and the sessions are generally briefer than typical FAs (Lydon et al., 2012; Northup et al., 1991). A typical FA requires exposure, over several sessions, to each experimental condition. Alternatively, BFAs only require that an individual be exposed to each experimental condition one or two times (Iwata et al., 1982; Lydon et al., 2012).

However, because there is considerably less time needed to conduct a BFA, contingency reversals are often necessary to verify the results of the brief analysis (Lydon et al., 2012; Northup et al., 1991). Contingency reversals involve reinforcing appropriate behavioral responses with the reinforcer identified during the brief FA, while the problem behavior is placed on extinction. Northup et al. (1991), using a BFA, was able to demonstrate the function of three individuals’ aggressive behavior. This study overcame a limitation in the FA literature in that Northup et al. (1991) was able to accurately identify and treat aggressive behavior with a total of 90 minutes per FA session, as opposed to six and a half hours. Additionally, meta-analyses have been published that support the utility of FAs.

For instance, Hanley, Iwata, and McCord (2003) conducted a meta-analysis that included 277 studies published in 34 journals. They found that almost 96% of FAs accurately identified the function of participants’ target behavior. However, only 31% of these FAs were conducted in school settings, while most targeted aberrant behaviors typically engaged in by individuals with severe disabilities (e.g., self-injurious behavior and aggression; Hanley et al., 2003). Solnick and Ardoin (2010) conducted a meta-analysis of the FA literature in order to determine the generalizability of these techniques. This meta-analysis included 39 studies, in which 19 comprised of FAs in classroom
settings. Additionally, a minimal amount of the classroom settings involved preschool classrooms. It is also important to note, that less than half of the FAs in this study included data for function-based interventions (Solnick & Ardoin, 2010). While an expansive literature-base offers support for the utilization of functional analyses, there are still inherent limitations to their external validity.

First, relatively fewer studies have evaluated the treatment utility of FAs for common disruptive behavior in educational settings (e.g., preschool classrooms). Second, the FBA literature is somewhat limited in examining the treatment utility of FBA. That is, there is not a substantial literature base that clearly demonstrates the superiority of function-based interventions to empirically supported non-function-based interventions. Moreover, limited research exists which demonstrates differential effectiveness of various components of function-based interventions. Function-based interventions may include antecedent components, consequent components, or both. However, there is a limited research that includes component analyses. As FBAs are mandated by IDEIA for children under certain circumstances, it is essential to examine their treatment utility and which function-based approaches are most effective in classroom settings.

_Evaluating the Treatment Utility of Functional Behavioral Assessments_

Treatment utility of assessment is the extent to which an assessment’s procedures leads to beneficial treatment outcomes and is a critical aspect of how an assessment procedure is evaluated (Hayes, Nelson, & Jarrett, 1987). FBAs can be evaluated for treatment utility by comparing function-based interventions to non-function based interventions (Nelson-Gray, 2003). Additionally, treatment utility of FBAs can be
assessed by evaluating intervention outcomes of differential reinforcement procedures as well as comparing antecedent- and consequent-based interventions (Kodak, Miltenberger, & Romaniuk, 2003a; Kodak, Miltenberger, & Romaniuk, 2003b; LeGray, Dufrene, Sterling-Turner, Olmi, & Bellone, 2010; Vollmer, Iwata, Zarcone, Smith, & Mazaleski, 1993; Vollmer, Marcus, & Ringdahl, 1995). Some studies within the functional assessment literature do demonstrate the treatment utility of FBAs.

For instance, Newcomer and Lewis (2004) compared the relative effectiveness of function- and non-function-based interventions with three elementary school students. Non-function-based interventions were interventions that relied on potent reinforcers or punishers to alter an individual’s behavior without assessment or consideration for contextual variables that may maintain problem behavior. Newcomer and Lewis (2004) found that function-based interventions were more effective than non-function-based interventions. However, this study should be interpreted with caution due to a few limitations.

First, all of the interventions (both function- and non-function-based) contained several components, making it difficult to ascertain which components resulted in the largest reduction of target behaviors. Second, Newcomer and Lewis (2004) noted order effects in which function-based interventions always followed non-function-based interventions. Ingram et al. (2005) addressed this limitation, however, by counterbalancing intervention conditions between participants so as to minimize possible order effects.

Ingram et al. (2005) compared function- and non-function-based behavior intervention plans with two elementary-aged students. Ingram et al. (2005) found that
function-based behavior intervention plans were more effective for reducing problem behaviors. It is important to note, however, that this study did not include an experimental analysis of behavior to confirm the contextual variables maintaining behavior (Ingram et al., 2005). In addition to this limitation, Ingram et al. (2005) did not evaluate the extent to which function- and non-function-based interventions increased appropriate behavior. Furthermore, the intervention methods included multiple components; therefore, it is unknown which treatment components resulted in the largest reduction of problem behavior.

Despite limitations, these studies contribute to the emerging literature that supports the use of FBA for intervention planning in school-based settings (Ingram et al., 2005; Newcomer & Lewis, 2004; Schill, Kratochwill, & Elliot, 1998). While improved treatment outcomes with the utilization of function-based interventions offers support of the treatment utility of FBA (Nelson-Gray, 2003), additional research is needed evaluating treatment utility of FBA.

Gresham et al. (2004) reviewed 150 school-based intervention studies that were published in the Journal of Applied Behavior Analysis between 1991 and 1999. They found that about half of the studies did not report linking FBA to intervention planning, with only 20% of these studies’ interventions targeting both appropriate and inappropriate behavior. Gresham et al. (2004) also found that, among the studies evaluated, interventions based on FBA information were no more effective than interventions that were not based on FBA information. However, Gresham et al. noted limitations in their meta-analysis including potential selection bias favoring non-function-based intervention studies. Specifically, non-function-based intervention studies included
mostly group designs and intervention studies including group designs typically include studies with an intervention effect, whereas that might not be the case with single subject intervention studies. Moreover, effect size calculations used in the meta-analysis (i.e., percentage non-overlapping data points (PND); Gresham et al., 2004) have been criticized and may not provide the best metric for synthesizing research findings. It is important to note that PND can provide useful information when evaluated concurrently with standardized effect sizes (Gresham et al., 2004). For example, Gresham et al. calculated the standardized difference effect size: mean data points in the treatment phases minus mean data points in baseline phases divided by the standard deviation of baseline data points, using only the first baseline phase if more than one were present (Gresham et al., 2004). Nevertheless, more research is needed for evaluating treatment utility of functional assessment. More recently, Miller and Lee (2013) conducted a meta-analysis of function-based intervention studies, including students with ADHD, in order to evaluate the treatment utility of FBA for students with ADHD.

Miller and Lee’s (2013) quantitative synthesis incorporated 82 single-subject studies with a total of 168 school-age participants, between the ages of 4-21. Of these studies, 49 used FBA data for intervention development, while the remaining 33 did not (Miller & Lee, 2013). Sixty percent of the FBA studies involved experimental manipulation for intervention planning; only 19% of these utilized brief FAs, with the remainder being extended analyses. Miller and Lee found that studies that included FBA for intervention planning yielded the largest effects. Based on their results, Miller and Lee (2013) also conclude that FBA procedures that involved experimental manipulation contribute to the development of effective interventions. It is important to note however,
that even though most of the interventions derived from FBAs were conducted in school settings (78%), less than half of the studies (40%) involved a teacher implementing intervention. Furthermore, this meta-analysis only included participants diagnosed with ADHD, which is an additional limitation to external validity. However, recent reviews of the FBA literature provide further evidence of the treatment utility of FBA.

For example, Mueller, Nkosi, and Hine (2011) examined the data of 90 FAs that were conducted in public school settings and concluded that FA can be feasible and useful for intervention planning. Even though approximately 60% of these FAs were found to be conducted in the participants’ classroom, only 16% of the interventions were actually implemented by teachers. Moreover, 80% of the participants in the Mueller et al. review were diagnosed with pervasive developmental disability (PDD), limiting external validity. Given the potential limited external validity of reviews on FBA, additional research evaluating the treatment utility of FBA is needed. In particular, research evaluating the relative effects of various FBA-based intervention components would be useful for practitioners in need of guidance for using FBA data in the most effective manner.

As stated previously, function-based interventions may include antecedent components, consequent components, or both. Moreover, multiple antecedent and/or consequent components may be derived from one FBA of one individual’s problem behavior. One common consequent approach to function-based intervention is differential reinforcement which systematically extinguishes undesirable behaviors by withholding reinforcement, while also reinforcing occurrences of appropriate behavior or the absence of inappropriate behavior (Cooper et al., 2007; LeGray et al., 2010).
LeGray et al. (2010) tested the relative efficacy of differential reinforcement of other behavior (DRO) and differential reinforcement of alternative behavior (DRA) with three preschool/kindergarten children. DRO includes reinforcing the absence of a problem behavior, while DRA includes reinforcing appropriate replacement behaviors. Additionally, DRO and DRA include extinction (i.e., no reinforcement) for problem behavior. Utilizing brief functional analyses (BFA) to identify the function of each participant’s disruptive classroom behavior, LeGray et al. (2010) developed function-based DRO and DRA procedures. While DRA tended to maintain the lowest levels of disruptive behavior for all three participants, DRO also maintained relatively low levels of disruptive behavior (LeGray et al., 2010). This provides evidence that FBA results can inform two separate interventions that are both effective for treating problem behavior, and DRA may be effective for reducing problem behaviors for children in preschool classrooms. In a follow-up study, LeGray, Dufrene, Mercer, Olmi, and Sterling (2013) conducted FBAs for preschool students referred for behavioral consultation due to disruptive classroom behaviors. FBA data were used to develop DRA interventions, and then DRA with and without pre-teaching for the alternative behavior were compared to determine relative efficacy. Results indicated that FBA was useful for developing DRA interventions that were efficacious for reducing children’s disruptive behaviors while increasing their appropriate behaviors. Moreover, results indicated that DRA with pre-teaching for the alternative behavior was more efficacious that DRA alone. As a result, the antecedent component of pre-teaching may be especially important for young children with limited response repertoires.
Traditionally, function-based interventions manipulate reinforcers by eliminating reinforcement (i.e. extinction) for the problem behavior, while providing reinforcement for an alternative behavior or the absence of the problem behavior (i.e., differential reinforcement). However, function-based interventions may include manipulation of antecedent events that evoke problem behaviors (e.g., discriminative stimulus, establishing operations). Therefore, treatment utility of FBA may be evaluated by examining relative efficacy of various antecedent manipulations derived from FBA. An example of a commonly used antecedent-based intervention is non-contingent reinforcement (NCR).

NCR is a function-based intervention that manipulates an individual’s environment prior to the target behavior. That is, the reinforcer for an individual’s behavior is delivered independent of the occurrence of the target behavior (Cooper et al., 2007). This is considered an antecedent intervention because the reinforcers are delivered freely; essentially creating an abolishing operation for the behavior as the individual is less motivated to engage in a behavior that obtains a reinforcer that is now delivered non-contingently (Cooper et al., 2007). NCR has empirical support for the treatment of aberrant behavior (Carr et al., 2000; Carr, Severtson, & Lepper, 2009) as well as typical disruptive behavior (e.g., inappropriate vocalizations, mild aggression; Austin & Soeda, 2008; Banda & Sokolosky, 2012; Jones, Drew, & Weber, 2000; Kodak, Grow, & Northup, 2004; O’Callaghan, Allen, Powell, & Salama, 2006; Rasmussen & O’Nell, 2006). As both NCR and differential reinforcement are function-based interventions with empirical support, it may be beneficial to examine relative efficacy of those antecedent- and consequent-based procedures. However, few studies have
compared antecedent and consequent procedures such as NCR and DRO to determine their relative efficacy for improving behavioral performance.

Vollmer et al. (1993) compared DRO to NCR in order to evaluate which intervention was more effective for decreasing self-injurious behavior (SIB) in three adult females. Functional analyses were conducted to identify the reinforcers for participants’ SIB. Results of the FAs indicated that SIB was socially mediated; that is, SIB produced positive reinforcement in the form of attention (Vollmer et al., 1993). For two participants, NCR tended to be slightly more effective for decreasing SIB, while DRO was more effective for the third participant. Overall, Vollmer et al. (1993) found that both DRO and NCR were effective at decreasing SIB in all three participants. In terms of treatment utility for FBA, the results of this study have important implications.

Vollmer et al. (1993) suggest that DRO-based interventions sometimes have undesirable side effects, such as aggressive and emotional behavior (i.e., extinction bursts) when target responses no longer provide access to reinforcement; or, it could be that individuals may receive little access to reinforcement because intervals are often reset due to engagement in target responses. This may also result in extinction bursts due to increased deprivation from a reinforcer (i.e., establishing operation; Vollmer et al., 1993). Vollmer et al. (1993), however, were able to demonstrate significant decreases in SIB by appropriately prescribing NCR and DRO interventions as informed by the results of FBA. While this study was able to experimentally demonstrate the efficacy of NCR and DRO as function-based interventions, it is important to recognize its limitations.

Largely, the scope of external validity in this study is limiting. This study was conducted in an analogue setting, so it is unclear how effective NCR and DRO, as
function-based interventions, would be for improving problem behavior in more applied settings. Additionally, it is uncertain which function-based procedure (NCR or DRO) would be more effective with typically developing individuals. While decreasing SIB is socially valid, it is important to extend the external validity of function-based NCR and DRO comparisons for treating more common behavioral concerns (e.g., inappropriate vocalizations, noncompliance). Finally, it is unclear as to whether or not the individuals who are likely to implement these procedures (i.e., caregivers, teachers) find these interventions acceptable or have the skills to implement the interventions with integrity.

