

COMPARING THE EFFICIENCY OF REPRIMANDS
AND NONCONTINGENT REINFORCEMENT IN
REDUCING DISRUPTIVE BEHAVIOR IN THE
CLASSROOM

By

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Abstract: The present study evaluated the effects of reprimands and noncontingent reinforcement as reducing disruptive behavior but increasing time on-task in the general education classroom. Three, second grade, student-teacher dyads were selected based on administration referral, functional assessment, and direct observation. Dyads were observed during regular classroom instruction. In baseline each teacher was asked to deliver instruction normally while during the intervention phase each teacher provided noncontingent reinforcement in the form of a brief praise statement at set intervals. Data indicates that although teachers spent more intervals providing noncontingent reinforcement, on-task behavior increased considerably across sessions for each student during the intervention condition. Further, intervals on-task increased by an average of 4.5, 7.95, and 8.2 intervals for each noncontingent praise statement for the respective students. Evaluation of intervals of each student indicates that each student was on-task for more intervals after a praise statement than after that of a reprimand. Further, the average number of intervals that each student was on-task before the occurrence of a disruptive behavior was greater when provided noncontingent praise. Finally, the delivery of noncontingent reinforcing was substantially more likely to result in behavioral change (95%) than reprimands (27%) in the interval following each respective statement. The data from this study suggests that the delivery of praise statements more efficient use of instructional time to increase on-task behavior.

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CHAPTER I
INTRODUCTION

Instructional Time

Since the passage of the No Child Left Behind Act (NCLB, 2002) teachers have been held to increasingly rigorous accountability standards for student learning. These standards are often measured by summative student evaluations that cover an ever-widening range of content as expectations for student achievement increase. Despite these increasing expectations, educational funding has not kept pace with the amount of content that must be covered nor the number of students in classrooms. The combination of increased standards and lack of funding has resulted in schools needing to provide more instruction to more students with fewer resources in order to meet accountability standards.

One of the most crucial educational resources is time. Examining the years, days, hours and minutes in the educational setting is one way to make general assumptions regarding learning history and allows for predictions about learning outcomes. The amount of time within a school day that a student is receiving educational material or instruction is what Carroll (1963) referred to as “instructional time”. Instructional time within the educational setting has proven to be among the most consistent predictors of educational success (Walberg 1984).

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In order to maximize student learning during instructional time, a teacher must maintain appropriate classroom behavior while also providing sufficient learning opportunities (Gettinger & Seibert, 2002). It is imperative that teachers address disruptive behavior, as research has shown that students who are disruptive or inattentive perform significantly below their peers on both norm-referenced and criterion-referenced tests (Finn, PannoZZo, & Voelkl, 1995). However, the time that a teacher spends addressing inappropriate classroom behavior is time that is not spent providing opportunities to learn academic material. While addressing classroom behavior and providing learning opportunities are not necessarily mutually exclusive; teachers must be trained to adapt their responses to student need. Maintaining student engagement can take the form of redirection, reprimands, waiting for response, or other management procedures; however, these procedures have the negative impact of interrupting instructional time.

Even brief interruptions can have a cumulative negative effect on instructional time. For example, five minutes spent per lesson addressing student behavior equates to 35 minutes of lost instruction per seven-hour school day. Over a 181-day school year, this equates to 6335 minutes, or about 15 school days. Increasing the amount of time in which a student is receiving instructional time by even a small amount can have a

significant impact on academic achievement (Jez & Wassmer, 2015). These additional 15 school days could potentially have a significant impact on student learning and educational outcomes.

In the educational setting, student disruptive behavior reduces instructional time in the classroom in two ways. First, the student engaging in inappropriate behavior is not actively engaged in learning the educational material, which can impact learning rates and overall academic achievement. Second, if the teacher responds to the disruptive student behavior, then the teacher is pausing the presentation of academic information which can impact the academic achievement of multiple students.

Responding to Student Behavior

Teacher responses to student behavior can come in one of two forms, those that are immediate and negative and those that are proactive and positive. Immediate and negative responses can take the form of reprimands, redirecting, or criticizing and serve as punishment that is intended to reduce the likelihood that a behavior occurs in the future. Proactive and positive responses focus on behavior- specific feedback to a student or class that signal what is expected and increases the likelihood of those behaviors in the future. While both approaches are intended to increase engagement by either reducing the future occurrence of disruptive behavior or increasing the likelihood of appropriate behavior, the short- and long-term effects of these interventions vary widely. Although teacher responses such as reprimands are intended to be punishing, they can only meet that definition if reprimands reduce the future occurrence of behavior. Instead, reprimands can serve as cues of what behavior to exhibit in the future when students seek to access reinforcement such as teacher attention or to escape a task demand.

Alternatively, providing proactive and positive responses to student behavior can serve an abative effect on disruptive behavior as well as cue behavior that is expected in the future.

Behavioral attempts to reduce student disruptive behavior or increase time spent engaged in academic instruction often focus on either antecedent-based intervention such as noncontingent reinforcement or though consequence-based intervention such as differential reinforcement of behavior. Antecedent-based interventions focus on reducing behavior by providing reinforcers that maintain problem behavior freely and frequently (Cooper, Heron, & Heward, 2007). Interventions such as noncontingent reinforcement deliver stimuli with known reinforcing properties on either a fixed or variable time schedules and are not contingent on the student's behavior. Differential reinforcement is a type of consequence-based intervention that focuses on reinforcing desired behavior while withholding, or extinguishing reinforcement for other or undesired behavior. While both antecedent- and consequence-based interventions have a real cost in time and effort, when implemented properly, they can reduce the instructional time needed to manage behavior over time. Noncontingent reinforcement specifically begins with a dense reinforcement schedule that is thinned as the undesired behavior is reduced. So while noncontingent reinforcement may be delivered every two minutes initially, this could be thinned from three to five to ten minutes as the intervention is successful.

Typically, the data from these interventions focus on the frequency in which a teacher provides noncontingent reinforcement in the form of praise or how often a student is reinforced for performing a behavior (Lane, Smither, Huseman, Guffey and Fox, 2007; Broussard & Northup, 1995; Austin & Soeda, 2008; Theodore, Bray, &

Kehle, Bray, Theodore, Zheng, & McCoach, 2004; Dart, Radley, Battaglia, Dadakhodjaeva, Bates, & Wright, 2016; Riley, McKevitt, Shriver, & Allen, 2011).

While measuring the frequency that teachers interact with students in either a proactive or reactive manner is critical, this does not allow examination of the total cost in instructional time for delivering the intervention. For example, if a teacher provides a student with noncontingent reinforcement in the form of praise 30 times per instructional hour, it is not necessarily evident of the actual time spent on the reinforcement delivery and thus to cost to instructional time. At three seconds per instance of praise, the total instructional time is one minute and 30 seconds. If instead the teacher provided ten seconds per instance, the cost is five minutes of instructional time. This time cost potentially impacts the use of the intervention by changing the social validity of the intervention, decreasing the likelihood that it would be implemented with fidelity, and increasing the chances of it being discarded for something perceived as more appropriate due to response effort. Examining frequency alone may speak the efficacy of noncontingent reinforcement, but does not indicate efficiency. Teacher responses to behaviors that are not proactive and positive, but are instead immediate and negative, have their own cost in resources such as instructional time. As in the example of noncontingent reinforcement above, time is a factor in delivering reprimands. Each response in the form of reprimands such as a three second redirection, five second criticism, or ten second pause has an overall cumulative effect of reducing classroom instruction. The literature is sparse in regards to monitoring teacher time spent delivering reprimands to increase or maintain student engagement. Even assuming the time is equal between praising and reprimands, it is doubtful that a comparable time spent in

reprimanding students would result in a similar reduction in student disruptive behavior or an increase in engagement.

Current Study

The purpose of this study is to evaluate whether consequence-based reprimanding or an antecedent intervention in the form of noncontingent reinforcement is more efficient in reducing disruptive behavior and increasing time on-task in the general education classroom. This study sought to answer the following questions; (1) what is the average number of intervals in which reprimands occur; (2) when implementing noncontingent praise, what is the average number of intervals in which praise occurs; (3) do reprimands increase on-task behavior; (4), does noncontingent praise increase on-task behavior, (5) which approach is more efficient at increasing the duration of on-task behavior

It is hypothesized that the number of intervals that teachers spends engaged in reprimanding students will be more than the number of intervals they spend providing noncontingent reinforcement during the observed sessions. It is also hypothesized reprimands will have no effect on disruptive behavior while the noncontingent reinforcement utilizing praise statements will result in a decrease in disruptive behavior. Finally, it is hypothesized that noncontingent reinforcement will be more efficient than reprimand at reducing disruptive behavior.

CHAPTER II

REVIEW OF LITERATURE

Instructional Time

One of the most crucial educational resources is time. Examining the years, days, hours, and minutes in the educational setting is one way to make general assumptions of learning history and to make potential predictions of learning outcomes. However, it is important to distinguish between time students spend within the educational setting and the time students actually spend learning. Past research has broken time spent within the educational setting into three categories: (1) allocated time, or the time allocated to individual subjects like math or science, (2) instructional time, or the actual time used instructing students, (3) and engaged time, or the time that students are actually engaged in learning activities (Carroll, 1963).

The time allocated to education is easily measured and is the most basic concept of time in the educational setting. Allocated educational time gives us a basis for study and a foundation upon which to conduct research. For example, many states mandate that schools have a certain number of instructional days within a calendar, or “school” year (Pompelia, 2018). An allocated school day is made up of multiple smaller segments of time in the educational setting. Allocated educational time gives us a basis for study and a foundation upon which to conduct research. For example, many states mandate

that schools have a certain number of instructional days within a calendar, or “school” year (Pompelia, 2018). An allocated school day is made up of multiple smaller segments of time that are themselves allocated among a variety of educational activities such as math, science, lunch, recess, pep assemblies, fire drills, and other activities included within a school’s curriculum. While each of these activities support important student needs, the criteria established and measured through summative evaluations, which are so heavily emphasized by accountability measures, focus on information that is delivered through academic instruction. Not all allocated time is emphasized or considered in high-stakes accountability evaluations and decisions.

In the example above, two of the periods within the allocated day that focus on academic tasks, math and science, comprise what Carroll (1963) referred to as “instructional time”. The time spent within the educational setting on instructional time has proven to be among the most consistent predictors of overall educational success (Walberg, 1984). Instructional time can be thought of as the time children spend learning academic information. Research has long demonstrated that the amount information a student learns is positively correlated to the amount of time the student spends learning (Frederick & Walberg, 1980; Walberg, 1984). Time allocated to instruction has been found to be significantly related to reading and mathematics achievement and increased instructional time has an even greater impact on students who are performing at a base rate lower than their peers (Brown & Saks, 1986). Increasing the amount of time in which a student is receiving instructional time by even small amounts can have significant impacts on academic achievement (Jez & Wassmer, 2015). Roecks (1980) examined the use of 36 fifth graders’ instructional time and found an inverse relationship

between the students' achievement and the instructional cost on the teacher. The increased cost of lower performing students' results can be measured not only in the instructional time needed, but in monetary terms as well (Roecks, 1980).

Not all children benefit from additional time within the educational setting equally. Students come to school with varying socio-economic histories, different levels of support outside the school, and a wide range of academic and behavioral repertoires that all impact the effectiveness of instruction. Therefore, how allocated time is used for instruction is also a critical component in determining educational effectiveness. The impact of increasing general instructional time for disadvantaged students has been demonstrated to positively correlated to their success (Jez & Wassmer, 2015). An increase of 15 instructional minutes per day resulted in an increase of average overall achievement 37% for socioeconomically disadvantaged students from the previous academic year (Jez & Wassmer, 2015). Even greater effects of additional instructional time can be seen when this time is used to provide targeted instruction.

While providing additional class-wide instruction is one way to spend additional instructional time, the utility of allocating this additional instructional time to remedial or intervention services cannot be understated. For example, one study by Simmons, Kame'enui, Harn, Coyne, Stoolmiller, Edwards, Smith, Beck, and Kaufman (2007) found significant differences between children that received 15 or 30 minutes of additional minutes of reading intervention after their normal half-day kindergarten class. Results suggest that students who received the 30 minutes of highly specified intervention showed significantly more improvement than those that received 15 minutes of intervention (Simmons, et al., 2007). Furthermore, the data indicates that the students

most at-risk benefited significantly more from this additional instructional time spent on intervention (Simmons, et al., 2007). The impact of additional intervention time for first-graders can have a significant impact on their reading fluency skills and can potentially keep them from falling into the most at-risk group (Harn, Thompson, & Roberts, 2008). This early application of intervention as part of additional instructional time, specifically for those most at-risk, can lead to future savings in time as the number of students that are at-risk diminishes, and teacher can make use of additional class-wide instruction.