In a follow-up study, Vollmer et al. (1995) compared function-based NCR and DRO with two males that engaged in SIB. One participant was an 18-year-old with profound mental retardation, while the other participant was a 4-year-old who exhibited symptoms of autism. FBA and treatment procedures for both participants were carried out in isolated rooms in their respective schools. FAs identified negative reinforcement, in the form of escape from age-appropriate instructional trials (e.g., table top activities), to be the function of both participants behavior (Vollmer et al., 1995). Following functional analyses, function-based NCR and DRO interventions were compared for only one of the participants (i.e., the four-year-old) and results indicated that function-based NCR tended to be marginally more effective than function-based DRO. Aside from only being compared with one participant, there are other limitations to external validity in this study.

For instance, both FBA and treatment procedures were conducted in an analogue setting with the 4-year-old (Vollmer et al., 1995). Thus, the extent to which function-based NCR and DRO procedures are effective in more naturalistic settings (e.g.,
classroom) is unclear. Furthermore, this study was conducted with a participant who likely had an Autism Spectrum Disorder and engaged in aberrant behavior (i.e., SIB; Vollmer et al., 1995). This limits the scope of external validity in that it cannot be ascertained how function-based NCR and DRO would compare as treatments for typically developing individuals displaying less severe disruptive behavior. It is important to note, however, that Vollmer et al. (1995) indicate that this study was specifically designed for the evaluation of NCR with an escape component, not a comparison of function-based NCR and DRO. Kodak et al. (2003a), however, conducted a study that addressed some of the aforementioned limitations.

As a follow-up to Vollmer et al. (1993) and Vollmer et al. (1995), Kodak et al. (2003a) compared NCR and DRO procedures with two 4-year-old males diagnosed with ASD. Using a multiple-baseline, alternating treatments design, Kodak et al. (2003a) demonstrated that both NCR and DRO were effective for decreasing common disruptive behavior (i.e., noncompliance, throwing objects) and increasing compliance. Additionally, parental acceptability measures offered support that both NCR and DRO are suitable procedures for the treatment of problem behavior (Kodak et al., 2003a). However, it is important to note that an FBA was not conducted for this study; so, the NCR and DRO procedures may not have been function-based interventions.

Another limitation is that NCR and DRO procedures were compared with two males with developmental disabilities. So, it is unclear as to which intervention is more effective when compared using typically developing children. It is also important to note that treatment procedures were conducted in the children’s homes, making it uncertain if NCR and DRO comparisons would yield similar results in more applied settings (i.e.,
Finally, parents rated NCR and DRO interventions as acceptable even though the therapists in the study implemented all procedures. Kodak et al. (2003b) extend the literature, however, by addressing a few of these limitations.

In a follow-up study, Kodak et al. (2003b) compared therapist-implemented DRO to NCR with a typically developing, seven-year old female in a regular education classroom. This participant was referred for services due to disruptive classroom behaviors such as inappropriate vocalizations and noncompliance. Two FAs were conducted and based on the results of this study, Kodak et al. (2003b) suggest that both NCR and DRO were effective for decreasing problem behavior and increasing appropriate behavior; while NCR tended to be slightly more effective. This study addresses important limitations in the literature in that functional assessment informed an NCR and DRO procedures comparison with a typically developing individual that was exhibiting disruptive classroom behaviors. This study, however, was not without limitations.

The results of the first FA in this study suggested that escape from task demands maintained disruptive classroom behavior (Kodak et al., 2003b). But, because neither NCR nor DRO were effective at improving behavior, a second FA was conducted; which suggested the participant’s disruptive behavior was maintained by attention (Kodak et al., 2003b). However, initial treatment results as informed by the second FA yielded marginal efficacy for both NCR and DRO procedures. In fact, Kodak et al. (2003b) introduced pre-treatment play sessions involving non-contingent attention in order to create an abolishing operation for attention. Moreover, the participant was also provided tangible reinforcers (e.g., candy, stickers, toys) at the beginning and end of treatment
sessions contingent upon low levels of disruptive behavior (Kodak et al., 2003b). Decreases in disruptive behavior and increases in appropriate behavior were only observed after adding these treatment components. Therefore, it is difficult to ascertain which intervention component was responsible for behavior change, or if the contextual variables maintaining behavior were accurately identified.

So, it may be possible that the reinforcer maintaining problem behavior was not identified. Consequently, further analyses of the relative efficacy of NCR and DRO procedures are necessary. While the FBA literature supports the use of function-based NCR and DRO, it is still important to compare the relative efficacy of these two procedures so as to address limitations of past studies.

External validity in the comparison of these treatments is limited in that individuals with developmental disabilities are typically the participants in these studies (Vollmer et al., 1993; Vollmer et al., 1995). Furthermore, aberrant behaviors such as self-injurious behavior are usually treated, as opposed to more typical disruptive behaviors. Even though Kodak et al. (2003b) studied the relative effectiveness of NCR and DRO with a typically developing individual, it was conducted in an analogue setting; making it unclear if the results would generalize to more applied settings such as classrooms. Overall, the literature supports the use of NCR and DRO as function-based interventions for improving problem behavior (Kodak et al., 2003a; Kodak et al., 2003b; Vollmer et al., 1993; Vollmer et al., 1995). While some studies have compared NCR to DRO, it is important to evaluate these interventions in applied settings in which they are likely to be utilized.
Purpose

Treatment utility of FBA remains a critical gap in the FBA literature. In particular, there is still a need for research examining the relative effectiveness of function-based antecedent and consequent-based interventions. The purpose of this study was to compare the relative effectiveness of NCR and DRO in applied settings, with children of typical development who engage in common disruptive classroom behaviors. The following research questions were addressed:

Research Questions

1. Are there relative differences in the efficacy of NCR and DRO in decreasing problem behaviors in preschool children?
2. Are there relative differences in the efficacy of NCR and DRO in increasing appropriate behaviors in preschool children?
3. Do preschool teachers find FBA procedures acceptable?
4. Is there differential preference for NCR versus DRO for preschool teachers?
CHAPTER II

METHODS

Participants and Setting

Three typically developing preschool children in center-based classrooms in southeastern Head Start centers were included in this study. To be included in this study, the child had to meet the following criteria: (1) the child had to be referred by their teacher or other school personnel for frequent behavior problems, (2) the problem behavior had to occur for at least 20% of intervals during a screening observation, (3) the child must not have been diagnosed with a developmental disability, (4) and the child must not have had a current or previous behavior intervention plan. Both teacher and parental/legal guardian consent was obtained in order for the child to participate in the study (See Appendixes A and B). All of the study procedures were conducted in the children’s classroom during the time the problem behavior was most likely to occur with greatest frequency. Approval from The University of Southern Mississippi Institutional Review Board (IRB) was received prior to the start of the study (See Appendix C).

This study was conducted in a Head Start and an Early Head Start center. This Head Start agency operated and managed 15 Head Start centers in one rural community. Demographics included approximately 99% minority students (i.e., 68% African American, 16% biracial or multiracial, 15% Hispanic). All children were of low SES, as Head Start enrollment criteria require family income at or below the federal poverty line. School-Wide Positive Behavior Interventions and Supports (SWPBIS; Horner, Sugai, & Anderson, 2010) were not currently in place for the duration of this study, but had been in place the prior year.
Harry was a four-year-old biracial male in a Head Start classroom with approximately 20 three, four, and five-year old children. His primary referral concern was out-of-area behavior, with the classroom’s teaching assistant indicating that he was frequently out of his area and was non-compliant with repeated requests to return to the designated area. The teaching assistant reported that non-compliance with requests to return to the designated area would often lead to tantrum behaviors (e.g., screaming, crying, falling on the ground). His teacher indicated that his out-of-area behavior was somewhat disruptive and occurred 1-3 times per day, with a duration of approximately 6-10 minutes.

Center time was reported as the time of day when Harry frequently engaged in out-of-area behavior. Center time consisted of several activities (e.g., art area, housekeeping) in which students chose one area each day. There were approximately four to five children in any given area. The teaching assistant indicated that Harry would generally stay in art area and housekeeping and usually engaged in out-of-area behavior when in the book area. While students were in book area, they were instructed to “stay on the book carpet” and actively look at a book. The classroom’s teaching assistant was present during all observations.

The classroom’s teaching assistant, Ms. Potter, was a 42-year-old African American female with an Associate’s degree in child development. Ms. Potter had been teaching for 4 years prior to the beginning of the study.
Ron

Ron was a three-year-old African American male in a Head Start classroom with approximately 20 three and four-year-old children. He received speech and language services approximately two times per week throughout the duration of the study. Ron’s primary referral concern was out-of-area behavior during transitions from lunch to naptime. The classroom’s teaching assistant reported that Ron’s out-of-area behavior was very disruptive and occurred 10-12 times per day, with a duration lasting as long as or longer than 10 minutes.

Lunch to naptime transitions included children being instructed to sit or lay on their cot until a teacher called them to use the restroom and brush their teeth. This transition activity lasted approximately 15 to 20 minutes, in which children were not allowed to engage with tangibles (e.g., toys) or leave their cot unless instructed. Once children had used the restroom and brushed their teeth, they were to lay on their cot quietly to fall asleep for naptime.

The classroom’s teaching assistant, Ms. Weasley, was a 27-year-old African American female with an Associate’s degree in general studies. Ms. Weasley had been teaching for 1 year prior to the beginning of the study.

Hermione

Hermione was a 2-year-old African American female in an Early Head Start classroom with approximately 8 two and three-year-old children. Hermione’s primary referral was out-of-area behavior during naptime. Hermione’s teacher reported that out-of-area behavior was very disruptive and occurred 4-6 times per day, with a duration of 1-5 minutes.
Naptime included children sitting or lying on their cot with the lights off and
lullaby music playing with an expectation of sleeping. Naptime lasted approximately two
hours, in which children were not allowed to engage with tangibles (e.g., books) or leave
their cot unless instructed. The children’s cots were spaced throughout the classroom in
the same location every day.

Hermione’s teacher, Ms. Granger, was a 29-year-old African American female
with an Associate’s in early childhood development. Ms. Granger had been teaching for
5 years prior to the beginning of this study.

Materials

*Functional Assessment Informant Record for Teachers – Pre-School Version (FAIR – TP II)*

The FAIR – TP II was used as an indirect assessment method for the FBA. This
is a rating scale that is used to gather information about the problem behavior and
contextual variables that surround the problem behavior. The FAIR – TP II is a
modified version of the FAIR – TP, which has been shown to be an effective method for
identifying problem behaviors and their antecedents and consequences (Dufrene,
Doggett, Henington, & Watson, 2007; LeGray et al., 2010). Prior to modification, the
FAIR – TP was a semi-structured interview. Previous research with Head Start children
has shown has that the FAIR – TP produces results that match direct/descriptive and
experimental functional analysis data. Moreover, the original FAIR – TP was useful for
intervention planning (Dufrene et al., 2007, LeGray et al., 2010).

The FAIR – TP II includes Teacher and Child Demographics, Problem Behaviors,
Antecedents, and Consequences sections. The Teacher and Child Demographic section is
used to gather information about the teacher and the child and requires the teacher to identify specific times of day in which problem behaviors are most likely to occur. The Problem Behaviors section requires teachers to rank-order one to three problem behaviors according to their level of severity. There are 27 items in the Antecedent section that requires the teacher to rate how often the problem behavior occurs in certain antecedent conditions; while the Consequence section requires the teacher to rate the extent to which problem behaviors are followed by various consequences. After the FAIR – T P II was completed, a follow-up interview was conducted with teachers in which the results were discussed and operational definitions for problem behaviors were developed. See Appendix D for the FAIR – T P II.

*Assessment Rating Profile – Revised (ARP-R)*

A modified version of the Assessment Rating Profile – Revised (ARP – R; Eckert, Hintze, Shapiro, 1999; See Appendix E) was utilized to evaluate teachers’ acceptability of the functional assessment procedures. The two modifications made to the ARP-R included replacing the designation “school psychologist” with “teacher” and the tense of the rating scale was changed from present to past. The ARP-R uses a 6-point Likert scale to measure the 12 items, with higher ratings indicating greater agreement with the assessment procedures (i.e., 1 = strongly disagree to 6 = strongly agree). The ARP-R has high internal consistency (Cronbach’s alpha of .94) and test-retest reliability. Moreover, factor analysis indicates that the scale has one factor for teachers’ acceptability ratings (Eckert et al., 1999).
The Behavior Intervention Rating Scale (BIRS)

The BIRS was used to assess teachers’ acceptability of both NCR and DRO as interventions. The BIRS is a 24-item questionnaire ranging from 1 (strongly disagree) to 6 (strongly agree) that measures individuals’ perceptions on treatment acceptability, effectiveness, and time of intervention implementation (Elliot & Treuting, 1991). Factor analysis by Elliot and Treuting (1991) identified three factors for the BIRS: Acceptability (63% of variance), effectiveness (6% of variance), and time of effectiveness (4.3% of variance). Furthermore, a coefficient alpha yielded an alpha level of .97; suggesting high internal consistency for each scale. More specifically, acceptability, effectiveness, and time yielded alphas of .97, .92, .87, respectively. See Appendix F for the BIRS.

Dependent Measures and Data Collection Procedures

The primary dependent measure was out-of-area behavior, while appropriately engaged behavior was a secondary dependent measure. Therefore, phase change decisions were based on out-of-area behavior data. Each participant’s problem behavior and appropriate replacement behavior were determined through consultation with respective teachers (i.e., FAIR-T P II and follow-up interview) and the screening observation. Out-of-area behavior was measured using 10 second whole interval time-sampling, in which the observer recorded the presence of the problem behavior if it occurred within a 10 second interval. Appropriate behavior was recorded in the same manner, while noting that both out-of-area and appropriate behavior could not occur within the same interval. However, the absence of out-of-area and appropriate behavior
could be simultaneously recorded within the same interval, dependent upon the specific operational definitions of behavior for each participant.