While instructional time is important, the amount of time that is spent engaged in the learning task is equally important (Carroll, 1989; Walberg, 1984). As one cannot assume instructional time fills all allocated time within the educational setting, one cannot also assume that instructional time is equally beneficial to all students. For instructional time to be beneficial, students must be engaged with the material. Maintaining student engagement can be a difficult prospect depending on environmental, student, teacher, and other variables. For example, teachers must present the instructional material, monitor students within the classroom, identify disruptive behavior, and redirect students in a way that promotes effective learning (McLean, Sparapani, Toste, Connor 2016). This process is made easier when the teacher places a priority on classroom elements such as organization, behavior management, and self-regulation (McLean, et. al 2016). Using these elements results in decreased occurrences of off-task behavior, which can in turn, increase academic achievement in reading (McLean, et. al 2016). Of critical importance in maintaining student engagement is maintaining order within the classroom by reducing disruptive behavior. One study by Day, Connor, and McLelland (2015) found that up to 49 minutes of a 120 minute reading lesson were spent on non-instructional

activities, including maintaining order. Rice (1999) demonstrated that as class sizes increased, there was a predictive increase of time spent maintaining appropriate behavior. Fisher and Berliner (1985) found that percentage of time students were engaged was at least a moderate predictor of student achievement.

In order to maximize student engagement, teachers must maintain student attention while providing sufficient learning opportunities (Gettinger & Seibert, 2002). It is imperative that teachers address disruptive behavior, as research has shown that students who are disruptive or inattentive perform significantly below their peers on both norm-referenced and criterion-referenced tests (Finn, Pannozzo, & Voelkl, 1995). Maintaining student engagement can take the form of redirection, reprimands, waiting for response, or other similar tactics. The time that a teacher spends maintaining engagement is obviously time that is not spent providing academic learning opportunities. While maintaining engagement and providing learning opportunities are not necessarily mutually exclusive, teachers must have training and the ability to adapt their response to student need.

Morris, Millenky, Raver, and Jones (2013) investigated the implementation of teacher training that focused on the *Foundations of Learning* as a means to improve classroom climate, reduce disruptive behavior, and increase instructional time. Two specific outcomes were that teachers who had been trained in the *Foundation of Learning* program responded with less sarcasm and anger and the training resulted in an average increase of ten minutes of teacher led instructional time (Morris, et al., 2013). This ten minute increase in instructional time could result in an additional week of instructional time over the course of the school year (Morris, et al., 2013). This study highlights the

benefits of providing teachers with tangible tools that will not only explicitly decrease disruptive behavior, but also result in increased instructional time and improved educational outcomes.

Classroom Management

The use of explicit classroom rules to establish an environment that is conducive to teaching and learning has long been supported in the literature (Madsen, Becker, & Thomas, 1968, Grossman, 2004, Kerr & Nelson, 2006). Student compliance and disruptive behavior co-vary inversely (Gable, Hester, Rock, Hughes, 2009). The general use of rules alone, however, does not preclude disruptive behavior from occurring. The use of fewer, more specific rules (Burden, 2006; Grossman; 2004; Kerr & Nelson, 2006) that are generalizable to multiple settings (Smith & Rivera, 1993) allow students to develop skills that ensure they function more consistently in the educational environment. Even taking these guidelines into account, the creation of specific, generalizable rules do not automatically guarantee prevention or reduction of disruptive behavior. Rules must be modeled, practiced, and there must be a process in place that address the application of reinforcement or punishment in the form of response cost (Kerr & Nelson, 2006).

Determining which behavioral expectations to emphasize is an important first step in classroom management. McGoey and Dupaul (2000) used behavioral categories adapted from the social behavior observation system of the *Early Screening Project* (ESP: Feil, Walker, & Severson, 1995) and corresponded these categories to established classroom rules. The resultant rules included: stay in the area, keep hands and feet to self, quiet listening when the teacher is talking, finish your work, and raise your hand to talk. These rules represent the most common behavioral expectations used in classrooms.

Once a teacher establishes what is expected in the classroom, they must be consistent with modeling, allowing practice, reinforcing, and enforcing the rules. Teachers that fail to consistently enforce classroom expectations are generally not aware of students who are compliant versus those who are non-compliant and will experience high rates of disruptive classroom behavior (Madsen et al. 1968; Kounin, 1970). Increased rates of disruptive behavior have an observable effect in terms of instructional time cost. Disruptive behavior can have a significant impact on instructional time in the short-term, and over long periods of time, can affect academic achievement (Stage & Quiroz, 1997). Furthermore, the inability for a teacher to manage students' disruptive behavior can impact the academic functioning, engagement, and behavioral functioning of those students individually and as a group (Clunies-Ross, Little, & Kienhuis, 2008; Sutherland, Wehby, & Copeland, 2000).

Definitions of Behavior

When students begin school, there is an expectation that they come ready to learn and demonstrate behaviors that are conducive to learning such as paying attention, remaining in their seat, and engaging in appropriate social interactions (McGoey, Prodan, Condit, 2007). Unfortunately, students do not always begin school with these skills in their behavior repertoire. When children have deficits in these skills, they can present with behavior that is disruptive to normal classroom functioning. A review of the literature reveals that although there are differences in how disruptive behavior is defined in different studies, there are consistencies in what teachers, researchers, parents, and other adults consider disruptive to classroom functioning. Chen and Ma (2007, p. 380-381) loosely defined disruptive behavior as “an excessive behavior that can interfere with

general activities proceeding at the time". Common distributive behaviors among children include noncompliance, impulsivity, attention seeking, and aggressive behaviors and each of these has varying topography between students (Neary & Eyeberg, 2002). Thomas, Becker, and Armstrong's (1968) work split disruptive behavior into more specific categories: gross motor activities (including fiddling, jerking, and out of seat), non-verbal noise making, orienting (including off-task behavior), verbalization, (including crying, inappropriate verbalization, and talking out of turn). and verbal or physical aggression. The authors note behaviors of this type are incompatible with good classroom learning. Further, the long-term patterns of disruptive behavior are frequent causes for referral for special education services (Neary, & Eyeberg, 2002). Indeed, these behaviors may also prompt referrals to mental health services and are often regarded as symptoms of mental health diagnoses such as Attention-Deficit/Hyperactivity Disorder (ADHD), Oppositional Defiant Disorder (ODD), and Conduct Disorder (CD) (Neary, & Eyeberg, 2002).

In addition to discussing common behavior problems as mentioned above, it is also crucial to consider that certain students will likely exhibit disruptive behavior by virtue of identified behavioral and/ or emotional disorders. For these disorders, there are often a constellation of symptoms that are considered to be most problematic or that are common in the most severe populations. Often, these behaviors interfere with optimal school performance. Disruptive behaviors exhibited by children with emotional or behavioral problems include inattention, disruptive behaviors like calling out, being out of seat, deficits in social skills, and aggression (Zlomke & Zlomke, 2003). Studies have linked these behaviors to negative school outcomes. For example, (Monteague, Enders,

& Castro, 2005) found that students with behaviors associated with ADHD are known to experience difficulties that adversely affect school performance. Further, Zlomke & Zlomke (2003) note that those with behavioral deficits are not only negatively impacted at school, but also in the home and in extra-curricular activities. Therefore, it is imperative that teachers recognize the potential for disruptive behavior and are given tools to help mitigate risk for those diagnosed with emotional and behavioral difficulties.

Even though common disruptive behaviors have been identified in the classroom and for those from diagnosed populations, operational definitions often vary greatly. Using operational definitions is imperative for research purposes, but also helpful in designing specific interventions for students. Operational definitions help to specify broad behavioral classes into discrete observable and measurable behaviors. Deriving operational definitions for disruptive behavior can come from multiple sources. Some researchers, such as McGoey and Dupaul (2000), developed their definitions of inappropriate behavior from the *Early Screening Project* (Feil et al., 1995) which included: negative verbal or physical social engagement, looking away from activity or teacher for three or more seconds, disobeying established classroom rules, and tantrums. Other definitions of behavior provided within the literature include Theodore, Bray, and Kehle (2004) who defined disruptive behavior as: voicing obscene words, not following the classroom teacher's directions the first time within five seconds, orienting in a direction other than the teacher or assignment, talking to students who were working, and verbal putdowns. Broussard and Northup (1997) targeted disruptive behaviors described as inappropriate vocalizations, out of seat behaviors, and playing with objects. They took the target behaviors and operationally defined inappropriate vocalizations as "any vocal

noise or verbalizations that was not preceded by raising a hand and acknowledgement from an adult”, out of seat behavior as “the child’s full body weight not being supported by the chair”, and playing with objects as “touching toys, walls, light switches, or any object that was at the student’s desk not associated with an assigned task”. These represent a small sampling of operational definitions used to define and measure disruptive behavior.

In addition to establishing operational definitions of behavior, it is also important to identify behaviors that teachers view as being disruptive to instruction (Zlomke & Zlomke, 2003). Even within the most severe populations, considerations of the relative disruptiveness (from the teacher’s perspective) of the behaviors must be considered. Within the school, there may be differing expectations depending on the location within the building (e.g., hallway vs. classroom). Additionally, teachers within the same grade may give more or less leeway to infractions that appear similar. In some settings, behaviors such as being out of seat and non-compliance are considered as minor infractions, while behaviors such as excessive talking out can result in timeout in the form of brief removal from the room (Zlomke & Zlomke, 2003). Teachers are more likely to implement, and interventions show more efficacy, when teachers have input into identifying problematic behavior and having choice in interventions to target said behavior. One way to establish an operational definition and also increase the applicability and social validity of interventions is to allow teachers to define the topography of the disruptive behavior. When measuring the effectiveness of the “mystery motivator” in the educational setting, Kowalewicz and Coffee (2014) allowed each classroom teacher to define the dependent variable of disruptive behavior which

consisted of calling out, talking, out of seat, sitting inappropriately, and being off-task. It was found that allowing teachers choice increased in the likelihood of fidelity (likely due to the operational definition which made measuring behavior consistent) and also the efficacy of the mystery motivator intervention.

Finding behaviors that have social validity and describing them with operational definitions helps to clarify the topography and relevance of “disruptive” behaviors, which leads to more efficacious intervention.

Intervening on Behavior

Research in reducing disruptive behavior in the classroom ranges from interventions that focus on individual students (Lane et al., 2007; Broussard & Northup, 1995; Northup, Broussard, Jones, Vollmer, & Herring, 1995; Austin & Soeda, 2008), to interventions with groups of students (Theodore et al., 2004; Dart et al., 2016), to models for school-wide programs such as Positive Behavior Interventions and Supports (PBIS) (Sugai & Horner, 2006). Location of interventions also varies from clinical placements (Reed, Ringdahl, Wacker, Barretto, & Andelman, 2005; Goh, Iwata, & DeLeon, 2000; Ringdahl, Vollmer, Borrero, & Connell, 2001), to placements of students within restrictive educational environments (Nolan & Filter, 2012), to those that function within the general education setting (Austin & Soeda, 2008; Jones, Drew, & Weber, 2000).

While it can be tempting to consider interventions that are specifically designed for certain populations such as those with ADHD, CD, or ODD, the behavioral goals between students that fall into those diagnostic categories and those that do not often show some overlap. An example could be behavioral goals for a student focusing on paying attention, following directions, staying seated, starting and completing tasks,

working independently in the classroom, producing consistent work, and keeping track of assignments are often associated with children with ADHD; however, these behaviors are those in which all students should be engaging (Barkley, 2015). Interventions within the literature that focus on working with children who have ADHD or other attentional issues include consistency in delivery of reinforcement for desired behavior and discipline as well as ensuring the use of effective directions and requests to students (Allen, Henke, Baer, & Reynolds, 1967; Landau & McAnnich, 1993; Barkley, 2015). The underlying behavioral components of interventions that seek to reduce disruptive behavior in the classroom focus on clearly communicating behavioral expectations, using direct requests to students, using differential reinforcement for appropriate behaviors and, when necessary, using punishment through some form of response cost to decrease more severe behaviors (Sulzer-Azaroff & Mayer, 1991).

When Chen and Ma (2007) conducted an analysis of single subject research in reducing disruptive student behavior, they found that: (1) intervention strategies were effective on the elimination of disruptive behaviors, (2) it was easier to eliminate specific disruptive behaviors such as noise making, orienting, and gross motor activities than to control a composite of disruptive behavior, (3) using multiple baseline design or multiple baseline design plus reversal is more likely to have greater effectiveness of treatment than using the reversal design alone, (4) other classes of interveners were more successful than others (e.g., the general education teacher vs. school psychologist), likely due to familiarity, (5) treatments that occurred in the therapy room were less effective than those that occurred in more generalized settings, (6) no outcome was observed in effects on age and effectiveness, (6) treatment with students with language delays were less effective.

These findings lend useful information to guide future studies in decreasing disruptive behavior.

Although the research in reducing disruptive behavior has shown a wide range of interventions and intervention packages available can be successful, teachers tend to focus on those interventions that are the most efficient and manageable to existing classroom routines (Witt & Elliot, 1985, Witt & Martens, 1983). Understandably, any time spent providing interventions is not necessarily time spent engaged in academic learning for which teachers are accountable. Interventions that focus on individual student behaviors are sometimes considered time-consuming and impractical (Skinner, Cashwell, & Dunn, 1996). A teacher's history of past successes or failure, teacher familiarity with and self-efficacy of implementation, and resources such as time can all contribute to integrity of implementation (Witt & Elliot, 1982, Witt & Martens, 1983; Kazdin, 1982).