Out-of-area behavior for Harry was defined as sitting/standing at least two feet out of the designated area (i.e., leaving designated center). Out-of-area behavior for Ron and Hermione was defined as both legs and buttocks off their cot. Appropriately engaged behavior for Harry was defined as being within at least two feet of his area and attending (e.g., looking at a speaking teacher) or actively engaged with materials (e.g., cutting paper, stacking blocks). Appropriately engaged behavior for Ron and Hermione was defined as both legs and buttocks on the cot in a sitting or lying position refraining from making voluntary noises (e.g., talking, singing, laughing).

MP3 devices were used to cue the observers when intervals were going to change. Observations were 15 min (Harry and Ron) and 10 min (Hermione) and were completed in each participant’s classroom during the time in which the greatest degree of problem behavior was reported. Observations were conducted by trained graduate students. All observers demonstrated 90% agreement with the primary researcher prior to data collection. Graduate students were retrained on operational definitions of behavior when IOA fell below 90%.

Design and Data Analysis

A brief functional analysis (BFA) was used to determine the function of each child’s problem behavior (Northup et al., 1991). BFAs included a brief multi-element experimental design. BFA conditions were 15 minutes for Harry and Ron and 10 minutes for Hermione. More than one condition was conducted per day for Hermione; however, no single condition was implemented on more than two occasions, and a 5-
minute break was included between sessions conducted on the same day. In order to verify the results of the BFA, a contingency reversal phase was completed when clear divergence (i.e., at least 20%) was observed between one of the BFA conditions relative to other conditions. The contingency reversal consisted of a BAB design with one datum per condition. The B phase consisted of delivering the contingency related to the highest occurrence of problem behavior in the absence of that particular behavior (i.e., DRO).

An alternating treatments design (ATD; Cooper et al., 2007) was used to examine and compare the relative effectiveness of NCR and DRO. An ATD was appropriate for this study because it allowed for rapid alternation of treatments, in which treatment effects were compared from session to session (Barlow & Hayes, 1979; Cooper et al., 2007). A control condition was included in order to determine the relative effectiveness of NCR and DRO to a non-intervention condition. The condition with the most divergence (i.e., lowest occurrence of out-of-area behavior and highest occurrence of appropriately engaged behavior) was deemed the most effective treatment. To minimize the potential for multiple treatment interference, each condition was implemented during a separate session for Harry and Ron. For Hermione, however, two sessions were conducted per day. So, no single condition was implemented on more than two occasions, and a-5 minute break was included between sessions conducted in the same day. Treatments for all participants were never implemented in two consecutive sessions. Paper with treatment names on them were randomly drawn out of a plastic bag in order to ensure randomized treatment implementation. Finally, to further reduce the threat of multiple treatment interference, the most effective treatment during the ATD phase was implemented in isolation during an independent verification phase.
Procedures

FAIR – TP II

The FAIR – TP II was given to each child’s teacher to complete independently after a referral had been made. After completion of the FAIR – TP II, a follow-up meeting with the teacher was conducted in order to develop operational definitions of problem behavior as well as hypotheses of each child’s problem behavior.

Screening Observation

An observation was made during the time the teacher reported the problem behavior occurred with the greatest frequency. The observation was conducted for 15 minutes, in which the problem behavior occurred for at least 20% of the intervals for all three participants. Prior to the screening observation, the teacher was instructed to conduct classroom routines in a typical fashion. Feedback regarding child behavior was not provided to the teacher or child during the screening observation.

Brief Functional Analysis

A classroom-based BFA was conducted in order to determine the function of each child’s behavior and to confirm the results from the FAIR – TP II (LeGray et al., 2010). BFAs were hypothesis-based to limit the number of conditions; thus the results of the FAIR – TP II and screening observation informed the BFA conditions. The hypothesis-based BFA also included a control condition, which involved each participant having free access to preferred items/activities and non-contingent teacher attention. Consequently, it was hypothesized that the control condition would result in low levels of disruptive behavior. Paper with treatment names on them were randomly drawn out of a plastic bag in order to ensure randomized condition implementation. Results of the BFA
were used to develop individualized function-based NCR and DRO interventions for each participant. Each child’s teacher implemented all functional analysis sessions. See Appendices G-K for BFA protocols. Task demands for BFA conditions were situation-specific; that is, task demands were developed based on teacher referral concern (e.g., task demand is to engage with appropriate materials during an art activity). If there was no clear divergence between conditions during the BFA, an extended functional analysis was conducted. Information from the FAIR-T P II and the screening observation suggested that out-of-area behavior might be maintained by teacher attention for Harry and escape to attention for Ron and Hermione.

A teacher training was held with each teacher prior to conducting the BFA. Teacher training included a description of the operational definitions of out-of-area behavior, a description of the operational definitions of appropriately engaged behavior, and instructions for each step of the BFA. The primary researcher provided an overview of BFA procedures, modeled the BFA procedures, and provided praise and corrective feedback for teacher implementation of BFA procedures to each teacher. The primary researcher was present during every BFA session. The primary researcher prompted the teacher to implement BFA procedures using color-coded signs as cues. Each BFA condition had a different colored sign to assist the teachers with discriminating between BFA conditions.

*Tangible.* Using a reinforcer menu, a brief preference assessment was conducted prior to each tangible condition. Immediately before each condition, the participant chose one of four items listed on the reinforcer menu that were reported as preferred stimuli by the teacher and child. Pictures of the four possible tangibles were placed on
the reinforcer menu for the child to indicate their preference. Prior to the start of the tangible condition, each child was allowed to have 2 min of access to this preferred item to create an establishing operation for that tangible. The tangible condition was conducted during the same activity as the escape and attention conditions. The specific activity was chosen based on information from the FAIR-T P II and the follow-up interview with the teacher. During the tangible condition, contingent on the occurrence of out-of-area behavior, the teacher provided the child with 30 s of access to the preferred tangible. All other problem behaviors were ignored. The tangible was removed from the child’s possession after they engaged with it for 30 s. Moreover, the activity remained in place during the tangible interval so the child did not simultaneously escape task demands.

**Attention.** Prior to the start of the attention condition, the teacher was positioned next to the child and delivered neutral attention (e.g., “I like your shirt!”) in the form of a typical conversation for approximately 2 minutes. After the 2 min of attention, the teacher informed the student that it was time to engage in the planned classroom activity. The teacher then engaged in classroom-related work in an area of the room that was visible to the child. Contingent upon the occurrence of out-of-area behavior, the teacher delivered brief social attention in the form of reprimands (e.g., Get back on your cot!). After delivering attention, the teacher diverted their attention back to the classroom-related activity. All other problem behaviors were ignored, and task demands remained in place throughout the session.

**Escape.** The escape condition consisted of the teacher giving a classroom-related activity in an area that is visible to the participant. Contingent upon the occurrence of
out-of-area behavior the child was provided a 30 second break from the demand in the form of the teacher turning away from the child, removing the activity, or ignoring the child’s out-of-area behavior. After the 30 s escape interval, the task demand was represented and teacher was instructed to guide the child back to their area. All other problem behavior was ignored. A three-prompt hierarchy was used to ensure that the child did not escape task demands. This included (1) a verbal prompt, (2) a verbal prompt with a physical prompt, and (3) hand-over-hand guidance.

Control. During the control condition, no demands were given to the participant. The control condition involved allowing each participant to have free access to a preferred item and attention from a teacher on a fixed-interval schedule (i.e., every 30 seconds). The condition was conducted in an area of the classroom that was separate from other children and ongoing classroom activities. All problem behaviors were ignored.

Contingency Reversal. A contingency reversal was included to confirm the results of the BFA. The contingency reversal phase included a brief BAB design with one datum per condition. During the first B phase, the condition with the greatest occurrence of the target behavior was reversed through differential reinforcement of other behavior (DRO). That is, when the child did not engage in the target response for 30 s, the reinforcer was delivered. If the child did engage in the target response, reinforcement was withheld and the interval was reset. During the A phase, the BFA condition with the greatest occurrence of the target behavior was replicated. See Appendix L for Contingency Reversal Protocol.
**ARP-R.** After completing of the contingency reversal, the researcher provided a copy of the ARP-R to the teacher and was instructed to complete it. The primary researcher collected the ARP-R after it had been completed by the teacher.

**Intervention**

After the BFA, both NCR and DRO were implemented within an ATD design. Teachers were trained on intervention procedures prior to implementation. The integrity for intervention implementation was evaluated for each session. The intervention protocol included operational definitions of out-of-area behavior and appropriately engaged behavior and explicit instructions for each intervention step. Intervention sessions involved providing the teacher with an overview of intervention procedures, modeling intervention procedures, requiring teacher to practice interventions procedures, and providing corrective feedback on teacher performance. An experimenter was present during every intervention session. During intervention sessions, the experimenter prompted the teacher to implement NCR or DRO steps by cueing with a neon colored cue card. Each intervention condition had a different colored sign to the assist the teachers with discriminating between intervention conditions.

**Non-Contingent Reinforcement.** NCR was delivered by teachers and was matched to the child’s function of problem behavior identified during the BFA. For example, if the BFA identified escape as the function of the problem behavior, the task demand was terminated for 30 s following a fixed interval of time that was yoked to the child’s display of disruptive behavior exhibited during the screening observation (i.e., total number of observation intervals divided by number of intervals out-of-area occurred multiplied by 100). This involved the teacher stating, “You can get off your cot now”
and removing the task demand (e.g., lying on a cot) while ignoring other problem behavior. At the end of the 30 s escape interval the teacher stated “It’s time to go back to your cot.” The three-prompt-hierarchy (i.e., verbal prompt, verbal prompt with physical prompt, and hand-over-hand guidance) was implemented contingent on noncompliance to return to the cot. NCR in the form of attention required the teacher to deliver brief attention following a fixed interval of time yoked to the screening observation results. Attention came in the form of brief praise statements (e.g., “Thanks for staying in your area!”), generic statements (e.g., “I like your shoes”), or physical attention (e.g., high fives, fist bumps). All other problem behavior was ignored. NCR in the form of escape to attention required the teacher to terminate the task demand and provide attention following a fixed interval of time yoked to the screening observation results. Escape to attention involved the teacher saying “You can get off the cot now” and providing brief praise statements (e.g., “Thanks for staying in your area!”), generic statements (e.g., “I like your shoes”), or physical attention (e.g., high fives, fist bumps). Sessions were 15 minutes (Harry and Ron) and 10 minutes (Hermione). See Appendix O for NCR protocol.

*Differential Reinforcement of Other Behavior.* DRO was delivered by a teacher or teacher’s aide, based on the function of each child’s behavior. For example, if the BFA identified escape as the function of the problem behavior, the task demand was terminated for 30 s following a fixed interval of time contingent on refraining from out-of-area behavior. This involved the teacher stating, “You can get off your cot now” and removing the task demand (e.g., lying on a cot) while ignoring other problem behavior. At the end of the 30 s escape interval the teacher stated “It’s time to go back to your cot.”
The three-prompt-hierarchy (i.e., verbal prompt, verbal prompt with physical prompt, and hand-over-hand guidance) was implemented contingent on noncompliance to return to the cot. DRO in the form of attention required the teacher to deliver brief attention following a fixed interval of time contingent on refraining from out-of-area behavior. Attention came in the form of brief praise statements (e.g., “Thanks for staying in your area!”), generic statements (e.g., “I like your shoes”), or physical attention (e.g., high fives, fist bumps). All other problem behaviors were ignored. DRO in the form of escape to attention required the teacher to terminate the task demand and provide attention following a fixed interval of time contingent on refraining from out-of-area behavior. Escape to attention involved the teacher saying “You can get off the cot now” and providing brief praise statements (e.g., “Thanks for staying in your area!”), generic statements (e.g., “I like your shoes”), or physical attention (e.g., high fives, fist bumps). Sessions were 15 minutes (Harry and Ron) and 10 minutes (Hermione). At any time during an interval the child engaged in the target behaviors, no contingencies were delivered and the interval was reset. See Appendix P for DRO protocol.

Whole interval DRO coding, as opposed to momentary DRO, was chosen because it has been shown to be more effective for decreasing problem behaviors (Cooper et al., 2007). While momentary DRO is useful for maintaining low rates of disruptive behavior, it could advantageously reinforce disruptive behavior (Cooper et al., 2007). For instance, a child may engage in out-of-area behavior for the majority of an interval and then sit on their cot before the interval ends and receive reinforcement, thus inadvertently reinforcing out-of-area behavior.
Control. The control condition consisted of the teacher engaging in typical classroom-related activities (e.g., cleaning tables) and using typical classroom management techniques. The experimenter instructed the teacher to use typical teaching techniques and refrain from using NCR or DRO. This condition allowed observation of the child’s behavior with no intervention effects.

BIRS. After completion of the verification phase, the researcher provided two copies of the BIRS to the teacher and instructed them to complete the BIRS for each intervention (i.e., NCR, DRO). The primary researcher collected BIRS forms after they were completed.

Interobserver Agreement, Procedural Integrity, and Treatment Integrity

Interobserver agreement (IOA) was conducted for at least 30% of the sessions across all conditions. It was calculated by dividing the total number of agreements by the total number of agreements and disagreements, multiplied by 100. Additionally, Kappa was calculated for each IOA observation as a statistical measure to further evaluate IOA (Watkins & Pacheco, 2000). Kappa was utilized to account for the agreements and disagreements between observers due to chance, yielding a more statistically sound calculation of IOA (Watkins & Pacheco, 2000). Kappa values less than .40 are considered poor, .40 to .60 are considered fair, .60 to .75 are considered good, and values greater than .75 are considered excellent agreement (Watkins & Pacheco, 2000). Observers included graduate students who had demonstrated at least 90% agreement with the primary researcher prior to collecting data. For each observation, one observer was designated as the primary observer and the other observer the secondary observer. The primary observer’s data were used as the outcome measure in the study. If agreement for
any observation session fell below 90%, that observer was retained and had to demonstrate 90% or greater agreement prior to conducting another observation.

For Harry, IOA was completed for 100% of functional analysis sessions for out-of-area behavior with a mean agreement of 99.44% (range: 97.33-100%; mean Kappa = .865). IOA was completed for 100% of Ron’s BFA sessions for out-of-area behavior with a mean agreement of 97.24% (range: 90-100%; mean Kappa = .892). IOA was completed for 100% of Hermione’s BFA sessions for out-of-area behavior with a mean agreement of 97.54% (range: 92-100%; mean Kappa = .845). In regard to intervention sessions, IOA was completed for 60.86% of Harry’s sessions, 57.14% of Ron’s sessions, and 100% of Hermione’s sessions for both out-of-area behavior and appropriately engaged behavior. Mean IOA was 90.33% (range: 91.11-100%; mean Kappa = .995), 95.3% (range: 92.22-98.89%; mean Kappa = .695), and 97.79% (range: 88.33-100%; mean Kappa = .918) for Harry, Ron, and Hermione, respectively.

Procedural integrity observations were completed for every condition of the functional analysis (see Appendices Q-T for BFA procedural integrity). Treatment integrity observations were completed for at least 30% of NCR, DRO, and control sessions of the study (see Appendices U-W for treatment procedural integrity). Procedural and treatment integrity observations included a checklist of procedural steps for each BFA/intervention condition. Procedural and treatment integrity were calculated by dividing the number of steps completed accurately by the total number of steps. IOA for integrity was calculated by dividing the number of agreed upon steps by the number of agreed and disagreed upon steps and multiplying by 100.
For all three participants, procedural integrity was completed for 100% of functional analysis sessions with procedural integrity of 100% for all sessions. For Harry, treatment integrity was completed for 100% of intervention sessions, with an average integrity of 100%. IOA was completed for 100% of Harry’s BFA procedural integrity checks and 60.86% of his treatment integrity checks with 100% IOA for procedural and treatment integrity checks across phases. For Ron, treatment integrity was completed for 100% of intervention sessions, with an average integrity of 100%. IOA was completed for 100% of Ron’s procedural integrity checks and 57.14% of his treatment integrity checks with 100% IOA for procedural and treatment integrity checks across phases. For Hermione, treatment integrity was completed for 100% of intervention sessions, with an average integrity of 100%. IOA was completed for 100% of Hermione’s BFA procedural integrity and treatment integrity checks with 100% IOA for procedural and treatment integrity checks across phases.
CHAPTER III

RESULTS

Functional Analysis

*Harry*

Results of Harry’s BFA and extended analysis are included in Figure 1. Harry’s functional analysis data were collected over twelve days, lasting approximately 15 minutes each day. In the initial BFA, the control condition resulted no out-of-area behavior, the escape condition resulted in 1.33% out-of-area behavior, and the attention condition resulted in 16% out-of-area. An extended analysis was conducted to further examine the function of Harry’s out-of-area behavior because the BFA did not result in 20% divergence between any conditions. During the extended analysis, the attention condition resulted in an average of 48.33% (range: 20-48%) occurrence of out-of-area behavior, with an increasing trend. The escape condition resulted in an average of 7.11% (range: 0-12%) occurrence of out-of-area behavior. The control condition resulted in an average of .44% (range: 0-1.33%) occurrence of out-of-area behavior. Due to the clear divergence between the attention condition and both escape and control conditions, it was determined that Harry’s out-of-area behavior was maintained by access to teacher attention.
Ron

Results of Ron’s BFA are included in Figure 2. Ron’s BFA data were collected over eight days, lasting approximately 15 minutes each day. The control condition resulted in out-of-area behavior during 10.67% of the observed intervals. The tangible condition resulted in out-of-area behavior during 18.67% of the observed intervals. Yielding the highest occurrence of out-of-area behavior, the attention condition resulted in out-of-area behavior during 52% of the observed intervals. The escape condition resulted in out-of-area behavior during 39.2% of the observed intervals. Because both the attention and escape conditions resulted in high rates of out-of-area behavior and little divergence, it was hypothesized that the function of Ron’s out-of-area behavior could be escape from task demands to teacher attention. So, an escape to attention condition was conducted, resulting in out-of-area behavior during 48% of observed intervals. Since escape to attention condition yielded high rates of out-of-area behavior a contingency

Figure 1. Results of Harry’s functional analysis.
reversal phase was conducted to verify the results of the BFA. During the first B condition, Ron engaged in out-of-area behavior for 8% of observed intervals. The A condition, where the escape to attention condition was replicated, resulted in out-of-area behavior for 36% of the observed intervals. The second B condition resulted in out-of-area behavior for 9.33% of observed intervals. Although the A condition resulted in lower levels of out-of-area behavior when compared to the BFA escape to attention condition, it did result in higher occurrence of out-of-area behavior in comparison to both B conditions. Based on the results of the BFA, it was determined that the function of Ron’s out-of-area behavior to escape task demands to access teacher attention.

![Graph showing percentage of out-of-area behavior (OOA) across sessions for different conditions: CONT, TANG, ATN, ESC, and CR1, CR2.](image)

*Figure 2.* Results of Ron’s BFA.

**Hermione**

Results of Hermione’s BFA are included in Figure 3. Hermione’s BFA data were collected over seven days, lasting approximately 10 minutes each day. The attention condition resulted in out-of-area behavior for 11.11% of observed intervals. The tangible
condition resulted in out-of-area behavior for 13.13% of observed intervals. The control condition did not result in out-of-area behavior. Yielding the highest occurrence of out-of-area behavior, the escape condition resulted in out-of-area behavior for 44.44% of observed intervals. The BFA yielded clear divergence between the escape condition and the attention and tangible conditions; therefore, a contingency reversal phase was conducted to verify the results of the BFA. During the first B condition, Hermione engaged in out-of-area behavior for 7.78% of observed intervals. The A condition, where the escape condition was replicated, resulted in out-of-area behavior for 77.78% of observed intervals. The second B condition resulted in out-of-area behavior for 15% of observed intervals. Because the A condition yielded high levels of out-of-area behavior, while both B conditions resulted in low levels of out-of-area behavior, it was determined that the function of Hermione’s out-of-area behavior was to escape from task demands.

![Figure 3. Results of Hermione’s BFA.](image-url)
Intervention Analysis

*Harry*

Figures 4 and 5 include intervention analysis results for out-of-area and appropriately engaged behavior, respectively. The control condition resulted in out-of-area behavior occurring for a mean of 24.45% (range: 4.44-41.11%) of the observed intervals and appropriately engaged behavior occurring for a mean of 62.22% (range: 40-93.33%) of the observed intervals. The NCR condition resulted in out-of-area behavior occurring during a mean of 3.75% (range: 0-8.89%) of the observed intervals and appropriately engaged behavior occurring during a mean of 89.2% (range: 73.33-98.89%) of the observed intervals. The DRO condition resulted in out-of-area behavior occurring during a mean of 13.43% (range: 2.22-22.67%) of the observed intervals and appropriately engaged behavior occurring during a mean of 78.1% (range: 66.67-92%) of the observed intervals.

Due to the relative divergence and consistently low levels of out-of-area during the NCR intervention sessions, a verification phase was completed with the NCR condition. During the verification phase, NCR resulted in out-of-area behavior occurring with a mean of 2.89% (range: 2.22-3.33%) of the observed intervals and appropriately engaged behavior occurring with a mean of 93.34% (range: 80-97.78%) of the observed intervals.
Figure 4. Harry’s intervention analysis results for out-of-area behavior.

Figure 5. Harry’s intervention analysis results for appropriately engaged behavior.
Ron

Figures 6 and 7 include intervention analysis results for out-of-area and appropriately engaged behavior, respectively. The control condition resulted in out-of-area behavior occurring for a mean of 32.44% (range: 20-48.89%) of the observed intervals and appropriately engaged behavior occurring for a mean of 58.45% (range: 40-70%) of the observed intervals. The NCR condition resulted in out-of-area behavior occurring for a mean of 13.86% (range: 7.78-17.33%) of the observed intervals and appropriately engaged behavior occurring for a mean of 80.19% (range: 72.22-86.67%) of the observed intervals. The DRO condition resulted in out-of-area behavior for a mean of 22.84% (range: 16.67-28.89%) of the observed intervals and appropriately engaged behavior occurring for a mean of 60% (range: 43.33-68.89%) of the observed intervals.

Due to the clear divergence between conditions, a verification phase was completed with the NCR condition. During the verification phase, NCR resulted in out-of-area behavior occurring for a mean of 8.67% (range: 4.44-21.11%) and appropriately engaged behavior occurring for a mean of 75.48% (range: 61.11-87.78%) of the observed intervals.
**Figure 6.** Ron’s intervention analysis results for out-of-area behavior.

**Figure 7.** Ron’s intervention analysis results for appropriately engaged behavior.

**Hermione**

Figures 8 and 9 include intervention analysis results for out-of-area and appropriately engaged behavior, respectively. The control condition resulted in out-of-
area behavior occurring for a mean of 80% (range: 70-90%) of the observed intervals and appropriately engaged behavior occurring for a mean of 5.33% (range: 0-13.33%) of the observed intervals. The NCR condition resulted in out-of-area behavior occurring for a mean of 32.22% (range: 30-35%) of the observed intervals and appropriately engaged behavior occurring for a mean of 58.89% (range: 55-61.67%) of the observed intervals. The DRO condition resulted in out-of-area behavior occurring for a mean of 22.22% (range: 15-33.33%) of the observed intervals and appropriately engaged behavior occurring for a mean of 66.67% (range: 65-68.33%) of the observed intervals.

Due to clear divergence between conditions, a verification phase was completed with the DRO condition. During the verification phase, DRO resulted in out-of-area behavior occurring for a mean of 8% (range: 0-20%) of the observed intervals and appropriately engaged behavior occurring for a mean of 64.33% (range: 41.67-93.33%) of the observed intervals.

Figure 8. Hermione’s intervention analysis results for out-of-area behavior.
Figure 9. Hermione’s intervention analysis results for appropriately engaged behavior.

Acceptability and Social Validity

To evaluate acceptability and social validity of functional analysis and intervention procedures, Harry’s, Ron’s, and Hermione’s teachers completed the ARP-R and BIRS upon the completion of data collection. Harry’s teacher responses on the ARP-P suggest that she found the functional analysis procedures somewhat acceptable, with Ms. Potter’s ratings resulting in a total score of 50. Ron’s teacher responses on the ARP-P suggest that she found the functional analysis procedures very acceptable, with Ms. Weasley’s ratings resulting in a total score of 72. Hermione’s teacher responses on the ARP-P suggest that she did not find the functional analysis procedures to be acceptable, with Ms. Granger’s ratings resulting in a total score of 37.

Regarding the BIRS, Harry’s teacher responses indicated that she did not find NCR to be socially valid with mean score of 3.2 and DRO to be socially valid with a mean score of 4.83. Ron’s teacher responses on the BIRS indicated that she found NCR
and DRO to be very socially valid with a mean score of 6 and 5.83, respectively.

Hermione’s teacher responses on the BIRS indicated that she did not find NCR or DRO to be socially valid with a mean score of 3 and 2.63, respectively.
CHAPTER IV
DISCUSSION

The school-based FBA literature has evolved considerably over the past 30 years. However, there are still important gaps in the literature that need to be addressed. The preschool FBA literature, for instance, is limited relative to other school-based populations (e.g., elementary students). A particular area of research that should be addressed is the evaluation of the relative efficacy of various function-based interventions. School-based researchers and practitioners would benefit from this type of research as it could inform effective treatment strategies and promote further research on such procedures.

Research Questions 1 and 2

The first research question was in regard to the relative efficacy of function-based NCR vs. DRO for decreasing participant’s OOA behavior in the classroom setting. The results of this study suggest that while both function-based NCR and DRO were effective for decreasing OOA behavior for each participant, NCR was more effective than DRO for two of three participants (i.e., Harry and Ron). Initially, there was very little differentiation in Harry’s intervention analysis. As Harry began to discriminate intervention conditions, however, NCR was found to more consistently decrease OOA behavior. During the verification phase, the results remained stable, confirming the findings from the intervention analysis. For Ron, NCR was consistently more effective than DRO for decreasing OOA behavior, with no overlap between DRO or control conditions. While the initial datum in the verification phase was higher than NCR data in the intervention analysis, OOA once again decreased to a low and stable level,
confirming the results of the intervention analysis. Finally, DRO was consistently more effective for decreasing OOA behavior for Hermione with no divergence between DRO and control conditions. NCR, however, was also effective for decreasing Hermione’s OOA behavior, with no overlap with control conditions. During the verification phase, levels for DRO initially remained consistent with intervention analysis data and eventually decreased to zero instances of OOA behavior, confirming the results of the intervention analysis.