Embry (2002, p. 274) described simple behavioral supports in the general education setting as a "vaccine against long-term behavioral problems". Being able to reduce disruptive behavior in an efficient manner with a wide range of students could positively impact classroom functioning, which could allow for more instructional time within the classroom. Kowalewicz and Coffee (2014) implemented an intervention within eight general education classrooms that used the "Mystery Motivator" with Differential Reinforcement of Other behaviors (DRO) as a Tier 1 class-wide intervention and found that frequency of disruptive behavior decreased in all classrooms. Perhaps just as important, seven of eight teachers found the intervention acceptable, found it practical in the amount time required to implement, required little training, and reported that the

intervention was cost effective in terms of time and effort of data collection. The research concerning behavior interventions suggests that those that require little time and training, that do not require large amounts of time or resources, and that have social validity are more likely to be used in the classroom. Therefore, research and practice should seek to find behavior interventions that meet these criteria.

Praise and Reprimands

While it may be impossible to completely eliminate disruptive behavior in the classroom, the manner in which it is addressed by teachers can impact functioning in both the short- and long-term. Teacher responses to behavior within the classroom setting can come in the form of praise or reprimands. These responses can be provided as an antecedent to behavior or after a behavior has occurred in a contingent manner that is intended to either increase or decrease the behavior preceding the response. The use of praise and reprimands are relatively easy strategies to build into behavior intervention programs.

The use of praise in antecedent form can serve as a cue to expected behavior or as a way to satiate disruptive attention-seeking behavior. Despite research suggesting that providing positive praise for appropriate behavior is effective, the frequency with which it is used has been observed to be lower than expected (Beaman, & Wheldall, 2000; Jenkins, Floress, Reinke, 2015). A study by Leff, Thomas, Shapiro, Paskewich, Willson, Necowitz-Hoffman, and Jawad (2011) found that teachers used praise only about 2.5 times per 10-minute observation, while the usage of reprimands varied between 4 to 6.5 times per 10-minute observation.

It is possible that teacher preference for reprimands is an illustration of Herrnstein's matching law (1970) in that reprimands can serve as brief interruptions in disruptive behavior and are easy to implement, whereas learning to use praise appropriately takes more training and effort. Given that the literature has demonstrated teachers resort to interventions they feel are most economical, specifically in regard to individual students, the observation that teachers resort to reprimands over praise is not particularly surprising (Witt & Elliot, 1982, Witt & Martens, 1983; Skinner, Cashwell, & Dunn, 1996). Teachers approach problem behavior with the assumption that increasing the severity of consequences will eventually teach students that disruptive behavior is not acceptable and those behaviors will cease (Sugai & Horner, 2006).

While some research has shown that the use of reprimands can be effective when used appropriately (Workman, Kindall, Williams, 1980), long-term use can result in an increase in off-task and disruptive behavior rather than a reduction (Van Acker & Grant, 1996; Gable, Hester, Rock, & Hughes 2009). Research has also shown that children who were exposed to higher rates of reprimands presented with increased externalizing behavior as rated by both peers and teachers, as well as a decrease in the students' self-concept (Split, Leflot, Onghena, Colpin, & Split, 2016). The negative effects of teacher reprimands are not limited to just those who are being reprimanded. Even when reprimands are directed at the behavior of other students, the perceived conflict between the teacher and the peer can lead to an overall negative classroom climate (Cadima, Doumen, Verschueren, & Buyse, 2015).

The disconnect between research literature and practices within applied settings is somewhat concerning, considering the increased emphasis of teacher accountability and

changes to requirements within federal laws such as the *Every Student Succeeds Act* (ESSA) which place additional emphasis on safe and nurturing schools. While the need to increase long-term savings in resources (such as instructional time) are evident, these savings are not typically calculated in exact terms in literature. One explanation is that the upfront cost of training serves as a deterrent in developing skills through professional development delivered by the school or on an individual basis. However, even short-term behavior training with teachers can increase the frequency with which they provide praise and positive attention, which in turn can lead to increases in appropriate behavior and less aggression directed towards peers (Snyder, Low, Schultz, Barner, Moreno, Garst, Leiker, Swink & Schrepferman, 2011). Comparisons between trained and untrained teachers in Madsen, et al. (1970) demonstrated that teachers that had been trained to provide specific rules, approval, ignoring, and disapproval had higher rates of teacher praise and lower rates of reprimanding, which consequently led to significantly lower levels of disruptive behavior within the classroom. A study by Split, Leflot, Onghena, Colpin, and Split (2016) found that when the teachers' behavior management focused on lower levels of reprimands for non-compliant behaviors and higher levels of praise for compliant behaviors, student functioning increased over the course of the intervention.

The literature suggests that to improve overall school climate and culture on a grand scale, as well as decrease disruptive behavior in individuals and groups of students, schools should consider investing time and resources to train teachers to use praise at a higher frequency than reprimands. The literature also suggests that using praise is an intervention that is easy to implement, requires little time or materials, and has high

acceptability, all of which will likely increase the potential for integrity and frequency of use.

Noncontingent Reinforcement

The delivery of attention through noncontingent reinforcement may serve as an establishing operation which satiates the need for attention and reduces future responses that would typically result in contingent reinforcement of attention (Banda and Sokolosky, 2012). The use of establishing operations as a means to reduce disruptive behavior is supported in the literature, (Wilder & Car, 1998, McComas, Thompson, & Johnson, 2003; Roantree & Kennedy, 2006; Banda & Sokolosky, 2012). An alternative theory to habituation and extinction is that free access to reinforcers is evidence of Herrnstein's Matching Law (Herrnstein, 1970) in that the ability of the student to obtain reinforcers (e.g., attention) with no response cost results in an overall reduction in disruptive behavior, which requires more effort on the part of the student (Fisher, Thompson, DeLeon, Piazza, Kuhn, Rodriguez-Catter, & Adelinis, 1999; Hagopian, Crockett, van Stone, DeLeon, & Bowman, 2000).

In order for antecedent interventions such as noncontingent reinforcement to be successful, one must deliver stimuli with known reinforcing properties such as teacher attention on a denser schedule than what occurs naturally in the environment (Ringdahl, et al., 2001). While dense schedules are useful for an immediate reduction in disruptive behavior, over time, thinning to a leaner schedule that is more similar to one that occurs in the natural environment will increase the social validity of the intervention (Fisher et al., 1999). While using noncontingent praise every minute can help reduce behavior

initially, it would be too resource-intensive to provide reinforcement at this rate all day, every day for extended periods of time.

The delivery of noncontingent reinforcement varies in the literature from providing continuous noncontingent reinforcement (Marcus & Vollmer, 1996), to at least as frequently as problem behavior occurs (Vollmer, Iwata, Zarcone, Smith, & Mazaleski, 1993), to providing reinforcement at the mean latency of the onset of the first problem behavior during baseline (Lalli, Casey, & Kates, 1997). Lalli et al.'s (1997) use of latency of first onset resulted in a learner schedule up front that allowed for the participants to endure an initial delay in the delivery of reinforcement. Using this delay can be useful in that it reduces the response cost and resources on the part of a teacher or other professional in the classroom.

Establishing a schedule for the delivery of noncontingent reinforcement is a first step in developing another critical component to effective intervention design. The application of noncontingent reinforcement in the literature generally implements fixed-time schedules of reinforcement, though the use of variable time schedules has also shown to be effective at reducing disruptive behavior (Carr, Kellum, & Chong, 2001). However, the use of mixed-time schedules to reduce behavior has been rare (Carr, et al., 2001). Although Carr, et al. (2001) used arbitrary target behavior, the mechanism by which the subjects learned to perform a behavior mirrors what happens in the classroom with reprimands. More specifically, the variable rate at which the teacher responds to attention-seeking behavior can establish behavioral repertoires that are reinforced whenever the teacher reprimands.

The rate at which schedules are thinned varies somewhat in the literature. There is research that suggest that once the disruptive behavior is initially brought under control, it can be rapidly shaped. Lalli et al. (1997) thinned the delivery of reinforcement on a fixed-time schedule every few sessions by 30, 60, and 120 seconds across their respective participants. While there were some spikes in the session in which the respective intervals were increased across participants, the behavior typically reduced by the next session (Lalli, et al., 1997). Hagopian, Fisher, & Legacy (1994) demonstrated that fading from a dense schedule to their target of a five minute fixed-time interval was more effective in reducing behavior than starting with the five minute fixed-time interval. Kahng, Iwata, DeLeon, and Wallace (2000) observed that as long as thinning occurs in a gradual manner, either by fixed increments or adjusting delivery based on latency from previous sessions, maladaptive behavior was reduced and maintained low rates. As Holden (2005) points out, noncontingent reinforcement employs two key behavioral principles: extinction and satiation/habituation. As long as reinforcers maintaining disruptive behavior reach satiation, the disruptive behaviors should be reduced or eliminated.

Another important component of noncontingent reinforcement is the magnitude at which the reinforcers are delivered. Specifically, how much does the participant or student like the tangible or social reinforcement they are receiving? The magnitude of reinforcement has been shown to affect the extent to which noncontingent reinforcement is effective at altering the behavior of participants (Carr, Bailey, Ecott, Lucker, & Weil, 1998). That correlation effects are observed between high and low magnitude reinforcement and the respective effects on the reduction of disruptive behavior is logical.

Carr et al. (1998) manipulated the magnitude at which participants received preferred reinforcement and observed high-magnitude reinforcement produced large and consistent reductions, medium-magnitude produced less consistent and smaller reductions, and low-magnitude schedules produced little or no effect. This is particularly pertinent to the current study in that the magnitude of noncontingent praise could potentially alter the satiating effect of praise delivered. For example, there is a qualitative difference between “Good job.” and “James, I like the way you are sitting.” This use of behavior-specific praise could be more reinforcing and therefore, more effectively function as a habituating component of noncontingent reinforcement.

Historically, research into noncontingent reinforcement has focused on students within clinical or special education settings. The use of noncontingent reinforcement in the general education setting has been sparse up until the last decade. Austin & Soeda (2008) observed an immediate decrease in disruptive behavior of two typically-developing third-grade students in the classroom setting by delivering noncontingent reinforcement on a four minute fixed-time schedule. Banda and Sokolosky (2012) used function-based noncontingent reinforcement delivered briefly every 20 seconds to decrease talking-out behavior in the general education setting. Noncontingent reinforcement within the classroom setting need not necessarily be delivered by the teacher or other adult. A study by Jones, Drew, and Weber (2000) compared noncontingent peer attention to naturally occurring contingent-based peer attention (i.e. reminding the target student to do work when out of his seat) and found that noncontingent attention from peers resulted in a reduction of disruptive behavior.

It should be noted that the implementation of noncontingent reinforcement does not come without the possibility of unintended negative behavioral shaping. One concern with delivery of reinforcement in a noncontingent manner is the risk of accidental or adventitious reinforcement of disruptive behavior (Carr et al., 2000). The concept of adventitious reinforcement can be traced back to Skinner's (1948) work with pigeons, where he found that delivery of reinforcement on a fixed-time scheduling lead to increased rates of behaviors that occurred just before reinforcement occurred. This phenomenon was also noted by Henton and Iversen (1978) when they observed the behavior of rats who were fed pellets on a one-minute variable-time schedule exhibited higher rates of the behavior that was occurring right before the pellet was delivered. As Iverson (2005) points out, even response-independent reinforcers have an effect on the conditioning of the behavior that occurs when reinforcement is delivered which can be of particular concern with students who have limited behavioral repertoires.

Although the application of noncontingent reinforcement is simple, one must determine not only an appropriate scheduled for delivery as mentioned above, but also the reinforcers that are maintaining a particular t behavior (Holden, 2005). Providing interventions that focus on the assessed function of behavior show more effective outcomes than those that are not based on functional assessment (Iwata, Dorsey, Slifer, Bauman, & Richman, 1994).

Functional Assessments

While identifying what specific disruptive behavior is helpful to the teacher, administrator, or other professional collecting observational data, it does not always give a clear indication as to why that behavior is occurring. Understanding what contingences

are maintaining the target behavior is critical to developing effective interventions. One way to obtain information linking behaviors to consequences is through a functional assessment. Functional assessments were defined by Horner (1994, pg. 401) as “the range of assessment strategies to identify specific antecedent and consequent events that are directly related to the problem behaviors”. The problem behavior can then be intervened upon in a targeted manner by manipulating the outcomes which are associated with and that sustain the behavior. Basing interventions on variables that are associated with the target behaviors increases the likelihood that those interventions are successful (Iwata, et al., 1994).

Broussard and Northup (1995) suggested that the three variables most often related to disruptive classroom behavior are teacher attention, peer attention, and escape from academic demands. In a follow-up study Broussard & Northup (1997) implemented interventions that were matched to the function of the disruptive behaviors, in this case, peer attention. The intervention used peer attention and reduced disruptive behavior for all four participants. This study was also successful in demonstrating successful fading of peer reinforcement from one minute to ten minutes while also increasing implementation time from ten to 30 minutes (Broussard & Northup, 1997). Lane, Smither, Huseman, Guffey, and Fox (2007) collaboratively developed a function-based intervention that resulted in substantial positive improvements in engagement and reductions in disruptive behavior.

These studies suggest that interventions will be most successful if functional assessments are used to determine functions of behavior that can be meaningfully built into intervention implementation.

Treatment Integrity

Treatment integrity is the extent that an intervention is implemented as designed (Gresham, 1989). The reliance on integrity of treatment implementation is a critical component for a multitude of fields ranging from medicine, to substance abuse rehabilitation, to clinical psychology (Gresham, 2009). In what is likely the first meta-analysis of the measurement of implementation integrity as the independent variable in educational studies, Peterson, Homer, and Wonderlich (1982) argued that an inaccurate description of the application of the independent variable can threaten the overall reliability and validity of operant research data. They highlight the point that without an understanding of the consistent and correct application of the independent variable, it is hard to determine if a failure to modify behavior is a function of the intervention itself or a function of intervention implementation. Upon reviewing 539 experimental articles between 1968 and 1980, Peterson et al. (1982) found that only 16% of the articles that presented operational definitions monitored the integrity of the intervention. As Peterson et al. (1982) argue, this can have serious repercussions in regards to the replicability or inferring the effectiveness of an intervention.

In 1993 two seminal studies were conducted that updated and further refined what Peterson et al. (1982) began with their work. The first study by Gresham, Gansle, and Noell (1993) again reviewed literature within the *Journal of Applied Behavior Analysis* between the years of 1980 and 1990. They found that within this journal, only 15.8% of the articles published with subjects under the age of 19 reported the integrity of independent variable implantation, which was largely unchanged in a little over a decade since the work by Peterson et al. (1982). A second study by Gresham, Gansle, Noell,

Cohen, and Rosenblum (1993b) reviewed the literature on the implementation of behavioral interventions within the school setting across seven journals. Despite a narrower focus in regards to a specific setting across a wider range of journals, the results were similar in that only 14.9% of the articles systematically measured and reported the integrity of the independent variable. A later analysis was conducted by McIntyre, Gresham, DiGennaro, and Reed (2007) of 142 articles published in the *Journal of Applied Behavior Analysis* between 1991 and 2005 that focused on school-aged populations. The results indicated that since the studies by Gresham et al. (1993a, b), studies that reported that the percentage of treatment integrity had increased to 30. The differences in the of reporting of treatment integrity in the decade between Gresham et al. (1993a, b) and McIntyre et al. (2007) had increased substantially more than the decade that had occurred between Peterson et al. and Gresham et al.'s (1993a, b) study.

Sanetti, Gritter, and Dobey (2011) would follow-up two years later with a review of 223 studies across four school psychology journals (*Psychology in the Schools, Journal of School Psychology, School Psychology Quarterly, and School Psychology Review*). Their results indicated 50.2% of the studies reported treatment integrity in the form of percentage of implementation. A further 13% included language about monitoring integrity, but did not provide data (Sanetti, et al. 2011).

Barnett, Hawkins, McCoy, Wahl, Shier, Denune, and Kimener (2014) sought to update pervious research by Gresham et al. (1993a, b), McIntyre et al. (2007), and Sanetti et al. (2011). Of the 266 articles published between 2005 and 2012 that were included in the study, 70% measured integrity when analyzing the intervention. They found that the most common source of integrity checks was conducted through a combination of direct

observation of the intervention using checklist or rating scales. The findings by Barnett et al. (2014) indicate a continuing upward trend in the percentage of articles that include measures of intervention integrity.

The critical point these authors make in their respective studies is that without a way for research to determine the extent to which measurable changes in behavior (the dependent variable), can be attributed to the intervention (the independent variable) (Peterson et al. 1982; Gresham et al. 1993a, b; McIntyre et al. 2007, Sanetti, et al., 2011) the true effectiveness of an intervention cannot be determined. The measurement of treatment integrity can directly impact those in the educational setting by informing the most likely interventions to implement, the extent to which interventions components should be adhered to, and the actual time and resources it will take to implement interventions in a manner that will effect change in the educational setting.

Teacher Acceptability of Interventions

Kazdin (1980) defined treatment acceptability as “the judgments about the treatment procedures by nonprofessionals, lay persons, clients, and other potential consumers of treatment” (pg. 259). Implementing an intervention requires the availability of some form of additional resources to ensure appropriate implementation. Three key resources that impact acceptability are the accessibility to trained personnel, materials, and time (Witt & Elliot, 1982). Time is perhaps the most important factor in the context of acceptability. Also, for behavioral concerns that are not severe, interventions that are easier to implement, such as praise, are more acceptable than those that require more resources, such a token economy (Witt, Elliot, & Martens, 1984; Witt, Martens, & Elliot, 1984; Elliott, Witt, Galvin, and Peterson 1984). Conceptually, for this

study, selecting noncontingent praise over a more complex and time-intensive intervention that relies on differential reinforcement was preferred. The cost in resources, specifically time, necessary to implement noncontingent praise is minimal when compared to the time necessary to establish and implement a token economy.

Witt and Martens (1983) created the *Intervention Rating Profile* (IRP) as a brief 20-item scale to assess teacher acceptability of interventions. The IRP was further refined to create a 15-item scale that demonstrates adequate construct validity to teacher acceptability (Martens, Witt, Elliot & Darveaux, 1985). These 15 items are rated on a Likert scale that ranges from 1 (strongly disagree) to 6 (strongly agree) with higher scores indicating the level of agreement to each statement.

Rationale and Research Questions

A significant amount of research has been conducted related to the effects on increasing instructional time, the effectiveness of NCR at increasing student time on-task, and the negative impacts of reprimands. However, there is a dearth of literature that has examined the cost in instructional time necessary to implement these approaches to behavior change. Given that teachers can be hesitant to implement interventions that are or can be perceived as resource intensive, determining the cost to implement these interventions could serve to increase teacher acceptability during consultation. The purpose of this study is to evaluate whether consequence-based reprimanding or an antecedent intervention in the form of noncontingent reinforcement is more efficient in reducing disruptive behavior and increasing time on-task in the general education classroom. There are five questions that this study will attempt to answer. This study sought to answer the following questions; (1) what is the average duration of intervals in

which reprimands occur: (2) when implementing noncontingent praise, what is the average duration of intervals in which praise occurs; (3) do reprimands increase on-task behavior; (4), does noncontingent praise increase on-task behavior, (5) which approach is more efficient at increasing the duration of on-task behavior

It is hypothesized that the duration of the time that teachers spends engaged in reprimanding students will be more than the duration of the time they spend providing noncontingent reinforcement during the observed sessions. It is also hypothesized reprimands will have no effect on disruptive behavior while the noncontingent reinforcement utilizing praise statements will result in a decrease in disruptive behavior. Finally, it is hypothesized that noncontingent reinforcement will be more efficient than reprimand at reducing disruptive behavior.

CHAPTER III

METHODS

Research Design

Design and Analysis

This study utilized a multiple baseline across participants design. The intent of the single-subject design was to exhibit experimental control over the dependent variables in question. During the baseline (A) phase for each participant, the teacher interacted with the target student as he/she normally would and researchers recorded teacher and student behavior. During the noncontingent reinforcement (NCR) phase (B), the teachers provided attention in the form of verbal praise to the target students on a fixed time interval. The behaviors for students and teachers were recorded the same way during baseline and NCR phases to allow for an analysis of effects of the intervention. The multiple baseline design was used to measure the number of intervals in which reprimands and noncontingent praise were delivered and also to determine if a functional relationship between the frequency of noncontingent praise and the number of intervals each student was observed to be on-task.

A visual analysis of the data for each phase was conducted for observed changes in trend, level, and immediacy of effect (Parsonson & Baer, 1978). Visual analysis allows for every aspect of the data to be examined to determine sources of variability, rather than

just overall effects (Richards, Taylor, Ramasamy, & Richards, 1999). Visual analysis of stability of data during the baseline phase determined when the intervention phase was implemented. Teachers remained in baseline until there was either a demonstration of stable rates or evidence of decreasing trend of on-task behavior. Students remained in the intervention phase until they demonstrated a stability for trend, level, and variability.

Dependent Variables. The primary dependent variable was student on-task behavior. This variable was expressed as the student being engaged in defined on-task behaviors for the entire observed interval. The secondary dependent variable was the number of partial intervals during which the teacher provided attention to the student in order to prevent, reduce, or redirect disruptive student behavior through reprimanding or providing noncontingent reinforcement within the respective intervention phase.

Independent Variable. The independent variable of this study was the application of noncontingent Reinforcement (NCR) provided by the teacher on a fixed-interval schedule. During the intervention phase, teachers used a small-battery operated device called a *MotivAider*® to provide external cuing (vibration) for them to deliver behavior-specific praise to the target student. This device vibrated at specified intervals, 1.5 minutes for Brian, and 2 minutes for Jamal and Andre.

Teacher Behavior

Praise. For this study, praise was defined as any verbal statement or physical gesture that indicated approval of a desired or acceptable student behavior. In order to be coded as praise, the statements and gestures had to be more than just performance feedback provided in response to a prompt. Praise statements were further delineated by being labeled as either behavior-specific or general praise. Praise was defined as

behavior-specific if the praise consisted of a specific descriptor of the student that behavior occurred just prior to the praise. Examples include, “Jamal, I like the way you are paying attention.” or “Brian, good job staying in your seat.” General praise consisted of simple statements such as, “Good job Andre.” that were positive, but that did not include a specific descriptor of student behavior. Non-verbal praise such as a thumbs up, patting on the back, and high-fives were coded as general praise. Praise statements were recorded as part of the partial-interval procedure and were coded if they occurred for any duration within the 10-second interval. Praise statements were only recorded if they were directed to the student participant; whole group praise statements were not coded.

Reprimands. For this study, reprimands were defined as verbal comments or physical gestures made by the teacher to indicate disapproval of student behavior. Some examples of verbal reprimands included critical comments, threatening (i.e. if you don’t do your work you will stay in from recess), scolding, raising voice at a student, or redirection. Physically touching the student, frowning, shaking head etc. were included in the definition of reprimands, however these behaviors were not observed during the study. Only reprimands directed to the student participant were recorded; whole group reprimands were not coded. As with praise, reprimands were recorded as part of the partial-interval procedure and were coded if they occurred for any duration within the 10-second interval. The number of total intervals in which reprimands occurred was used to determine non-instructional time spent redirecting or attempting to stop disruptive student behavior.

Participants and Setting

The participants of the study included three second-grade student-teacher dyads in the general education setting. All three students were second-graders at a large suburban elementary school in a south central state. The elementary school served students in pre-kindergarten through 5th grade with a total enrollment of approximately 740 students. Roughly half of the students were on free and reduced lunch, 10% were served under an Individualized Education Program (IEP), and 10% were categorized as English Language Learners. Names for the student and teacher participants in the study were changed to protect anonymity.

Brian, Jamal, and Andre were all eight years of age at the time of the study and identified as Caucasian, African American, and Hispanic, respectively. All three students identified as male and spoke English as their primary language. None of the students were eligible for special education services under the *Individuals with Disabilities Education Act* (IDEA), had a history of excessive absences, or had been previously retained. Each student was at or just below the grade-level benchmark score for reading based on (Winter) norm comparisons collected just before the study began. The students participating in the study had not previously been provided additional support services for behavioral concerns outside of the general education classroom. One student, Jamal, had been brought to the attention of the school Problem-Solving Team tasked with addressing behavioral concerns, but sufficient data had not been returned by the teacher to warrant formal intervention support from the team.

All three teachers participating in the study were “veteran” teachers with 5, 13, and 22 years of experience for Mrs. Polk, Mr. Madison, and Mrs. Buchanan, respectively.

Mrs. Polk and Mr. Adams indicated they had both taught at the current school for their entire careers, while Mrs. Buchanan had previously worked at two other schools. None of the teachers indicated that they had previously implemented interventions that emphasize noncontingent praise at set intervals.

All observations and interventions occurred in the general education classroom with interventions implementation by the classroom teachers. During the functional assessment, each teacher identified times that they felt the target student had the most difficulty staying on- task and engaged in the highest rates of disruptive behavior. All three teachers indicated class- wide reading instruction as their primary period of concern. Therefore, observations during baseline and intervention phases for each student-teacher dyad were conducted during reading instruction. Reading instruction for this elementary school typically occurred in blocks of time that were split around the school specials (Art, Music, and Physical Education). Mrs. Buchanan was observed in the morning while Mr. Madison and Mrs. Polk were observed in the afternoon.

Procedure

Student-Teacher Dyad Selection. In order to solicit participation for the study, a meeting with the elementary school principal was scheduled where the primary investigator read an Institutional Review Board (IRB) approved script (See Appendix A) to describe the intervention and answer any questions the principal posed. The principal was satisfied that there would be minimal risk to teachers and students and that the intervention would require minimal effort on the part of her staff and agreed to allow the study to proceed. During a follow-up meeting with the administrative staff, which consisted of the principal, assistant principal, counselor, and school psychologist,

students that had office referrals for disruptive behavior during the school year were identified. Teachers of the individual students who were identified during the meeting were then asked to participate utilizing the teacher recruitment script which described the purpose, length, and expectation of the study (See Appendix B). Individual teachers were then asked if they believed that the identified students exhibited behavior at a rate that is problematic relative to their peers and if this behavior was maintained by attention. Those who agreed that the behavior was problematic and maintained by attention were then asked to sign the teacher consent form (See Appendix C), and parent permission forms (See Appendix D) were then sent home for each identified student. Consent was obtained from each student's parent, as well as the teacher for each student-teacher dyad. Once the consent forms were returned, a functional assessment and direct observations were scheduled. Three dyads returned the appropriate consent forms to be included in the study.