The second research question pertained to the relative efficacy of function-based NCR vs. DRO for increasing participants’ appropriate engaged behavior (AEB) in classroom settings. Results suggest that both function-based NCR and DRO were effective for increasing AEB for two of three participants (i.e., DRO was not effective for increasing Ron’s AEB above control conditions). Furthermore, NCR was more effective than DRO for increasing AEB for two of three participants (i.e., Harry and Ron). For Harry, NCR was more effective for increasing AEB, though there was some overlap between NCR and DRO during the intervention analysis. However, AEB was not the primary dependent variable in this study, so the decision to evaluate NCR during the verification phase was based on Harry’s display of OOA behavior. Nevertheless, results of Harry’s verification phase indicated that NCR consistently lead to high levels of AEB, thus confirming NCR as the most effective intervention. Data for Ron indicate that NCR was consistently more effective for increasing AEB, with no overlap between DRO and control conditions. In fact, DRO was arguably ineffective for increasing AEB due to its continuous overlap with control conditions. Initially, lower levels of AEB were observed during verification, but eventually increased to levels comensurate with data from the
intervention analysis. Finally, DRO was consistently more effective for increasing AEB for Hermione, with no overlap between NCR or control conditions. DRO was also consistently effective for increasing AEB with no overlap with control conditions. Results for DRO during the verification phase were variable and overlapped with both NCR and DRO data from the intervention analysis. To reiterate, though, the decision to move to verification was based on Hermione’s display of OOA behavior.

Overall, the results of the current study are consistent with previous studies examining the effectiveness of function-based interventions in preschool settings (Austin & Soda, 2008; Halphen von Shulz, 2014; Jones et al., 2000; LeGray et al., 2013; LeGray et al., 2010; Wright-Gallo, Higbee, Reagon, & Davey, 2006). Specifically, results from this study are congruent with earlier studies determining that function-based NCR and DRO are effective for decreasing disruptive behaviors in preschool children (e.g., Austin & Soda, 2008; Halphen von Schulz, 2014; LeGray et al., 2010). This study also addresses important gaps in the FBA literature. For example, Kodak et al., 2003a did not evaluate the function of participant’s problem behaviors, while this study used experimental analyses to inform NCR and DRO procedures. This study also adds to the literature base (e.g., Kodak et al., 2003b; Vollmer et al., 1993; Vollmer et al., 1995) in that teachers implemented experimental analysis and intervention procedures in an early childhood setting with typically developing children exhibiting common disruptive classroom behaviors.

One possible explanation for why NCR was more effective than DRO for two (i.e., Harry and Ron) of three participants is the variations in the schedule of reinforcement. That is, NCR involved participants receiving reinforcement on a fixed-
time schedule regardless of the presence of OOA behavior, thus allowing more opportunities for AEB to be reinforced. Conversely, DRO included a schedule of reinforcement in which participants had to refrain from OOA behavior for a fixed-interval of time (e.g., 30s). As a result, the DRO condition may have included less frequent opportunities to receive reinforcement and, therefore, was slightly less effective for two participants.

Research Questions 3 and 4

The third research question addressed teacher’s preference for FBA procedures and function-based NCR vs. DRO. Results of the current study suggest that only one of three teachers (i.e., Ms. Weasley) found FBA procedures to be acceptable. Ms. Potter’s ratings on the ARP-R indicate that she found FBA procedures to only be somewhat acceptable. One possible explanation is that an extended functional analysis was conducted for Harry, further delaying intervention for OOA behavior. Ms. Granger’s ratings on the ARP-R indicated that she did not find FBA procedures to be acceptable. A possible explanation is that, due to data collection starting towards the end of the school year, Ms. Granger may have decided that the FBA procedures were too extensive to implement with the end of the year approaching, thus lowering acceptability ratings. Similarly, in spite of the fact that she did not require an extended analysis, Hermione’s BFA took over one month to complete due to frequent absences and agency-scheduled days off school, therefore delaying treatment for OOA behavior.

Regarding differential preference for NCR vs. DRO, only Ms. Granger indicated that she did not find both procedures to be socially valid. One potential explanation for this is that only one disruptive behavior (i.e., OOA) was targetted for intervention, but
Hermione demonstrated other problem behaviors during the interventional analysis. So, in spite of NCR and DRO being effective for decreasing Hermione’s OOA behavior, Ms. Granger may have wanted other disruptive behaviors to be treated as well. The results of this study are inconsistent with prior research evaluating the acceptability of FBA and social validity of function-based interventions (e.g., Halphen von Shulz, 2014; LeGray et al., 2013; LeGray et al., 2010). That is, Dufrene et al. (2007), Halphen von Shulz (2014), LeGray et al. (2013), and LeGray et al. (2010) study results indicated that teachers found FBA and function-based intervention procedures socially valid, while teachers in the current study did not.

Limitations

While the current study extends the literature on the relative efficacy of function-based NCR vs. DRO, several limitations should be noted. First, only three children were included as participants in this study, limiting the external validity of the findings. Future studies should replicate these procedures as replications are important in single-case designe research for developing an evidence base for school-based procedures. Second, only one problem behavior for each participant (i.e., OOA) was targeted for treatment. Thus, it is unclear whether or not function-based NCR and DRO produce socially valid improvements in children’s behaviors when children engage in multiple problem behaviors. Future research should evaluate the relative effectiveness of function-based NCR and DRO for decreasing disruptive behaviors other than OOA and for addressing the behavioral needs of children presenting with multiple problem behaviors.

A third limitation to this study involves the fact that intervention procedures were not specifically designed to increase AEB. That is, the primary goal of this study was to
decrease disruptive behavior. Results of previous studies (e.g., Halphen von Shulz, 2014; LeGray et al., 2013; LeGray et al., 2010) indicate that procedures specifically designed to increase AEB (i.e., differential reinforcement of alternative behavior) are effective for increasing AEB as well as decreasing disruptive behaviors. So, future research should seek to increase AEB, as AEB is often incompatible with disruptive behaviors. Similarly, a fourth limitation to the present study involves the operational definitions of OOA behavior and AEB. Specifically, AEB for two participants (i.e., Ron and Hermione) required them to be sitting or lying on their cot. So, if Ron or Hermione were standing or jumping on their cot at any time during an interval, they were not considered to be engaging in AEB. However, because their legs and buttocks’ were within the cot area, they were not coding as engaging OOA. Thus, function-based NCR and DRO were not as effective as they could have been for increasing AEB. This was an efficacy study (Lee, Horvath, & Hunsley, 2013), however, so we sought to maximize internal validity at the expense of external validity. That is, the specific purpose of this study was to evaluate the relative efficacy of function-based NCR vs. DRO for decreasing one target disruptive behavior, while increasing AEB was secondary concern.

A fifth limitation involves the low social validity scores for FBA and intervention procedures. While previous research (e.g., Halphen von Shulz, 2014; LeGray et al., 2013; LeGray et al., 2010) indicates that teachers find FBA and function-based intervention procedures to be acceptable, this study did not. A possible explanation for this is that duration of FBA and intervention procedures for all participants lasted approximately two to three months. So as to decrease the duration of study procedures, future research should evaluate the effectiveness and social validity of indirect and direct
FBA procedures (i.e., no experimental analysis) for developing and evaluating function-based interventions. Sixth, a threat to internal validity in Hermione’s intervention procedures warrants discussion. Specifically, Hermione’s BFA indicated that escape from her cot was the function of OOA behavior. However, as indicated on both NCR and DRO protocols, Ms. Granger frequently had to use the three-prompt hierarchy (i.e., physical prompt, physical plus verbal prompt, and then physical guidance) to return Hermione to her cot, which inadvertently provided Hermione with teacher attention. So, NCR and DRO procedures involved escape to attention more often than just escape from task demands, making it unclear if the BFA accurately identified the true function of Hermione’s OOA behavior. It is important to note, however, that the results of all three participants’ FAIR – TP II matched the results of their functional analysis. So, it is possible the that function of Hermione’s OOA behavior was escape from task demands (i.e., naptime).

Finally, this study’s methodologies are atypical of procedures utilized for preschool children engaging mild disruptive behavior (e.g., OOA, inappropriate vocalizations). FBAs are generally conducted for children who have failed to respond to Tier 2 supports, prior to receiving Tier 3 supports. This study, however, conducted experimental analyses to determine the function of participants’ OOA behavior, in spite of never receiving Tier 2 supports, limiting external validity.

Conclusion

The purpose of the present study was to extend the FBA literature by evaluating the relative efficacy of function-based NCR vs. DRO for decreasing disruptive behavior and increasing AEB. While there are several limitations to the present study, the results
suggest that both function-based NCR and DRO were effective for improving preschool-age children’s behavior in a classroom setting. Moreover, this study extends the FBA treatment utility literature in that FBA and function-based intervention procedures were conducted in a novel setting (i.e., naptime) for two participants (i.e., Ron and Hermione). Finally, the current study, with a focus on children of typical development, provides support for the use of function-based NCR and DRO for improving the behavior of children in a preschool classroom setting.
APPENDIX A

PARENT CONSENT FORM

Title of Study: A Comparison of Two Function-Based Interventions: NCR vs. DRO in a Preschool Classroom

Study Site: C.D.I. Head Start Serving Forrest County, MS

Name of Researcher & University affiliation: Zachary C. LaBrot, B.A.
The University of Southern Mississippi

Dear Parent,

We are conducting a research study to look at different methods for helping students with behavior problems at school. The methods we will use include designing a specific intervention for your child and observing your child in a number of settings. We will use the information from teachers and observations to develop a behavior intervention plan to help improve your child’s classroom behavior.

As a participant, your child will receive a comprehensive behavioral assessment and positive behavioral intervention. The study would take place in your child’s classroom during various classroom activities. Sessions will last about 30 minutes and will take place 3 – 5 times per week for the next month or two. The methods being used are all effective and acceptable in school settings. We are asking your permission for your child to be included in this study. Participants in the study may show improvements in classroom behavior by showing decreases in inappropriate behavior and increases in appropriate behavior. There are minimal risks involved with participation in this study outside what normally occurs in a classroom (for example, a temporary increase in disruptive behavior). If you decline participation for your child, it will not affect the services provided to your child at school.

Will this information be kept confidential?

Your child’s name and behavior information will be kept confidential. To protect your child’s privacy, he or she will be assigned a number. This number will be placed on all paper work. At no time will any paperwork contain your child’s name. Please note that these records will be held by a state entity and therefore are subject to disclosure if required by law.

Who do I contact with research questions? If you should have any questions about this research project, please feel free to contact Zachary LaBrot, B.A. at 601-266-5255 or Dr. Brad A. Dufrene at 601-266-5256. If you have any questions regarding your rights as a research participant, please feel free to contact the USM Institutional Review Board at 601-255-5509.
What if I do not want to participate?
Please understand that your participation is voluntary, your refusal to participate will involve no penalty or loss of benefits to which you are otherwise entitled, and you may discontinue you and your child’s participation at any time without penalty or loss of benefits.

What if I DO want my child to participate? If you would like your child to participate, please sign the bottom of this sheet. You may keep the second copy for your records.

__________________________________________
Your Child’s Name

__________________________________________
Parent Signature                      Date

__________________________________________
Investigator Signature                Date
APPENDIX B

TEACHER CONSENT FORM

Title of Study: A Comparison of Two Function-Based Interventions: NCR vs. DRO in a Preschool Classroom

Study Site: C.D.I. Head Start Serving Forrest County, MS

Name of Researcher & University affiliation: Zachary C. LaBrot, B.A.
The University of Southern Mississippi

Dear Teacher,

We are conducting a research study to examine how various assessment and observation procedures affect the development of effective interventions for children who exhibit behavior problems at school. We will conduct teacher interviews, record reviews, and observe child behavior during various conditions.

As a participant, you will receive assistance with regard to a comprehensive behavioral assessment and positive behavioral support plan for a student referred for behavior problems in the classroom. The study would take place in your classroom during various classroom activities. Sessions will last about 30 minutes and will take place 3 – 5 times per week for the next month or two. The procedures being used are all effective and acceptable in school settings. We are asking your permission to include information from your involvement in the assessment and intervention process for this study. Students in the study may show improvements in classroom behavior as evidenced by decreased disruptive behavior and increased appropriate behavior as a result of a comprehensive assessment and implementation of a positive behavioral support plan. There are minimal risks for students involved in this study outside typical response to intervention in young children (e.g., temporary increase in disruptive behavior). If you decline participation it will not affect the services provided to you or the referred child at your school.

Will this information be kept confidential?

Your name and behavior information will be kept confidential. To protect your and the student’s privacy, you will be assigned a number. This number will be placed on all paper work. At no time will any paperwork contain your name. Please note that these records will be held by a state entity and therefore are subject to disclosure if required by law.

Who do I contact with research questions? If you should have any questions about this research project, please feel free to contact Zachary LaBrot, B.A. at 601-266-5255 or Dr. Brad A. Dufrene at 601-266-5256. If you have any questions regarding your rights as a
research participant, please feel free to contact the USM Institutional Review Board at 601-255-5509.

**What if I do not want to participate?**
Please understand that your participation is voluntary, your refusal to participate will involve no penalty or loss of benefits to which you are otherwise entitled, and you may discontinue your participation at any time without penalty or loss of benefits.

**What if I DO want to participate?** If you would like to participate, please sign the bottom of this sheet. You may keep the second copy for your records.