To ensure more accurate measures of duration and to increase inter-rate reliability, permission to video record each observation was sought for each non-identified student in the classroom. However, due to low rates of return and one parent declining to allow their student to be videoed or sent to an alternative location, this aspect of the study was discontinued. Mrs. Buchanan's classroom did return sufficient parent consent forms to permit a videoed observation during baseline that was utilized as a means to train research assistants and to ensure pre-study interrater reliability. Only the primary investigator, research assistants to the study, and faculty advisors had access to recorded material.

Research Assistant and Teacher Training

Research assistant training and inter-observer reliability. Research assistants were selected from student volunteers from two graduate level university training programs in School Psychology. All research assistants had completed coursework on data collection methodology. Additionally, all research assistants had experience collecting whole and partial interval data. Each research assistant was provided a brief description of as well as expectations for the study. Students who agreed were scheduled for follow-up training. Training consisted of reviewing the expectations for the study and the study methodology. The majority of the training was spent discussing the definitions of the target behaviors and practicing the observation of these behaviors utilizing a training video.

After pre-study training, inter-observer reliability was calculated by comparing agreement between observers. Cohen's Kappa was calculated with the initial training sessions for on- and off-task behavior and all observers were above .741, which is classified as "good" agreement. Inter-observer reliability checks occurred during 20% of study observations to ensure that observer drift was kept to a minimum. Inter-rater agreement during the observations was 89%.

Teacher Training. Each teacher was provided a brief training the day before they began the intervention phase with their respective student. Teachers were taught to start and stop the *MotivAider*® when prompted, given a brief training on behavior-specific praise, and provided a short list of examples of possible praise statements (Appendix G). The teachers were then allowed to ask any questions or for clarification.

All teachers indicated they understood and believed they could implement the intervention appropriately.

Recording

Direct observations were conducted during both the baseline and intervention phases. During these observations, both teacher and student behavior was measured using a 10-second partial interval recording procedure to document off-task behavior. The total duration of each observation was 15 minutes for a total of 90 intervals per observation. At the end of each 10-second interval, the observer recorded the presence of off-task behavior (described below) or absence of off-task behavior (marked as engaged). During these observations, the occurrences of praise and reprimand statements were also recorded as part of the partial-interval procedure. This data was collected on a standard observation form (Appendix F). Observations were conducted once per day by the primary investigator or research assistant in each participating classroom.

During the baseline phase, each teacher was asked to provide instruction normally while intervals of on-task behavior, disruptive behavior, number of reprimands, and praise statements were collected. During the intervention phase, each teacher was given the *MotivAider*® set to the appropriate intervals for their respective student. These intervals were 1.5 minutes for Brian and 2 minutes for Jamal and Andre. Once the observer was ready, they provided a non-verbal signal in the form of a head nod or wave to the teacher to indicate that the observation could begin. The teacher then delivered a praise statement to their student while simultaneously starting the *MotivAider*®. This praise statement was a cue for the observer to start their timer. Observation data was then collected in the same manner as baseline.

Identifying Target Behaviors for Students

Each teacher was interviewed utilizing functional assessment forms created by Witt, Daly, and Noell (2000) to determine suitability for each student, as only those whose behavior was attention-maintained were appropriate for the study. The interviews were conducted with the teacher in order to gather information on the disruptive behavior displayed by the student (including topography, frequency, duration, and intensity of the behavior) as well as events that typically occur right before the behavior occurs (including time of day, subject, people, and activities), to identify consequences of the problem behavior (reprimands, redirection, escape from tasks), as well as other questions to inform the function of the students behavior. This initial functional behavior assessment, as well as direct student observation, were to determine if student behavior was occurring to obtain attention from the teacher or peers.

Specific target behaviors were established for each of the participant in the study via an interview with the teacher and a direct observation by the primary author. Students who obtained both parent and teacher consent were selected for the study if they exhibited disruptive behaviors that functioned as a means to access teacher or peer attention. Table 1 provides examples of target behaviors identified for the study.

Table 1: Examples of Behavior	
On-Task	
Looking at teacher during instruction Working independently at desk Working in a group or with a peer Following directions	
Off-Task	
<i>Inattention</i> Orienting away from teacher or assignment for more than 3 seconds	<i>Aggression</i> Hitting, kicking, biting, throwing objects
<i>Inappropriate Motor</i> Engaging in object play- using items for things other than intended Banging or hitting items Getting out of seat (unless teacher directed) Coloring or drawing when not appropriate for the assigned task Making faces or gestures at other students Engaging in repetitive behavior for more than 3 seconds	<i>Inappropriate Verbal</i> Calling out Talking to students not as part of lesson or assignment. Calling names Making fun of other students Discussions that are not on topic
Praise	Reprimand
<i>Behavior Specific</i> (I like the way you are sitting in your chair) <i>General praise</i> (you're doing an excellent job) High five Pat on back	Staring/glaring/frowning/shaking head at student Correcting/Redirecting behavior Taking away recess Telling student "I'll wait" Stopping lesson and waiting for student to comply Critical comments Threatening Scolding Physically touching the student

Disruptive and Off-Task Behavior

Students were coded as off-task if their behavior disrupted or interfered with ongoing classroom activities for the teacher or if they were not attending to instruction. Each interval was recorded as off-task if any instance of disruptive behavior or inattention occurred during any portion of the interval. Intervals with no off-task behaviors were recorded as on-task/engaged. The percentage of total intervals in which off-task behavior occurred was used to determine an approximate amount of on-task and off-task behavior for each phase.

Observations

Baseline. During the baseline phase, the primary investigator and research assistants recorded data for the previously discussed variables in the classroom. Teachers were asked to instruct and interact with students as they typically would. Once baseline data was established for each student, the intervention phase was implemented.

Noncontingent Reinforcement. Upon establishing a stable trend in baseline data, each teacher was taught to deliver NCR in the form of behavior-specific praise on a fixed-time interval. Each teacher was provided their students data with suggested intervals for NCR which were derived from average time on-task during baseline. Teachers were then asked to give input as to what they felt would be an acceptable and natural rate of NCR. Mr. Madison felt the 1.5-minute interval presented would be acceptable, while Mrs. Buchanan and Mrs. Polk felt 2 minutes felt more appropriate. Teachers were instructed to give behavior-specific praise for achievement, prosocial behavior, and following group rules (Madsen et al.1968; Appendix G). Teachers were given a list of specific phrases that they could use with students such as, “I like the way you quietly working.” and “Thank you for raising your hand.”. Additionally, teachers were encouraged to modulate tone of voice and expression and to use individual student’s names as often as possible. During the intervention phase, teachers were asked to ignore all disruptive behavior unless there was a severe danger to the target student or a peer.

Teacher Intervention Integrity

In this study, two key variables were measured to determine the procedural integrity of the intervention: that praise statements were delivered in an appropriate window of the target fixed interval and that teachers refrained from reprimanding during

the intervention condition. Teachers were considered accurate if the delivery occurred within two intervals of the target interval. These were calculated after each observation as a percentage of intervals on target. Second, during intervention, observers were to record any interval in which a reprimand was directed to the student participant.

CHAPTER IV

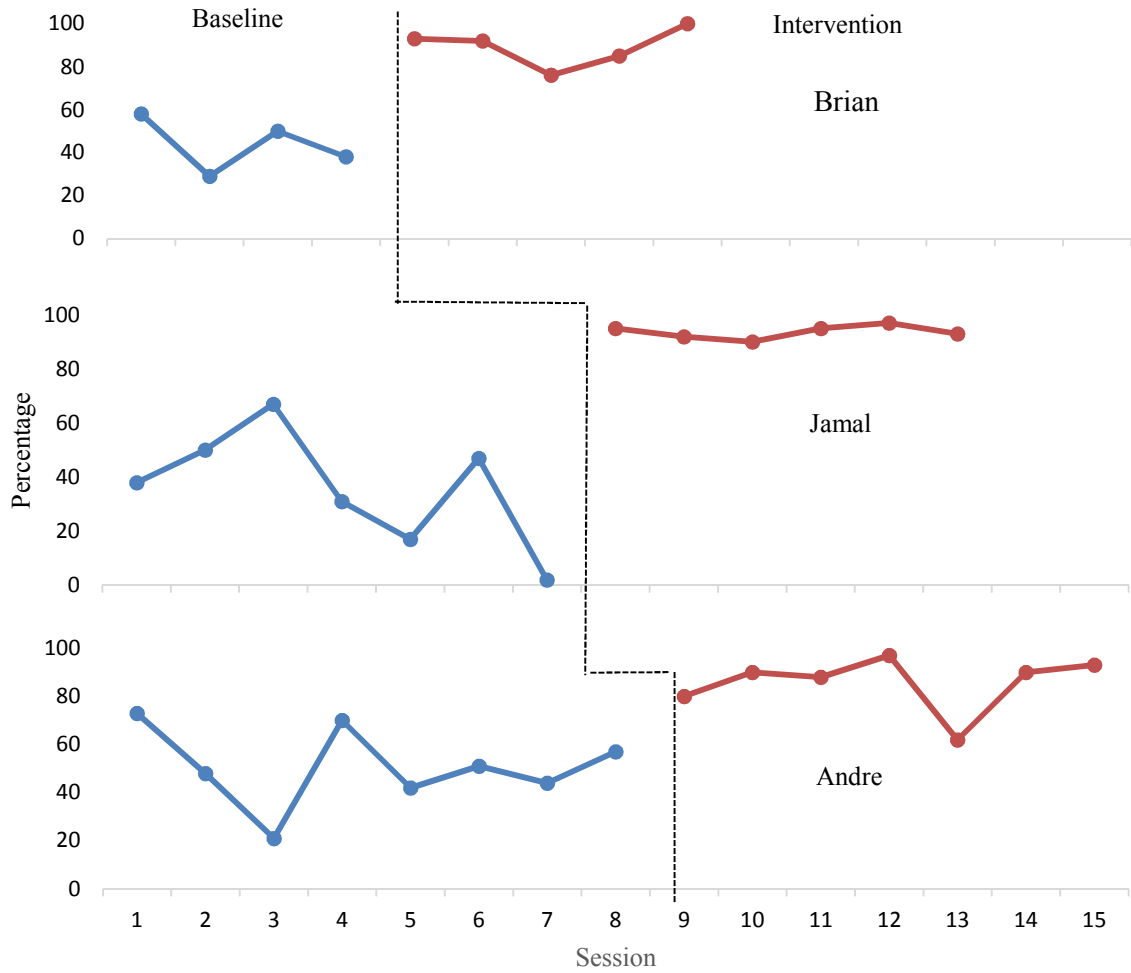
RESULTS

This study sought to answer the following questions; (1) what is the average number of intervals in which reprimands occur; (2) when implementing noncontingent praise, what is the average number of intervals in which praise occurs; (3) do reprimands increase on-task behavior; (4), does noncontingent praise increase on-task behavior, (5) which approach is more efficient at increasing the number of intervals each student is on-task?

Table 2 includes observation wide data across sessions for all three students. Figure 1 displays the percentage of intervals during baseline and phases that each student was observed to be on-task. Visual analysis indicates that the delivery of praise was effective at increasing on-task behavior for all three students.

Student	Percent on-task		Time on-task (minutes)		Average Intervals Providing	
	Reprimands	Praise	Reprimands	Praise	Reprimands	Praise
Brian	43.75%	89.3%	6.56	13.35	4.75	9.8
Jamal	36%	93.67%	5.4	14.05	.71	7.5
Andre	50.75%	85.71%	7.61	12.86	775	7.86

Figure 1: Percent On-Task



Brian

During baseline Brian was on-task an average of 43.75%, or 6.56 minutes, of observed intervals. Brian was reprimanded for disruptive behavior during 19 intervals over 4 baseline sessions. This is an average of 4.75 reprimanded intervals per session. Brian was not praised during baseline.

The intervention phase for Brian began on the 5th session. During the intervention phase praise was delivered to Brian every 1.5 minutes over the 15-minute observation.

Brian was observed to be on-task for an average of 89.2%, or 13.35 minutes, of observed intervals during the intervention sessions. Brian's average observed on-task behavior during the intervention phase increased by 6.85 minutes over baseline. Brian was praised an average of 9.8 intervals per intervention session.

Jamal

During baseline Jamal was on-task an average of 36%, or 5.4 minutes, of observed intervals. Jamal was reprimanded for disruptive behavior during 5 intervals over 7 baseline sessions. This is an average of .71 reprimanded intervals per baseline session. Jamal was not praised during baseline.

The intervention phase for Jamal began on the 8th session. During the intervention phase praise was delivered to Jamal every 2 minutes over the 15-minute observation. Jamal was observed to be on-task for an average 93.67%, or 14.05 minutes, during the intervention sessions. Jamal's average observed on-task behavior during the intervention phase increased by 9.01 minutes over baseline. Jamal was praised an average of 7.5 intervals per intervention session.

Andre

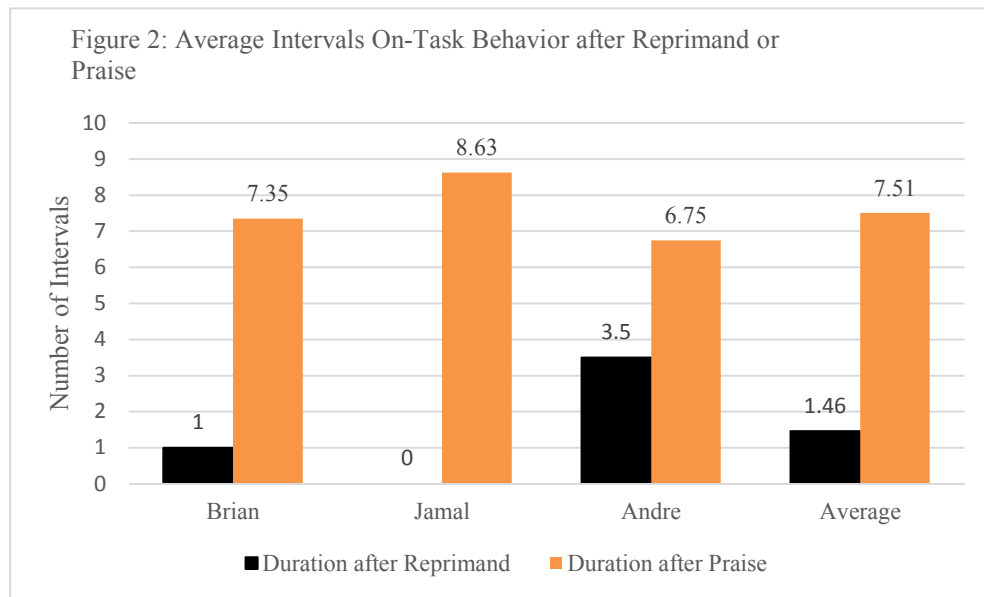
During baseline Andre was on-task an average of 50.75%, or 7.61 minutes, of observed intervals. Andre was reprimanded for disruptive behavior during 6 intervals over 8 baseline sessions for an average of .75 reprimanded intervals per session. Andre was not praised during baseline.

The intervention phase for Andre began on the 9th session. During the intervention phase praise was delivered to Andre every 2 minutes over the 15-minute observation. Andre was observed to be on-task for an average 85.71%, or 12.86 minutes, of observed intervals during the intervention sessions. Andre's average observed on-task

behavior during the intervention phase increased by 5.2 minutes over baseline. Andre was praised an average of 7.86 intervals per session.

It should be noted that fidelity decreased noticeably during the 5th intervention session. During this session most praise statements were directed toward Andre's table group rather than him specifically. Additionally, Mrs. Polk reprimanded during two intervals. It is likely this resulted in Andre's on-task behavior dropping to near baseline level. A brief training session with Mrs. Polk was conducted and the following sessions were conducting with integrity.

Intervals On-Task After Reprimand or Praise



To evaluate the effectiveness of reprimands and praise at increasing time on-task, the average number of intervals each student was on-task following either a reprimand or praise statement was calculated. This average was calculated by recording the number of intervals that occurred between the delivery of a reprimand or praise statement and the next interval in which the student was observed to be off task. These intervals were then

averaged by dividing the number of intervals by the number of praise statements or reprimands. Intervals that included the reprimand statement were excluded from this calculation. The rationale for this was that reprimands occurred during off task behavior for all students. The calculation for praise included the interval in which the praise statement occurred, provided the student was on-task during the entire interval.

Table 3 provides a summary of the average number of intervals occurring after reprimands and during and after praise; the average intervals each student was on-task after reprimands and praise; and finally an average increase between reprimands and praise in on-task behavior.

Reprimands were ineffective at increasing the average time on-task for either Brian or Jamal, and marginally effective for Andre. Time on-task after praise statements were increased for all three students. For Jamal, reprimands never changed behavior and the non-instructional time spent delivering these reprimands was effectively lost. Brian's on-task behavior increased by an average of one interval after a reprimand. The number of intervals on-task after a reprimand was relatively higher for Andre who was observed to be on-task for an average of 3.5 intervals.

Data from the delivery of praise statements suggest that it is a more effective method at increasing the duration each student was on-task. Brian increased by about 6.4 intervals; Jamal demonstrated the largest increase of about 8.6 intervals; while Andre's increase of 3.3 intervals was still almost double the average number of intervals on-task after a reprimand. While the time spent providing these statements does come at an increased cost, one must also take into account that the current reinforcement schedule is intentionally dense and would be faded over time. Additionally, the probability that each

type of statement changes behavior must be calculated as any interval either method does not elicit change is lost instructional time.

Student	Average Intervals After:		Average increase
	Reprimands	Praise	
Brian	1	7.35	6.35
Jamal	0	8.63	8.63
Andre	3.5	6.75	3.25
Average	1.46	7.51	6.05

Probability of On-Task Behavior After Reprimand or Praise

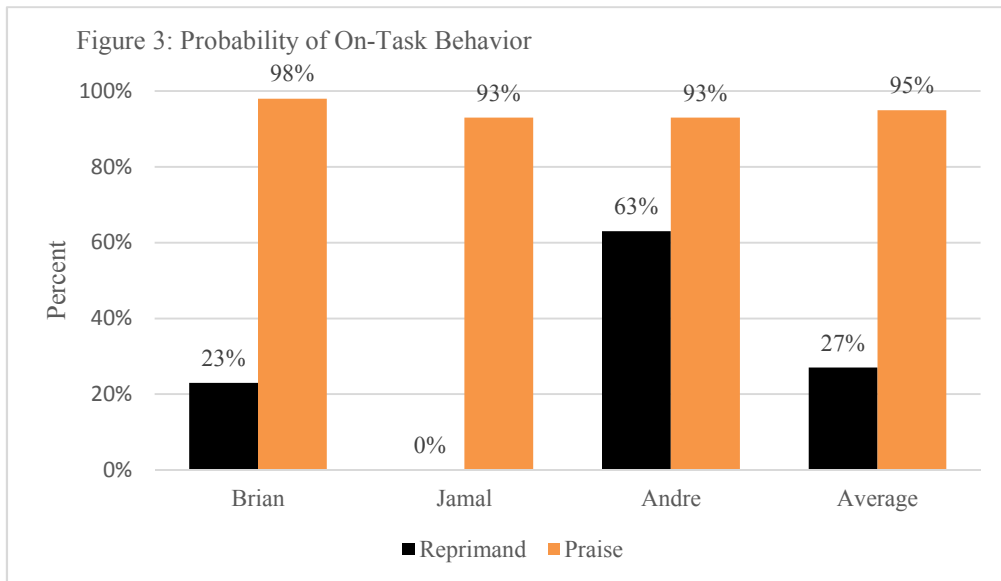
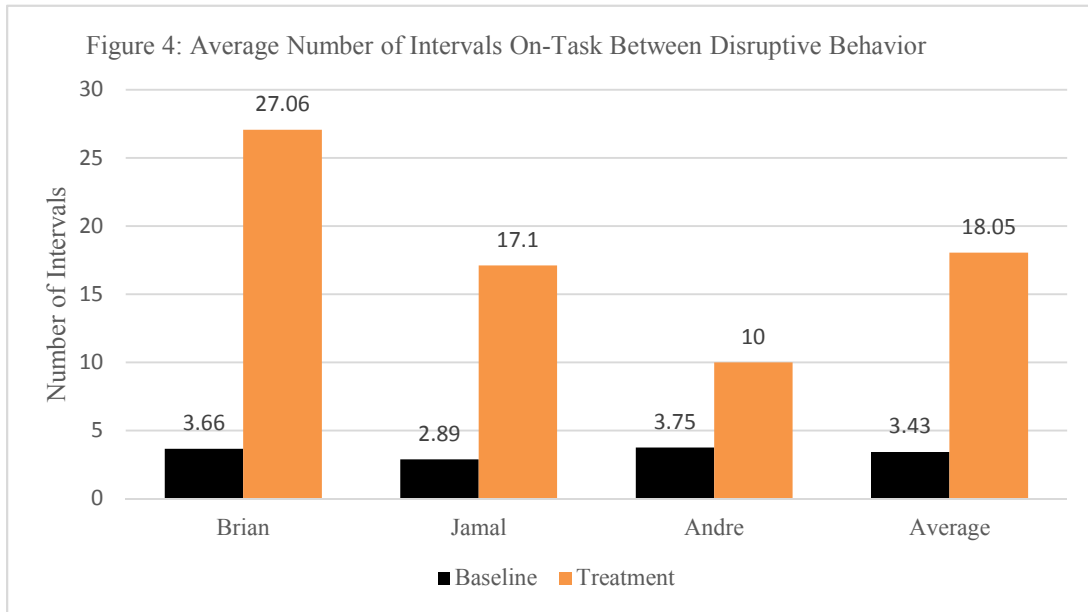


Figure 3 represents the probability of on-task behavior is on-task after the delivery of reprimand or praise. This was calculated by examining whether each student was on-task in the interval immediately after the delivery of a reprimand or praise statement and dividing by the number of reprimands or praise statements. Following the delivery of a reprimand Brian, Jamal, and Andres were 23%, 0%, and 63% likely to be on-task during the next interval respectively. Overall all three students had a 28% probability of being

on-task after a reprimand. Utilizing a praise statement increased the likelihood of on-task behavior for all students. Brian increased from 23% to 98%, Jamal 0% to 93%, and Andre from 63% to 93%. The average probability for all students increased from 28% to 95%.

When examining the probability of behavioral change (figure 2) for each student, reprimands were ineffective Jamal (0%), rarely effective for Brian (23%), and occasionally effective for Andre (63%). Essentially, even when most effective, reprimands elicited behavioral change a little more than half the time. Conversely, the probability that praise elicited behavior change is substantially more probable for all three students. For Jamal praise statements were 98% likely to be followed by an interval in which they were on-task, while Brian and Andre were 93% likely to be on-task. This data suggests that the increased cost in instructional time offset by the probability in which behaviors are changed. Any time spent reprimanding Jamal was ineffective, 77% of the time it was ineffective for Brian, and 27% of the time it was ineffective for on Andre. Conversely, this data suggests that time spent providing praise was rarely ineffective at increasing on-task behavior.

Average Number of Intervals On-Task between Disruptive Behavior



Determining the duration and probability of on-task behavior after the delivery of a reprimand or praise statement informs how these statements change behaviors in the periods after their delivery. Another important analysis is to determine how these respective statements increase the duration of on-task before the student engages in disruptive behavior. Figure 4 represents the average time each student was on-task between instances of disruptive behavior during baseline and the intervention phases. This was calculated by totaling the number of intervals each student was observed to be on-task between instances of disruptive behavior and then dividing by the total number occurrences of on-task behavior for each student. The number of intervals in which the subjects were on-task ranged from 2.89 to 3.75 during baseline. When provided noncontingent praise each students' ability to stay on-task increased markedly. Brian increased by 23.4 intervals; Jamal increased by 14.20 intervals; and Andre increased by 6.25 intervals. The average increase for all three subjects 14.62 intervals.

Student	Baseline	Intervention	Increase
Brian	3.66	27.06	23.4
Jamal	2.89	17.09	14.20
Andre	3.75	10	6.25
Average	3.43	18.05	14.62

Increase in On-Task Behavior Per Interval of Praise

Student	Average Number of Intervals Providing		Amount of Increase	Average Intervals On-Task Increase	Interval On-Task Increase Per Interval of Praise
	Reprimands	Praise			
Brian	4.75	9.8	5	41	8.2
Jamal	.71	7.5	6.79	54	7.95
Andre	.75	7.86	7.11	32	4.5

As previously discussed, implementing noncontingent praise has a cost in instructional time. These brief pauses in instruction can impact the flow and reduce the amount of information communicated during the lesson. In order to justify these pauses in instruction there must be a meaningful impact on student behavior. To determine this impact, the increase in number of intervals on-task in regard to intervals required to deliver praise was examined. First the average number of intervals spent providing reprimands was subtracted from the average number of intervals spent providing praise to provide the increase in additional instructional time to require for each teacher to implement the intervention. Next the number of intervals on-task each student increased by was divided but the number of intervals providing praise. This provides a calculation of the impact of implementation of praise statements at intervals on-task. For Brian and Jamal, on average, each second spent providing praise resulted in an increase of 8.2 and 7.95 intervals of on-task behavior. The impact for Andre was somewhat smaller at 4.5

intervals per interval of praise. However, even if Andre's increase seems modest in comparison to Brian and Jamal, the increased amount of intervals on-task was still 4 times more than what was required of the teacher to provide praise. It is again also important to note that these calculations are based on the number of intervals in which a praise statement were delivered. The emphasis during training was for the teacher to provide a brief 3-5 second praise statement and the actual time spent praising was likely lower for each student. Provided more precise measure of the duration of praise, the per second increase would be even higher.