__________________________________________  ____________________
Participant Signature                          Date

__________________________________________  ____________________
Investigator Signature                        Date
NOTICE OF COMMITTEE ACTION

The project has been reviewed by The University of Southern Mississippi Institutional Review Board in accordance with Federal Drug Administration regulations (21 CFR 26, 111), Department of Health and Human Services (45 CFR Part 46), and university guidelines to ensure adherence to the following criteria:

- The risks to subjects are minimized.
- The risks to subjects are reasonable in relation to the anticipated benefits.
- The selection of subjects is equitable.
- Informed consent is adequate and appropriately documented.
- Where appropriate, the research plan makes adequate provisions for monitoring the data collected to ensure the safety of the subjects.
- Where appropriate, there are adequate provisions to protect the privacy of subjects and to maintain the confidentiality of all data.
- Appropriate additional safeguards have been included to protect vulnerable subjects.
- Any unanticipated, serious, or continuing problems encountered regarding risks to subjects must be reported immediately, but not later than 10 days following the event. This should be reported to the IRB Office via the "Adverse Effect Report Form".
- If approved, the maximum period of approval is limited to twelve months. Projects that exceed this period must submit an application for renewal or continuation.

PROTOCOL NUMBER: CH14040801
PROJECT TITLE: A Comparison of Two Function-Based Interventions: NCR vs. DRO in a Preschool Classroom
PROJECT TYPE: Change to a Previously Approved
Project RESEARCHER(S): Zachary LaBrot
COLLEGE/DIVISION: College of Education and Psychology
DEPARTMENT: Psychology
FUNDING AGENCY/SPONSOR: N/A
IRB COMMITTEE ACTION: Expedited Review
Approval PERIOD OF APPROVAL: 10/22/2014 to 10/21/2015

Lawrence A. Hosman, Ph.D.
Institutional Review Board
APPENDIX D

FUNCTIONAL INFORMANT RECORD FOR TEACHERS-PRESCHOOL VERSION II

Functional Assessment Informant Record for Teachers - Preschool Version II

FAIR-T P II 1

Teacher Information
Teacher Name: ___________________ School: ___________________

Please Circle One:

Gender: Male Female

Area: General Education Special Education

Race/Ethnicity: African American Asian Caucasian Hispanic Native American Other ____________


Years Teaching: 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20+

Grade Level/Age You Are Teaching (If you teach more than one grade, please circle all that apply):

2 y/o 3 y/o 4 y/o 5 y/o Pre-K K

Highest Degree: High School Bachelors Masters Doctorate

Experience with Functional Behavior Assessment: 1 = No experience 5 = Very Experienced

1 2 3

4 5

Experience with Classroom Consultants: 1 = No Experience 5 = Very Experienced

1 2 3

4 5

Child Information
Child’s name: _______________

Briefly list below the student’s typical daily schedule of activities.

<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Please indicate good days and times to observe. (At least two observations are needed.)

<table>
<thead>
<tr>
<th>Observation #1</th>
<th>Observation #2</th>
<th>Observation #3 (Back-up)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date: _______</td>
<td>Date: _______</td>
<td>Date: _______</td>
</tr>
<tr>
<td>Time: _______</td>
<td>Time: _______</td>
<td>Time: _______</td>
</tr>
</tbody>
</table>

Child Information

<table>
<thead>
<tr>
<th>Child’s Name:</th>
<th>Gender:</th>
<th>Male</th>
<th>Female</th>
<th>Grade:</th>
<th>Age:</th>
</tr>
</thead>
</table>


Race/Ethnicity:  

<table>
<thead>
<tr>
<th>African American</th>
<th>Asian</th>
<th>Caucasian</th>
<th>Hispanic</th>
<th>Native American</th>
<th>Other</th>
</tr>
</thead>
</table>

Classification:  

<table>
<thead>
<tr>
<th>General Education</th>
<th>Special Education</th>
<th>Ruling:</th>
</tr>
</thead>
</table>

Please do not reference the child by name. Please put “he” or “she” or the student’s initials.

1. Describe the referred child. What is he/she like in the classroom? (Write down what you believe is the most important information about the referred child.)

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

2. Pick a second child of the same sex who is also difficult to teach. What makes the referred child more difficult than the second child?

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

3. a. Is the child’s developmental age consistent with their chronological age?  
   b. What is your estimate of the student’s developmental age?

________________________________________________________________________

4. a. Are the child’s social skills age appropriate?
b. If there are social skills problems, are there behavioral excesses, deficits, or both? 

5. a. What percentage of requests will the child comply with the first time asked? 
   b. What percentage of requests will the student eventually comply with? 
   c. When compliant, how accurately does the child complete the request (0% - 100%)?

Does the child receive any regular medications?

Yes No If yes, briefly explain: ____________________________

6. Does the child have any specific medical concerns?

Yes No If yes, briefly explain: ____________________________

7. Please describe the child’s strengths.

_____________________________________________________ 

_____________________________________________________ 

_____________________________________________________ 

8. What procedures have you tried in the past to deal with this child’s problem behavior?

_____________________________________________________ 

_____________________________________________________ 

_____________________________________________________ 

9. Have previous procedures been successful? Why? Why not?

_____________________________________________________ 

_____________________________________________________ 

_____________________________________________________ 

10. Describe your current class-wide behavior management plan.

_____________________________________________________ 

_____________________________________________________ 

11. Problem Behaviors

Please circle 1 to 3 problem behaviors and rank the behaviors in order of severity with 1 being the most severe and 3 being the least severe.
Potential Problem Behaviors (only circle 3; rank in order of severity 1= most; 3 = least )

**Aggressive Behavior (e.g., hitting, kicking, pushing others)**

1 2 3

**Non-compliance (e.g., not following teacher instructions)**

1 2 3

**Inappropriate Vocalizations (e.g., talking out of turn, inappropriate volume)**

1 2 3

**Out of seat/area (e.g., out of designated area)**

1 2 3

**Playing with objects (e.g., playing with non-task related objects)**

1 2 3

**Disrespectful to adults (e.g., sassing, arguing with adults)**

1 2 3

**Tantrum (e.g., falling to floor screaming)**

1 2 3

**Off-task behavior (e.g., not attending to instruction)**

1 2 3

**Eloping (e.g., leaving the classroom)**

1 2 3

**Verbal aggression (e.g., verbal threats/insults toward others)**

1 2 3

**Stereotypy (e.g., hand-flapping, body rocking)**

1 2 3

**Self-injurious behavior (e.g., head banging, skin picking)**

1 2 3

**Other**

1 2 3

1. Rate how **manageable** the behavior is:
   - a. Problem Behavior 1
     1 2 3 4 5
     Manageable Unmanageable
   - b. Problem Behavior 2
     1 2 3 4 5
     Manageable Unmanageable
   - c. Problem Behavior 3
     1 2 3 4 5
     Manageable Unmanageable

2. Rate how **disruptive** the behavior is:
   - a. Problem Behavior 1
     1 2 3 4 5
     Mildly Very
<table>
<thead>
<tr>
<th>Behavior 2</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mildly</td>
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<td></td>
<td></td>
<td></td>
<td>Very</td>
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<table>
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<tr>
<th>Behavior 3</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
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3. How often does the behavior occur *per day* (please circle)?

<table>
<thead>
<tr>
<th>Behavior 1</th>
<th>&lt; 1</th>
<th>4 -</th>
<th>7 -</th>
<th>3</th>
<th>6</th>
<th>9</th>
<th>10 - 12</th>
<th>&gt; 13</th>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Behavior 2</th>
<th>&lt; 1</th>
<th>5 -</th>
<th>8 -</th>
<th>4</th>
<th>6</th>
<th>9</th>
<th>11 - 12</th>
<th>&gt; 14</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<td></td>
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<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Behavior 3</th>
<th>&lt; 1</th>
<th>6 -</th>
<th>9 -</th>
<th>5</th>
<th>6</th>
<th>9</th>
<th>12 - 12</th>
<th>&gt; 15</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<td></td>
<td></td>
</tr>
</tbody>
</table>

4. How long does the problem behavior last?

<table>
<thead>
<tr>
<th>Behavior 1</th>
<th>&lt; 1</th>
<th>1 -</th>
<th>6 -</th>
<th>&gt; 10</th>
<th>min</th>
<th>min</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>min</td>
<td>min</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Behavior 2</th>
<th>&lt; 1</th>
<th>1 -</th>
<th>6 -</th>
<th>&gt; 10</th>
<th>min</th>
<th>min</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>min</td>
<td>min</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Behavior 3</th>
<th>&lt; 1</th>
<th>1 -</th>
<th>6 -</th>
<th>&gt; 10</th>
<th>min</th>
<th>min</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>min</td>
<td>min</td>
</tr>
</tbody>
</table>

5. How many months has the behavior been present?

<table>
<thead>
<tr>
<th>Behavior 1</th>
<th>&lt; 1</th>
<th>1 -</th>
<th>3 -</th>
<th>entire school year</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Behavior 2</th>
<th>&lt; 1</th>
<th>1 -</th>
<th>3 -</th>
<th>entire school year</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Behavior 3</th>
<th>&lt; 1</th>
<th>1 -</th>
<th>3 -</th>
<th>entire school year</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

6. For each problem behavior, provide an appropriate replacement behavior that you would like.
the child to exhibit instead of the problem behavior.

<table>
<thead>
<tr>
<th>Behavior 1</th>
<th>Behavior 2</th>
<th>Behavior 3</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Antecedents:

Behavior 1: ______________________________ Behavior 2: ______________________________ Behavior 3: ______________________________

0 = never happens   1 = happens a little   2 = happens some   3 = happens very often

Please circle the corresponding number for each of the three behaviors listed.

<table>
<thead>
<tr>
<th>I. Academic Task Demands</th>
<th>Behavior 1</th>
<th>Behavior 2</th>
<th>Behavior 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Does the behavior occur more often during a certain <strong>type</strong> or activity?</td>
<td>0   1   2   3</td>
<td>0   1   2   3</td>
<td>3</td>
</tr>
<tr>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Does the behavior occur more often during <strong>easy</strong> tasks?</td>
<td>0   1   2   3</td>
<td>0   1   2   3</td>
<td>3</td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Does the behavior occur more often during <strong>difficult</strong> activities?</td>
<td>0   1   2   3</td>
<td>0   1   2   3</td>
<td>3</td>
</tr>
<tr>
<td>3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Does the behavior occur more often during <strong>new</strong> activities?</td>
<td>0   1   2   3</td>
<td>0   1   2   3</td>
<td>3</td>
</tr>
<tr>
<td>4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>II. Transitions</th>
<th>Behavior 1</th>
<th>Behavior 2</th>
<th>Behavior 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Does the behavior occur more often when a request is made to <strong>stop</strong> an activity?</td>
<td>0   1   2   3</td>
<td>0   1   2   3</td>
<td>3</td>
</tr>
<tr>
<td>5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Does the behavior occur more often when a request is made to <strong>begin a new activity</strong>?</td>
<td>0   1   2   3</td>
<td>0   1   2   3</td>
<td>3</td>
</tr>
<tr>
<td>6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Does the behavior occur more often during <strong>transition</strong> periods?</td>
<td>0   1   2   3</td>
<td>0   1   2   3</td>
<td>3</td>
</tr>
<tr>
<td>7</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>III. Person</th>
<th>Behavior 1</th>
<th>Behavior 2</th>
<th>Behavior 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Does the behavior occur more often with a <strong>specific person</strong>?</td>
<td>0   1   2   3</td>
<td>0   1   2   3</td>
<td>3</td>
</tr>
<tr>
<td>8</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Does the behavior occur more often when a <strong>specific person is not there</strong>?</td>
<td>0   1   2   3</td>
<td>0   1   2   3</td>
<td>3</td>
</tr>
<tr>
<td>9</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>IV. Academic Settings</th>
<th>Behavior 1</th>
<th>Behavior 2</th>
<th>Behavior 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Does the behavior occur more often in <strong>large group</strong>?</td>
<td>0   1   2   3</td>
<td>0   1   2   3</td>
<td>3</td>
</tr>
<tr>
<td>10</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Does the behavior occur more often in <strong>small group</strong>?</td>
<td>0   1   2   3</td>
<td>0   1   2   3</td>
<td>3</td>
</tr>
<tr>
<td>11</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Does the behavior occur more often when the child works independently?</td>
<td>0   1   2   3</td>
<td>0   1   2   3</td>
<td>3</td>
</tr>
<tr>
<td>12</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Does the behavior occur more often in <strong>one-to-one activities</strong>?</td>
<td>0   1   2   3</td>
<td>0   1   2   3</td>
<td>3</td>
</tr>
<tr>
<td>13</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>
V. Non-Classroom Settings

<table>
<thead>
<tr>
<th></th>
<th>Question</th>
<th>Behavior 1</th>
<th>Behavior 2</th>
<th>Behavior 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>14</td>
<td>Does the behavior occur more often in the <em>bathroom</em>?</td>
<td>0 1 2 3</td>
<td>0 1 2 3</td>
<td>3</td>
</tr>
<tr>
<td>15</td>
<td>Does the behavior occur more often on the playground?</td>
<td>0 1 2 3</td>
<td>0 1 2 3</td>
<td>3</td>
</tr>
<tr>
<td>16</td>
<td>Does the behavior occur more often in the <em>cafeteria</em>?</td>
<td>0 1 2 3</td>
<td>0 1 2 3</td>
<td>3</td>
</tr>
<tr>
<td>17</td>
<td>Does the behavior occur more often on the <em>bus</em>?</td>
<td>0 1 2 3</td>
<td>0 1 2 3</td>
<td>3</td>
</tr>
<tr>
<td>18</td>
<td>Does the behavior occur more often in <em>other situations</em>?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Specify other:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>0 1 2 3</td>
<td>0 1 2 3</td>
<td>3</td>
</tr>
</tbody>
</table>