Teacher Acceptability

To assess the acceptability of the intervention each teacher completed the Intervention Rating Profile 15 (Witt & Martens, 1983). This 15 item questionnaire provides a standardized measure by which determine the extent to which teachers fee the intervention was acceptable. Teacher ratings are provided in table 7 below. In regards to overall acceptability, Mrs. Buchanan and Mrs. Polk rated that they agreed to slightly agreed that the intervention was acceptable. Mr. Madison disagreed that this intervention was acceptable overall. One possible explanation is the frequency with which praise was delivered. Mr. Madison provided praise to Brian every 1.5 minutes, while Mrs. Buchanan and Polk provided praise every 2 minutes. However, it is also important to note that these intervals were selected based on teacher input during the functional assessment. The most consistent rating was on the perceived severity of student behavior. Each rater indicated that their respective student was did warrant the implementation of the intervention. The degree to which the intervention was acceptable however varied with Mrs. Buchanan and Mrs. Polk finding it agreeable, while Mr. Madison again disagreed with acceptability.

Table 6: Intervention Rating Profile (IRP-15) Teacher Data	Madison	Buchanan	Polk	Average per Item
1. This would be an acceptable intervention for the child's behavior problem.	2	5	4	3.67
2. Most teachers would find this intervention appropriate for behavior problems in addition to the one described.	3	5	4	4.00
3. This intervention would prove effective in changing the child's problem behavior.	3	4	4	3.67
4. I would suggest the use of this intervention to other teachers.	2	5	5	4.00
5. The child's behavior problem is sever enough to warrant the use of this intervention	5	6	5	5.33
6. Most teachers would find this intervention suitable for the behavior problem described	3	5	5	4.33
7. I would be willing to use this intervention in the classroom setting.	2	5	5	4.00
8. This intervention would <i>not</i> result in negative side-effects for the child.	4	6	3	4.33
9. This intervention would be appropriate for a variety of children.	4	6	4	4.67
10. This intervention is consistent with those I have used in the classroom setting.	3	4	5	4.00
11. This intervention was a fair way to handle he child's problem behavior.	2	5	4	3.67
12. The intervention is reasonable for the behavior problem described.	2	5	4	3.67
13. I liked the procedures used in this intervention.	2	5	4	3.67
14. This intervention was a good way to handle this child's behavior problem.	2	5	4	3.67
15. Overall, this intervention would be beneficial for the child.	2	5	5	4.00
Teacher Average	2.73	5.07	4.33	4.04
Ratings: 1) Strongly Disagree; 2) Disagree; 3) Slightly Disagree; 4) Slightly Agree; 5) Agree; 6) Strongly Agree	Disagree	Agree	Slightly Agree	Slightly Agree

Summary

The purpose of this study was to evaluate the efficiency of reprimands and praise statements at increasing on-task behavior. A visual analysis indicates that the intervention condition was more effective at increasing of the total percentage of intervals each student was on-task. One interesting artifact of this study is the discrepancy between teacher self-report of the frequency of reprimands during the functional assessment and the observed rates of reprimands during baseline. The observed rates of reprimands were

lower than reported which led to the average number of intervals in which praise statements occurred to be considerably higher for Jamal and Andre and about twice as high for Brian. This cost in instructional time is undeniably a concern for teachers when deciding which approach to utilize. However, when average number of intervals each student was on-task, the probability of on-task behavior, and average number of intervals between disruptive behavior after a reprimand or a praise statement are considered, a more complete picture emerges. These data support utilizing noncontingent praise as a more effective, reliable, and efficient method of eliciting behavioral change.

For this study, efficiency was measured by calculating the average number of intervals each student was on-task after the delivery of a reprimand or praise statement. Average number of intervals on-task increased for all students during the intervention condition. Brian and Jamal responded with substantial increases of the number of intervals time on-task, while the number of intervals Andre was on-task almost doubled. This analysis also indicates that reprimands were ineffective for Jamal, marginally effective for Brian, and somewhat effective for Andre at increasing on-task behavior.

When evaluating the probability that each student would be on-task during the entire interval after the delivery of a reprimand or praise statement, a similar pattern emerges. Again, the results indicate that reprimands were ineffective for Brian and Jamal, and occasionally effective for Andre. Even if Andre's probability is singled out, a reprimand statement was only effective a little more than half of time. This means that in the context of this study, half of the time, reprimands are wasted instructional time. In contrast the probability of on-task behavior in the intervention condition was above 90% for all three students.

When considering the average intervals that each student was on-task between instances of disruptive behavior, the delivery of praise is again more effective. The average number of intervals between disruptive behavior was similar for all the students in baseline with an average of about 3.4 intervals. During the intervention condition this duration increased considerably to an average of 18 intervals. This is useful in demonstrating that although Brian, Jamal, and Andre responded similarly in regards to average time on-task (figure 1), the average duration between disruptive behavior across those observations were more varied. For example, Brian, who responded with the second highest percentage of on-task behavior across sessions, demonstrated the largest increase in average intervals of on-task behavior, with more than 10 intervals more than Jamal and 17 intervals over Andre. These data can potentially help inform when and to what extent to begin fading rates of praise.

CHAPTER V

DISCUSSION

Time is one of the most important resources in the classroom and has been demonstrated to be among the most consistent predictors of educational success (Walberg 1984). Teachers must strike a balance between providing sufficient opportunities to learn and maintaining appropriate classroom behavior (Gettinger & Seibert, 2002). In the classroom, disruptive behavior reduces instructional time in the classroom in two ways. First, the student is not actively engaged in learning the educational material, which impacts learning rates and overall academic achievement. Second, if the teacher responds to the disruptive student behavior, then the teacher is pausing the presentation of academic information which can impact the academic achievement of multiple students.

This study sought to determine whether reprimands or noncontingent praise are more efficient at increasing on-task behavior. To explore this topic, the data was analyzed with five questions in mind: (1) What is the average number of intervals per observation in which reprimands occur? (2) When implementing noncontingent praise, what is the average number of intervals per observation in which praise occurs? (3) Do reprimands increase on-task behavior? (4) Does noncontingent praise increase on-task behavior? And (5) Which approach is more efficient at increasing on-task behavior?

Research Questions One and Two

The first step in examining the efficiency of praise and reprimand statements at eliciting behavior change is to calculate the average number of intervals in which reprimands or praise statements occurred. Surprisingly, baseline rates of reprimands were lower than what was expected, given what was described by teachers during initial interviews. When identifying participants for this study, teachers were asked to identify students that they felt they spent the most time trying to redirect. Each participant was described as one that frequently needs redirection. While baseline measurements of the time students were on-task is clearly reflective of the reported teacher behavioral concerns, attempts to redirect were infrequent. Brian was most likely to be reprimanded during baseline, yet received fewer than five reprimands per session. This number is somewhat skewed however, as more than half of the reprimands occurred during the first baseline session. Jamal was reprimanded for a total of 5 intervals during 7 baseline sessions for an average of .71 intervals per session. Andre were reprimanded for a total of 6 intervals during 8 baseline sessions, for an average of .75 intervals per session. It should be noted that there were entire baseline observation sessions for Jamal and Andre in which zero reprimands were observed. This result could be attributed to teacher over-reporting of reprimanding or reactivity to observation effects.

When considering the number of intervals in which praise statements occurred, the time spent delivering praise statements unquestionably outweighs that of reprimands. During the intervention phase, Brian received an average of 9.8 praise statements per session, Jamal received an average of 7.5 praise statements per session, and Andre received an average of 7.86 praise statements per. Observed rates were impacted by the

protocol which called for intentionally dense rates of praise to increase on-task behavior. Schedules of noncontingent praise were derived from the average time each student was on-task during baseline as well intervals at which each teacher felt would not be unnecessarily disruptive to instruction. Brian had the densest schedule of praise statements with a fixed-interval of 1.5 minutes per observation, while Jamal and Andre had slightly less dense schedules at a fixed-interval of 2 minutes.

Research Question Three and Four

While an estimated length of time spent correcting student behavior is important, one must also consider if the time spent engaging in a reprimand or praise statement results in meaningful behavioral change. Time spent providing either statement is, quite simply, wasted if it does not result in the desired change of behavior.

Measuring the intervals of on-task across the observed sessions is a good, broad indicator of the effectiveness of reprimands and noncontingent praise statements. In order to determine if reprimands resulted in on-task behavior, observation data was taken during baseline where reprimands were allowed to occur in the natural environment. Results indicated that Brian was on-task for 43.75% of the observed intervals, Jamal for 36% of the observed intervals, and Andre for 50.75% of the observed intervals. Across all three students, this resulted in 43.5% of intervals measured on-task. Even though the use of reprimands was low, even Brian, for whom the most reprimands were used, displayed low rates of on-task behavior during baseline.

Conversely, during the intervention phase where praise statements were delivered, all three students showed significant increases in on-task behavior that remained stable throughout the intervention phase. Brian's on-task behavior increased from 43.75% of

intervals at baseline to 89.3% of intervals during intervention. Jamal's on-task behavior increased from 36% of intervals at baseline to 93.67% of intervals during intervention. Andre's on-task behavior increased from 50.75% of intervals at baseline to 85.75% of intervals during intervention. Across all three participants, an increase from 43.5% of intervals at baseline to 89.56% of intervals during intervention was observed. During the intervention condition, the number of intervals Jamal was on-task was more than double his baseline rate, while Brian and Andre increased by approximately, 45% and 35%, respectively. These results indicate that using praise statements does result in an overall substantial increase on-task behavior. Additionally, had fading been implemented, it would be expected that the time on-task would be consistent while the cost in instructional time would decrease. Continued use of praise statements would likely result in continued time on-task, and thus improve educational outcomes for these students.

From a probability standpoint, praise statements were more likely to be followed by at least 1 interval of on-task behavior than were reprimands. Data for on-task behavior following reprimands between the students ranged from 0% to 63%, with an overall average of 27%. This suggests that, at best, reprimands were only successful a little more than half the time in producing desired behavior. Probability data from reprimands could be useful in increasing teacher acceptability during the initial stages of intervention implementation. Being able to show a teacher that only 27% of his/her reprimands actually result in the desired outcome is hard for an educational professional to ignore. On average, praise statements were followed by at least 1 interval of on-task behavior 95% of the time. Praise statements had the highest probability of an interval of on-task behavior for Brian at 98%, while Jamal and Andre both had a 93% probability.

This equates to a total of 1, 3 and 4 of intervals off-task following a praise statement for Brian, Jamal, and Andre respectively.

In addition to examining the data as described above, it is also important to examine how the number of intervals between disruptive behaviors was affected by the delivery a reprimand or praise statement. The data indicated that during baseline, the students were on-task and average of 3.4 intervals. However, during the intervention phase, the average number of intervals in which students were on-task before disruptive behavior was displayed increased to 18.05 intervals. The results indicate that praise statements not only increased the duration of time that students are on-task after a praise statement but additionally, these praise statements increased the average amount of time between instances of disruptive behavior over the course of the session. Additionally, examining the approximate number of intervals between disruptive behaviors gives a more complete picture than simply reporting the average number of intervals on-task across the entire session. This data can be useful in informing the rate at which fading noncontingent praise can occur.

Research Question Five

The primary purpose of this study was to examine whether reprimands or praise statements are a more efficient use of instructional time to reduce disruptive behavior. It was hypothesized that praise statements would be a more efficient method to increase time on-task and reduce disruptive behavior. It was determined the best way to measure the impact of reprimands and praise statements from an efficiency standpoint would be to examine the number of intervals that each student was on-task after the delivery of the respective statements. For Brian and Jamal, reprimands did not result in any meaningful

change in on-task behavior; while Andre's on-task behavior increased for an average of 3.5 intervals. During the intervention phase, however, each student demonstrated marked increase in the average number of intervals on-task after the delivery of noncontingent praise. The average intervals on-task across all three students between baseline and intervention was increased to 6.05, suggesting that praise statements were more effective than reprimands or other behavior in the natural environment.

Not only did praise statements significantly improve time on-task, it is also important to note the probability of change in regards to this analysis. Praise statements showed a higher probability for immediate behavior change (at least one interval of on-task behavior) than did reprimands. For example, even though Andre's on-task behavior increased after reprimands, reprimands only worked a little more than half the time. Conversely, the probability for immediate change in behavior to on-task was 93% after a praise statement, and was therefore much more effective. Indeed, the probability for change to on-task behavior after a praise statement was above 90% for all three students. Not only are praise statements more likely to work, they result in longer intervals of on-task behavior after their delivery. Therefore, data from this study suggests that praise statements are more effective than reprimands for increasing on-task behavior, which has tremendous potential for improving student outcomes.