VI. Presentation Style

<table>
<thead>
<tr>
<th></th>
<th>Question</th>
<th>Behavior 1</th>
<th>Behavior 2</th>
<th>Behavior 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>19</td>
<td>Does the behavior occur more often when instructions/tasks are presented <em>verbally</em>?</td>
<td>0 1 2 3</td>
<td>0 1 2 3</td>
<td>3</td>
</tr>
<tr>
<td>20</td>
<td>Does the behavior occur more often during motor activities?</td>
<td>0 1 2 3</td>
<td>0 1 2 3</td>
<td>3</td>
</tr>
<tr>
<td>21</td>
<td>Does the behavior occur more often when instructions/tasks are presented <em>visually</em>?</td>
<td>0 1 2 3</td>
<td>0 1 2 3</td>
<td>3</td>
</tr>
</tbody>
</table>

VII. Time of Day

<table>
<thead>
<tr>
<th></th>
<th>Question</th>
<th>Behavior 1</th>
<th>Behavior 2</th>
<th>Behavior 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>22</td>
<td>Does the behavior occur more often when the student arrives at school (before breakfast)?</td>
<td>0 1 2 3</td>
<td>0 1 2 3</td>
<td>3</td>
</tr>
<tr>
<td>23</td>
<td>Does the behavior occur more during <em>nap time</em>?</td>
<td>0 1 2 3</td>
<td>0 1 2 3</td>
<td>3</td>
</tr>
<tr>
<td>24</td>
<td>Does the behavior occur more near the <em>end of the day</em>?</td>
<td>0 1 2 3</td>
<td>0 1 2 3</td>
<td>3</td>
</tr>
</tbody>
</table>

VIII. Other

<table>
<thead>
<tr>
<th></th>
<th>Question</th>
<th>Behavior 1</th>
<th>Behavior 2</th>
<th>Behavior 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>25</td>
<td>Does the behavior occur more often when a <em>disruption</em> occurs in the normal routine?</td>
<td>0 1 2 3</td>
<td>0 1 2 3</td>
<td>3</td>
</tr>
<tr>
<td>26</td>
<td>Does the behavior occur more often when the child's <em>has been told no</em>?</td>
<td>0 1 2 3</td>
<td>0 1 2 3</td>
<td>3</td>
</tr>
<tr>
<td>27</td>
<td>Are there any other behaviors that usually <em>precede</em> the problem behavior?</td>
<td>0 1 2 3</td>
<td>0 1 2 3</td>
<td>3</td>
</tr>
<tr>
<td>28</td>
<td>Is there anything you could do that would <em>ensure</em> the occurrence of the behavior?</td>
<td>0 1 2 3</td>
<td>0 1 2 3</td>
<td>3</td>
</tr>
<tr>
<td>29</td>
<td>Are there any events occurring in the child's home that seem to <em>precede</em> the occurrence of the behavior at school?</td>
<td>0 1 2 3</td>
<td>0 1 2 3</td>
<td>3</td>
</tr>
</tbody>
</table>

Consequences:

Please circle the corresponding number for each of the three behaviors listed.

<table>
<thead>
<tr>
<th></th>
<th>Positive Reinforcement: Access to Activities and Items</th>
<th>Behavior 1</th>
<th>Behavior 2</th>
<th>Behavior 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Does someone provide the child with access to an activity after the behavior has occurred?</td>
<td>0 1 2 3</td>
<td>0 1 2 3</td>
<td>0 1 2 3</td>
</tr>
<tr>
<td>2</td>
<td>Does someone provide the child with access to a toy or item after the behavior?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Question</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>------------------------------------------------------------------------</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>Does the child take possession of a toy or item during or after the behavior occurs?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Does the child acquire access to an activity after the behavior has occurred?</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Negative Reinforcement: Escape, Delay, Reduction or Avoidance of Demands</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Are on-going activity demands terminated during or after the behavior has occurred?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Are on-going activity demands reduced during or after the behavior has occurred?</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Is the start of a new activity delayed after the behavior has occurred?</td>
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<tr>
<td>Is the start of a new activity completely avoided as a result of the behavior?</td>
<td></td>
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</tr>
<tr>
<td>Are activities ever altered or changed as a result of the behavior?</td>
<td></td>
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</tr>
<tr>
<td>Positive Reinforcement: Access to Attention</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Does the child receive positive attention from peers during or after the behavior is exhibited?</td>
<td></td>
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</tr>
<tr>
<td>Does the child receive negative attention from peers during or after the behavior is exhibited?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Does the child receive positive attention from teachers during or after the behavior is exhibited?</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Does the child receive negative attention from teachers during or after the behavior is exhibited?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Negative social reinforcement</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Are ongoing social interactions with teachers terminated during or after the behavior is exhibited?</td>
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</tr>
<tr>
<td>Are upcoming social interactions with teachers avoided after the behavior is exhibited?</td>
<td></td>
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<tr>
<td>Are ongoing social interactions with peers terminated during or after the behavior is exhibited?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Are upcoming social interactions with peers avoided after the behavior is exhibited?</td>
<td></td>
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<td></td>
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</tr>
<tr>
<td>Are ongoing social interactions with peers terminated during or after the behavior is exhibited?</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Are upcoming social interactions with peers avoided after the behavior is exhibited?</td>
<td></td>
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</tbody>
</table>
V. **Automatic Reinforcement**

<table>
<thead>
<tr>
<th></th>
<th>Question</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>22</td>
<td>Does the student exhibit the behavior when alone?</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>23</td>
<td>Does the student appear to become calm or relaxed shortly following the behavior?</td>
<td></td>
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</tr>
<tr>
<td>24</td>
<td>Does the student appear to become excited or aroused shortly following the behavior?</td>
<td></td>
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</tbody>
</table>

VI. **Other Problems**

<table>
<thead>
<tr>
<th></th>
<th>Question</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>0</th>
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<th>3</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>25</td>
<td>Are there other problem behaviors that often occur after the behavior is exhibited? If yes, describe:</td>
<td></td>
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</tbody>
</table>

VII. **Intervention**

<table>
<thead>
<tr>
<th></th>
<th>Question</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>26</td>
<td>Does the student typically receive praise or any rewards when behavior occurs that you would like to see instead of the problem behavior? If yes, describe:</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
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<td></td>
<td></td>
</tr>
</tbody>
</table>
APPENDIX E

ASSESSMENT RATING PROFILE-REVISED (ARP-R)

Please circle the number that best describes your agreement or disagreement with each statement.

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Slightly Disagree</th>
<th>Slightly Agree</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. This was an acceptable assessment strategy for the child’s problems</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>2. Most teachers would find this approach to assessment appropriate for problems in addition to this child’s current problems</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>3. This assessment proved effective in identifying the child’s problems</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>4. I would suggest the use of this assessment to other teachers</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>5. I would be willing to receive assessment results such as those described with a student transferring into my school</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>6. The assessment would be appropriate for a variety of children</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>7. The assessment was a fair way to identify the child’s problems</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>8. This assessment was reasonable for the problems described</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>9. I liked the assessment procedures used in this assessment</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>10. This assessment was a good way to handle the child’s problems</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>11. Overall, this assessment was beneficial for the child</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>12. This assessment was helpful in the development of intervention strategies</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
</tbody>
</table>

Adapted from Eckert, Hintze, & Shapiro, 1999
APPENDIX F

BEHAVIOR INTERVENTION RATING SCALE (BIRS; Elliot & Treuting, 1991)

Please circle the number that best describes your agreement or disagreement with each statement.

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Slightly Disagree</th>
<th>Slightly Agree</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>13. This would be an acceptable intervention for the child’s problem behavior.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>14. Most teachers would find this intervention appropriate for behavior problems in addition to the one described.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>15. The intervention should prove effective in changing the child’s problem behavior.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>16. I would suggest the use of this intervention to other teachers.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>17. The child’s behavior problem is severe enough to warrant use of this intervention.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>18. Most teachers would find this intervention suitable for the behavior problem described.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>19. I would be willing to use this in the classroom setting.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>20. The intervention would <em>not</em> result in negative side-effects for the child.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>21. The intervention would be appropriate for a variety of children.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>22. The intervention is consistent with those I have used in classroom settings.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>23. The intervention was a fair way to handle the child’s problem behavior.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>24. The intervention is reasonable for the behavior problem described.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>Statement</td>
<td>Strongly Disagree</td>
<td>Disagree</td>
<td>Slightly Disagree</td>
<td>Slightly Agree</td>
<td>Agree</td>
<td>Strongly Agree</td>
</tr>
<tr>
<td>--------------------------------------------------------------------------</td>
<td>-------------------</td>
<td>----------</td>
<td>-------------------</td>
<td>---------------</td>
<td>-------</td>
<td>---------------</td>
</tr>
<tr>
<td>25. I like the procedure used in the intervention.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>26. The intervention was a good way to handle this child’s behavior problem.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>27. Overall, the intervention would be beneficial for the child.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>28. The intervention would quickly improve a child’s behavior.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>29. The intervention would produce a lasting improvement in the child’s behavior.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>30. The intervention would improve a child’s behavior to the point that it would not noticeably deviate from other classmates’ behavior.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>31. Soon after using the intervention, the teacher would notice a positive change in the problem behavior.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>32. The child’s behavior will remain at an improved level even after the intervention is discontinued.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>33. Using the intervention should not only improve the child’s behavior in the classroom, but also in other settings (e.g., other classrooms, home).</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>34. When comparing this child with a well-behaved peer before and after the use of the intervention, the child’s and the peer’s behavior would be more alike after using the intervention.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>35. The intervention should produce enough improvement in the child’s behavior so the behavior no longer is a problem in the classroom.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>36. Other behaviors related to the problem behavior are likely to be improved by the intervention.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
</tbody>
</table>
APPENDIX G

FUNCTIONAL ANALYSIS PROTOCOL

Student Name: _____________          Teacher: __________

Session: _________________          Date: _____________

Condition: ESCAPE TO ATTENTION

Operational Definition and Measurement of Target Behaviors

Target Behavior: Identified through consultation with teachers

Definition: Based on the topography of the problem behavior

Dependent Measure: Partial Interval Recording

Data Collection Procedures and Other Behavioral Definitions

1. Target Behavior = Partial Interval Recording

   Session Duration: 10 minutes

   Setting: Classroom

   Type of activity: Determined through consultation with teachers

   Materials: Any Work-related Materials
Procedures:

1. Instruct the child to sit in his or her designated area.

2. Say “[Child’s Name], it’s time to listen and do some work.”

3. Teacher will present student with instructions typical of the academic activity. [Present class activity that in the past has been related to the occurrence of the target behavior].

4. Wait 5 seconds for independent initiation of activity
   - If student independently initiates task, the teacher will provide praise and deliver next command as needed.
   - If student does not initiate within 5 seconds, the teacher will use a verbal and gestural prompt (for example, say “[student, answer the question.]” while pointing to the teacher) and wait 5 seconds for initiation.
     - If student complies with the verbal/gestural prompt within 5 seconds, the teacher will provide praise and move to the next command as needed.
     - If the student does not comply within 5 seconds, the teacher will use physical guidance to have student comply (e.g., say, “Student, answer the question,” while using gestural prompts to assist in handing you the pencil.)
       • DO NOT PRAISE STUDENT IF PHYSICAL GUIDANCE IS NEEDED.

5. Contingent on each occurrence of target behavior:
   - Remove work-related materials and provide a 30 second break and disapproving comments (or specific type of attention identified in the descriptive analysis).
   - Repeat the instruction after 30s of a break and attention.
   - Divert attention back to work.

6. Contingent on compliance with a verbal or verbal and gestural prompt:
   a. Provide descriptive praise
   b. REMEMBER: Do not provide praise if physical guidance was required.
   c. Point to the next problem and repeat instruction.

7. Do not respond to any other problem behavior.
APPENDIX H

FUNCTIONAL ANALYSIS PROTOCOL

Student Name: _____________  Teacher: ___________

Session: _________________  Date: ______________

Condition: TANGIBLE

Operational Definition and Measurement of Target Behaviors

Target Behavior: Identified through consultation with teachers
Definition: Based on the topography of the problem behavior
Dependent Measure: Partial Interval Recording

Data Collection Procedures and Other Behavioral Definitions

1. Target Behavior = Partial Interval Recording

   Session Duration: 10 minutes
   Setting: Classroom
   Type of activity: Determined through consultation with teachers
   Materials: Child’s preferred item/toy (allow the student free access). Have all preferred items present.
Procedures:

1) Say, “[Child’s name], would you like to play with ______________?”

2) Interact with the target child for 2 minutes or until he or she is engaged with the preferred item.

3) After the child is engaged with the preferred item, take the item away and place it in the child’s view but out of his or her reach.

4) Instruct the child to sit in his or her assigned seat [present class activity that in the past has been related to the occurrence of the target behavior].

5) Say “[Child’s Name], it’s time to listen and do some work.”

6) The teacher will then begin the activity that in the past has been related to the occurrence of the target behavior.

7) Contingent on occurrence of the target behavior:
   a. Present the child with the preferred item for a period of 30 seconds.

8) Do not respond to any other problem behavior.
APPENDIX I

FUNCTIONAL ANALYSIS PROTOCOL

Student Name: ____________  Teacher: ____________

Session: _________________  Date: ______________

Condition: ATTENTION

Operational Definition and Measurement of Target Behaviors

Target Behavior: Identified through consultation with teachers

Definition: Based on the topography of the problem behavior

Dependent Measure: Partial Interval Recording

Data Collection Procedures and Other Behavioral Definitions

1. Target Behavior = Partial Interval Recording

Session Duration: 10 minutes

Setting: Classroom

Type of activity: Determined through consultation with teachers

Materials: Task-related items
Procedures:

1. Instruct the child to sit in the designated area. [Present class activity that in the past has been related to the occurrence of the target behavior].

2. Say “[Child’s Name], it’s time to listen and do some work.”

3. Divert your attention from the child to other work (e.g., desk work, assisting other children).

5. Contingent on each occurrence of target behavior:
   - Provide a disapproving comment (or specific type of attention identified in the descriptive analysis)
   - Interact with the student for 30 seconds.
   - Then divert your attention again back to the work at your desk.

6. Do not respond to any other problem behavior.
APPENDIX J

FUNCTIONAL ANALYSIS PROTOCOL

Student Name: ___________  Teacher: ___________

Session: _________________  Date: _____________

Condition: ESCAPE

Operational Definition and Measurement of Target Behaviors

Target Behavior: Identified through consultation with teachers
Definition: Based on the topography of the problem behavior
Dependent Measure: Partial Interval Recording

Data Collection Procedures and Other Behavioral Definitions

1. Target Behavior = Partial Interval Recording

Session Duration: 10 minutes
Setting: Classroom
Type of activity: Determined through consultation with teachers
Materials: Any Work-related Materials
Procedures:

1. Instruct the child to sit in his or her designated area.

2. Say “[Child’s Name], it’s time to listen and do some work.”

3. Teacher will present student with instructions typical of the academic activity. [Present class activity that in the past has been related to the occurrence of the target behavior].

4. Wait 5 seconds for independent initiation of activity
   - If student independently initiates task, the teacher will provide praise and deliver next command as needed.
   - If student does not initiate within 5 seconds, the teacher will use a verbal and gestural prompt (for example, say “[student, answer the question.]” while pointing to the teacher) and wait 5 seconds for initiation.
     o If student complies with the verbal/gestural prompt within 5 seconds, the teacher will provide praise and move to the next command as needed.
     o If the student does not comply within 5 seconds, the teacher will use physical guidance to have student comply (e.g., say, “Student, answer the question,” while using gestural prompts to assist in handing you the pencil.)
       ▪ DO NOT PRAISE STUDENT IF PHYSICAL GUIDANCE IS NEEDED.

5. Contingent on each occurrence of target behavior:
   - Remove work-related materials and provide a 30 second break.
   - Repeat the instruction after the 30 second break.
   - DO NOT PROVIDE STUDENT WITH ANY ATTENTION.

6. Contingent on compliance with a verbal or verbal and gestural prompt:
   d. Provide descriptive praise
   e. REMEMBER: Do not provide praise if physical guidance was required.
   f. Point to the next problem and repeat instruction.

8. Do not respond to any other problem behavior.
APPENDIX K

FUNCTIONAL ANALYSIS PROTOCOL

Student Name: ____________ Teacher: ____________

Session: ________________ Date: ________________

Condition: CONTROL

Operational Definition and Measurement of Target Behaviors

Target Behavior: Identified through consultation with teachers
Definition: Based on the topography of the problem behavior
Dependent Measure: Partial Interval Recording

Data Collection Procedures and Other Behavioral Definitions

1. Target Behavior = Partial Interval Recording

Session Duration: 10 minutes
Setting: Classroom
Type of activity: Preferred toy (e.g., magazines, puzzles, books)
Materials: Student’s preferred materials/toys (allow the student free access). Have all preferred items present.
Procedures:

2. Say, “[Student’s name], would you like to play with these _____________?”

3. Seat student at the designated area.

4. Interact with the student by providing a neutral comment every 30 seconds or by responding to each appropriate response from the student.

5. Provide descriptive praise for appropriate nonacademic activity engagement.

6. Provide any assistance necessary using a least-to-most prompt for appropriate toy play if requested or needed.

7. Do not respond to any problem behavior.
APPENDIX L

CONTINGENCY REVERSAL PROTOCOL

Student Name: ______________  Teacher: ____________
Session: ________________  Date: ____________

Operational Definition and Measurement of Target Behaviors

Target Behavior: Identified through consultation with teachers
Definition: Based on the topography of the problem behavior
Dependent Measure: Partial Interval Recording

Data Collection Procedures and Other Behavioral Definitions

2. Target Behavior = Partial Interval Recording

Session Duration: 10 minutes
Setting: Classroom
Type of activity: Identified through consultation with teachers
Materials: Any Work-related Materials

Procedures: Designed after the identification of the functional analysis condition with the highest occurrence of problem behavior
APPENDIX N

PREFERENCE ASSESSMENT PROTOCOL

Student Name: _____________  Teacher: ___________

Session: ________________  Date: ______________

PREFERENCE ASSESSMENT

Setting: Classroom

Materials: Child’s preferred items/toys. Have all preferred items present.

Procedures:

1) Prior to the session, the teacher will identify four highly preferred tangible items. Items will be listed on the reinforcement menu in addition to a picture of each item next to its label.

2) Say, “[Child’s name], what would you like to play with ____________?”

3) Once the child has chosen one item from the menu, the teacher will complete the tangible condition protocol.
APPENDIX O

NCR PROTOCOL

Student Name: _____________ Teacher: _____________

Session: __________________ Date: _____________

Protocol: NON-CONTINGENT REINFORCEMENT

Operational Definition and Measurement of Target Behaviors

Target Behavior: Identified through consultation with the teacher

Definition: Developed based on the topography of the problem behavior

Dependent Measure: Momentary Time Sampling

Data Collection Procedures and Other Behavioral Definitions

1. Target Behavior = Moment Time Sampling

Session Duration: 10 minutes

Setting: Classroom

Type of activity: Identified through consultation with teachers

Materials: Any Work-related Materials

Procedures:

1. When the NCR component of the intervention begins, the teacher will engage in his/her scheduled instruction.

2. Every 30 seconds the identified reinforcer is delivered regardless of the child’s behavior.

3. All problem behavior is ignored.
Operational Definition and Measurement of Target Behaviors

**Target Behavior:** Identified through consultation with the teacher

**Definition:** Developed based on the topography of the problem behavior

**Dependent Measure:** Momentary Time Sampling

Data Collection Procedures and Other Behavioral Definitions

1. **Target Behavior = Moment Time Sampling**

**Session Duration:** 10 minutes

**Setting:** Classroom

**Type of activity:** Identified through consultation with teachers

**Materials:** Any Work-related Materials

**Procedures:**

1. When the DRO component of the intervention begins, the teacher will engage in his/her scheduled instruction.

2. If the child of interest engages in the targeted inappropriate behavior, the timed interval will reset and the child will not receive the identified reinforcer.

3. Provided that the child does not engage in the target behavior for a specified interval, the teacher will deliver reinforcement.

4. All other problem behaviors will be ignored.
APPENDIX Q

PROCEDURAL INTEGRITY FOR FUNCTIONAL ANALYSIS CONDITIONS

<table>
<thead>
<tr>
<th>YES</th>
<th>NO</th>
<th>N/A</th>
</tr>
</thead>
</table>

Student: _________________  Session: ________________
Teacher: _________________  Date: _________________
Observer: _________________  Condition: TANGIBLE

This form is used to assess the level of procedural integrity for each implemented functional analysis tangible condition. Record if the researcher behaviors were implemented as planned (Yes) or not implemented as planned (No) during each FA control condition.

1. Participant is seated in their assigned seat.  
2. Teacher has restricted student access to preferred items available in the classroom  
3. Teacher presents the student with identified activity  
4. Contingent on problem behavior, teacher presents student with preferred item for 30 seconds  
5. Teacher does not respond to other problem behavior  
6. Teacher does not present academic demands to the student  
   • Repeated steps 3-5 for each 30 second interval
APPENDIX R

PROCEDURAL INTEGRITY FOR FUNCTIONAL ANALYSIS CONDITIONS

Student: _________________  Session: _______________
Teacher: _________________  Date: _________________
Observer: _________________  Condition: ATTENTION

This form is used to assess the level of procedural integrity for implemented functional analysis attention condition. Record if the researcher behaviors were implemented as planned (Yes) or not implemented as planned (No) during each FA attention condition.

1. Participant is seated in the designated area of target activity   | YES | NO | N/A
   ____ | ____ | ____

2. Teacher presents task-related items to child                  | ____ | ____ | ____

4. Teacher interacts with the student until the student engages in the task | ____ | ____ | ____

5. Teacher says, “It’s time to start the activity, it’s time to listen and do some work” | ____ | ____ | ____

6. Teacher diverts attention to his/her work materials           | ____ | ____ | ____

7. Contingent on student exhibiting target behavior
   a. Teacher provides a disapproving comment                     | ____ | ____ | ____
   b. Interacts with the student for 30 seconds                  | ____ | ____ | ____
   c. Following 30 seconds of interaction, teacher diverts his/her attention back to the work materials | ____ | ____ | ____

8. Teacher does not respond to any other problem behavior        | ____ | ____ | ____
   • Repeated steps 3-5 for each 30 second interval              | ____ | ____ | ____
# APPENDIX S

## PROCEDURAL INTEGRITY FOR FUNCTIONAL ANALYSIS CONDITIONS

<table>
<thead>
<tr>
<th>Student: _________________</th>
<th>Session: _________________</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teacher: _________________</td>
<td>Date: _________________</td>
</tr>
<tr>
<td>Observer: _________________</td>
<td>Condition: <strong>ESCAPE</strong></td>
</tr>
</tbody>
</table>

This form is used to assess the level of procedural integrity for each implemented functional analysis escape condition. Record if the researcher behaviors were implemented as planned (**Yes**) or not implemented as planned (**No**) during each FA demand condition.

<table>
<thead>
<tr>
<th>Step</th>
<th>Description</th>
<th>YES</th>
<th>NO</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Participant is within designated area of target activity</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>Teacher presents student with identified task demand</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>Teacher provides verbal instructions to student to complete the identified task</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>Teacher waits 5 seconds for compliance</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a.</td>
<td>The student complies</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>i.</td>
<td>Teacher provides descriptive praise</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ii.</td>
<td>Teacher moves to the next demand</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b.</td>
<td>The student does not comply within 5 seconds</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>i.</td>
<td>Teacher restates the instructions with verbal and gestural prompts</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ii.</td>
<td>Teacher waits 5 seconds for compliance</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A.</td>
<td>Student complies</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.</td>
<td>Teacher provides descriptive praise</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>Teacher moves to the next demand</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B.</td>
<td>Student does not comply</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.</td>
<td>Teacher restates the instructions and provides hand-over-hand guidance</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>Teacher does not respond to any other problem behavior</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td>When student exhibits problem behavior</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a.</td>
<td>Teacher removes task demand for 30 seconds</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b.</td>
<td>After 30 seconds, teacher represents the task demand</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>•</td>
<td>Repeated steps 3-5 for each 30 second interval</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
APPENDIX T

PROCEDURAL INTEGRITY FOR FUNCTIONAL ANALYSIS CONDITIONS

Student: _________________  Session: _______________

Teacher: _________________  Date: _________________

Observer: _________________  Condition: CONTROL

This form is used to assess the level of procedural integrity for each implemented functional analysis control condition. Record if the researcher behaviors were implemented as planned (Yes) or not implemented as planned (No) during each FA control condition.

<table>
<thead>
<tr>
<th></th>
<th>YES</th>
<th>NO</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Participant is within designated area of target activity</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Teacher provided student with access to preferred materials available in the classroom</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Teacher provides neutral attention every 30 seconds</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Teacher does not respond to problem behavior</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Teacher does not present academic demands to the student</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Repeated steps 3-5 for each 30 second interval |     |    |     |
APPENDIX U

PROCEDURAL INTEGRITY FOR NCR IMPLEMENTATION

Student: ________________  Session: ________________
Teacher: ________________  Date: ________________
Observer: ________________  Protocol: NCR

This form is used to assess the level of procedural integrity for each implemented DRA intervention. Record if the teacher behaviors were implemented as planned (Yes) or not implemented as planned (No) during each group instruction session.

<table>
<thead>
<tr>
<th>YES</th>
<th>NO</th>
<th>N/A</th>
</tr>
</thead>
</table>

1. Reinforcement is delivered every 30 seconds, despite the problem behavior.  
   ___  ___  ___

2. All other behavior is ignored.  
   ___  ___
APPENDIX V

PROCEDURAL INTEGRITY FOR DRO IMPLEMENTATION

Student: _________________  Session: _________________
Teacher: _________________  Date: _________________
Observer: _________________  Protocol: DRO

This form is used to assess the level of procedural integrity for each implemented DRA intervention. Record if the teacher behaviors were implemented as planned (Yes) or not implemented as planned (No) during each group instruction session.

<table>
<thead>
<tr>
<th></th>
<th>YES</th>
<th>NO</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>3. Following the occurrence of the targeted inappropriate behavior, reinforcement was withheld</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Following a ___ second absence of the targeted inappropriate behavior reinforcement was provided</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. All other behaviors were ignored.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

____
## APPENDIX W

**PROCEDURAL INTEGRITY FOR CONTROL IMPLEMENTATION**

Student: _________________  Session: _______________
Teacher: _________________  Date: _________________
Observer: _________________  Protocol: CONTROL

This form is used to assess the level of procedural integrity for the control condition. Record if the teacher behaviors were implemented as planned (Yes) or not implemented as planned (No) during each group instruction session.

<table>
<thead>
<tr>
<th>YES</th>
<th>NO</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>____</td>
<td>____</td>
<td>____</td>
</tr>
</tbody>
</table>

1. Researcher reminded the teacher to only use typical teaching techniques

2. Teacher maintained normal teaching methods and classroom management techniques

3. Teacher refrained from using DRO or NCR during the session
REFERENCES


applied research on response effort. *Journal of Applied Behavior Analysis, 28*, 583-590.


*Individuals With Disabilities Education Act Amendments of 1997* (PL 105-17). 20 USC Chapter 33, Sections 1400 et seq.