Although interventions can be effective, there can be resistance to their implementation. Intervention acceptability can be impacted by access to trained personnel, materials, and time (Witt & Elliot, 1982). For the purpose of this study, time to implement the intervention is of particular interest. While the total cost to implement NCR is higher than that of reprimands, two of the three teachers found the intervention to

be appropriate as measured by the IRP-15. Although Mr. Madison indicated his student's behavior was severe enough to warrant the intervention, he did not feel it was appropriate. It is important to note that these lower rating could be due to the shorter intervals at which he provided NCR to Brian. It is also important to consider that Mrs. Polk continued to implement the intervention after the study was complete and indicated she was planning on trying it with other students during other portions of the day.

Limitations

There are several variables that may impact the generalizability of this study. These limitations include: demographics information, the setting of the study, and data collection.

First, there are several demographic variables that may limit the generalizability of this study. All participants were selected from a single school in the south central United States. While each of the three students identified with different racial and cultural backgrounds, the individual student's behaviors may not be indicative of other students with similar racial or cultural backgrounds. Similarly, as all teachers have at least 5 years of teaching experience, these data may not generalize to new or early career teachers. Attempts to identify female participants for this study were unsuccessful, and the resultant male participants may not adequately represent the behavior of female students. Additionally, all students selected for this study were second-graders who were making adequate progress academically and served in the general education setting. Students who are struggling academically may have differing rates of on-task behavior that could be maintained by attention or escape.

A second limitation is that this study only focused on students that exhibited behavior that was maintained by attention. It is unknown what effect praise and reprimands would have on behavior that is maintained by other functions such as escape.

Finally, there are some methodological limitations in data collection. The chosen method of interval recording, while having better inter-rater reliability than duration recording, is an estimation of behavior and may have over- or under-estimated behavior. Shorter intervals were considered, however, due to the number of variables being tracked, these short variables resulted in increased variability and concerns with inter-rater reliability. As with any formal interval recording, there is time lost while the rater records the behaviors during and after an interval. Observing teachers before informing them of the intent of the study could have allowed for the observations of the more natural rates of reprimanding. It is also possible that there may have been different results during the intervention session had reprimands been allowed.

Implications

Data from this study highlights the advantage of noncontingent praise over that of reprimands. When examining student behavior by estimating increases of intervals on-task, approximate average number of intervals between disruptive behaviors, probability of change, and approximate number of intervals on-task after delivery of a statement, noncontingent praise was more effective in all metrics. While the delivery of praise has its own cost in instructional time, the results it produces in terms of on-task behavior outweighs the time required on the part of the teacher, particularly if a thinning procedure is employed.

From a consultation standpoint, data from this study could be helpful in increasing the acceptability of student-specific behavioral interventions. Two of the three teachers “slightly agreed” to “agreed” that this would be an acceptable intervention. More importantly, perhaps, is that Mrs. Polk asked if it would be acceptable to keep running the intervention with Jamal, as she, the student, and the parent had all reported approval of the intervention, and reports of Andre having great days during the course of the study.

If interventions were selected on the basis of time of implementation alone, reprimands would certainly be less demanding in terms of instructional time. However, time to implement says little about the effectiveness of either type of statement. This study examined only those praise statements directed to the participant of the study. Multiple reprimands were delivered to other students during baseline, and one teacher, Mrs. Buchanan made frequent use of class wide reprimands such as “I will wait for you all to be quiet”. Additionally, the number of intervals in which either statement occurs is imprecise and is likely overestimating the amount of time spent engaged in each type of statement. Anecdotally, most praise statements were 3-5 seconds, while reprimands were more varied in duration.

Despite this relatively low probability of behavioral change, reprimands were still the favored method to attempt behavior change during baseline. In fact, teachers relied solely on reprimands with zero praise statements observed during baseline. Much in the same way people will continue to put money in a slot machine with the eventual expectation of payout, it is possible that even this low probability of change is maintained by intermediate reinforcement in the form of student compliance. However, data

obtained during this study does not suggest a correlation between the probability of behavior change to the frequency at which reprimands were provided. For example, of the 5 times Jamal was reprimanded during baseline, none of these resulted in on-task behavior during the next interval. Conversely, Andre was reprimanded 6 times, and behavior improved during about 66% of the time.

Suggestions for Future Research

This study sought to examine the efficiency of reprimands and noncontingent reinforcement by reducing disruptive behavior. The methodology for this study examined specific student-teacher dyads and measured effectiveness by monitoring time on-task. Analyzing the impact of this intervention on other students in the classroom could potentially further inform the efficiency of the intervention.

The current study sought to utilize antecedent-based interventions as they are the easiest to implement and require less direct focus on student behavior than consequence-based interventions, such as differential reinforcement. While cost in instructional time could potentially be harder to define and observe, there are instances in which contingency- or consequence-based interventions are better fit the setting or behavior, such as establishing hand raising as an appropriate means to obtain attention. Data from both types of intervention could better inform a cost-benefit analysis and intervention selection.

Summary

The current study supports the existing literature on the effectiveness of noncontingent praise at reducing disruptive behavior (Wilder & Car, 1998, McComas, Thompson, & Johnson, 2003; Roantree & Kennedy, 2006; Riley, McKevitt, Shriver, &

Allen, 2011; Banda & Sokolosky, 2012). This study adds an additional dimension to the existing research in that it provides an examination of the efficiency of noncontingent praise.

Overall, data from the current study indicates that the delivery of praise more effective than the utilization of reprimands. As with any intervention, the amount of time required to implement noncontingent praise with fidelity must be taken into consideration. On the surface, the time necessary to implement noncontingent praise would appear to be a potential barrier to implementation. However, the time spent providing praise resulted in a dramatic increase in on-task behavior for each student across a variety of metrics. Even when most efficient in terms of time spent, the utilization of reprimands demonstrated inferior outcomes.

REFERENCES

- Allen, K. E., Henke, L. B., Harris, F. R., Baer, D. M., & Reynolds, N. J. (1967). Control of hyperactivity by social reinforcement of attending behavior. *Journal Of Educational Psychology*, 58(4), 231-237. doi:10.1037/h0024905
- Austin, J. L. and Soeda, J. M. (2008). FIXED-TIME TEACHER ATTENTION TO DECREASE OFF-TASK BEHAVIORS OF TYPICALLY DEVELOPING THIRD GRADERS. *Journal of Applied Behavior Analysis*, 41, 279–283. doi:10.1901/jaba.2008.41-279
- Banda, D. R., & Sokolosky, S. (2012). Effectiveness of Noncontingent Attention to Decrease Attention-Maintained Disruptive Behaviors in the General Education Classroom. *Child & Family Behavior Therapy*, 34(2), 130-140. doi:10.1080/07317107.2012.684646
- Barkley, R. A. (2014). *Attention-Deficit Hyperactivity Disorder: A Handbook for Diagnosis and Treatment*, Ed (4th ed.), New York: The Guilford Press.
- Barkley, R. A. (2015). Emotional dysregulation is a core component of ADHD. In R. A. Barkley (Ed.), *Attention-deficit hyperactivity disorder: A handbook for diagnosis and treatment* (pp. 81-115). New York, NY, US: The Guilford Press

- Broussard, C. & Northup, J. (1997). The use of functional analysis to develop peer interventions for disruptive classroom behavior. *School Psychology Quarterly, 12*, 65-76
- Barnett, D., Hawkins, R., McCoy, D., Wahl, E., Shier, A. Denuune, H., Kimener, L. (2014). Methods Used to Document Procedural Fidelity in School-Based Intervention Research. *Journal of Behavioral Education, 23*(1), 89-107.
- Beaman, R., & Wheldall, K. (2000). Teacher's use of approval and disapproval in the classroom. *Educational Psychology, 20*, 431-446.
- Broussard, C. D., & Northup, J. (1995). An approach to functional assessment and analysis of disruptive behavior in regular education classrooms. *School Psychology Quarterly, 10*(2), 151-164. doi:10.1037/h0088301
- Brown, B., & Saks, D. (1986). Measuring the Effects of Instructional Time on Student Learning: Evidence from the Beginning Teacher Evaluation Study. *American Journal of Education, 94*(4), 480-500. Retrieved from <http://www.jstor.org/stable/1085338>
- Burden, P. (2006). Classroom management: creating a successful K-12 learning community (3rd ed.). Hoboken, NJ: Wiley.
- Cadima, J., Doumen, S., Verschueren, K., & Buyse, E. (2015). Child engagement in the transition to school: Contributions of self-regulation, teacher–child relationships and classroom climate. *Early Childhood Research Quarterly, 32*1-12. doi:10.1016/j.ecresq.2015.01.008

- Carr, J. E., Bailey, J. S., Ecott, C. L., Lucker, K. D., & Weil, T. M. (1998). On the effects of noncontingent delivery of differing magnitudes of reinforcement. *Journal of Applied Behavior Analysis, 31*(3), 313–321. <http://doi.org/10.1901/jaba.1998.31-313>
- Carr, J. E., Coriaty, S., Wilder, D. A., Gaunt, B. T. Dozier, C. L., Britton, L. N., Avina, C., & Reed, C. L. (2000). A review of “noncontingent” reinforcement as treatment for the aberrant behavior of individuals with developmental disabilities. *Research in Developmental Disabilities, 21*(5), 377–391.
- Carr, J. E., Kellum, K. K., & Chong, I. M. (2001). The reductive effects of noncontingent reinforcement fixed-time versus variable-time schedules. *Journal of Applied Behavior Analysis, 34*(4), 505–509. <http://doi.org/10.1901/jaba.2001.34-505>
- Carroll, J. B. (1963). A model of school learning. *Teachers College Record, 64*, 723-733.
- Carroll, J. B. (1963). A model of school learning. *Teachers College Record, 64*(8), 723-733.
- Carroll, J. (1989). The Carroll Model: A 25-Year Retrospective and Prospective View. *Educational Researcher, 18*(1), 26-31. Retrieved from <http://www.jstor.org/stable/1176007>
- Chen, C., & Ma, H. (2007). Effects of treatment on disruptive behaviors: A quantitative synthesis of single-subject researches using the PEM approach. *The Behavior Analyst Today, 8*(4), 380-397. doi:10.1037/h0100629

- Clunies-Ross, P., Little, E., & Kienhuis, M. (2008). Self-reported and actual use of proactive and reactive classroom management strategies and their relationship with teacher stress and student behaviour. *Educational Psychology, 28*, 693– 710.
- Cooper, J. O., Heron, T. E., & Heward, W. L. (2007). *Applied behavior analysis*, (2nd ed.). Upper Saddle River, N.J.: Pearson Prentice Hall.
- Dart, E. H., Radley, K. C., Battaglia, A. A., Dadakhodjaeva, K., Bates, K. E., & Wright, S. J. (2016). THE CLASSROOM PASSWORD: A CLASS-WIDE INTERVENTION TO INCREASE ACADEMIC ENGAGEMENT. *Psychology In The Schools, 53*(4), 416-431. doi:10.1002/pits.21911
- Day, S. L., Connor, C. M., & McClelland, M. M. (2015). Children's behavioral regulation and literacy: The impact of the first grade classroom environment. *Journal of School Psychology, 53*(5), 409-428.
- Elliott, Witt, Galvin, & Peterson. (1984). Acceptability of positive and reductive behavioral interventions: Factors that influence teachers' decisions. *Journal of School Psychology, 22*(4), 353-360.
- ESSA (2015). Every Student Succeeds Act of 2015, Pub. L. No. 114-95 § 114 Stat. 1177 (2015-2016).
- Embry, D. D. (2002). The Good Behavior Game: A Best Practice Candidate as a Universal Behavioral Vaccine. *Clinical Child & Family Psychology Review, 5*(4), 273-297
- Feil, E. G., Walker, H. M., & Severson, H. H. (1995). The Early Screening Project for young children with behavior problems: Research and development of the early screening project. *Journal of Emotional and Behavioral Disorders, 3*(4), 194-202.

- Finn, J., Pannozzo, G., & Voelkl, K. (1995). Disruptive and Inattentive-Withdrawn Behavior and Achievement among Fourth Graders. *The Elementary School Journal*, 95(5), 421-434. Retrieved from <http://www.jstor.org/stable/1001656>
- Fisher, W. W., Thompson, R.H., DeLeon, I.G., Piazza, C.C., Kuhn, D. E., Rodriguez-Catter, V., & Adelinis, J. D. (1999) Noncontingent reinforcement: Effects of satiation versus choice responding. *Research in Developmental Disabilities*, 20, 195-205.
- Fisher, C.W., & Berliner, D.C. (1985). *Perspectives on Instructional Time*. (Ed.) New York: Longman.
- Frederick, W. C., & Walberg, H. J. (1980). Learning as a function of time. *The Journal of Educational Research*, 73(4), 183-194.
- Gable, R. A., Hester, P. H., Rock, M. L., & Hughes, K. G. (2009). Back to basics. *Intervention in School and Clinic*, 44(4), 195-205.
doi:<http://dx.doi.org/10.1177/1053451208328831>
- Gettinger, M., & Seibert, J. K. (2002). Contributions of study skills to academic competence. *School Psychology Review*, 31(3), 350-365.
- Goh, H. L., Iwata, B. A., & DeLeon, I. G. (2000). Competition between noncontingent and contingent reinforcement schedules during response acquisition. *Journal of Applied Behavior Analysis*, 33(2), 195–205. <http://doi.org/10.1901/jaba.2000.33-195>

- Gresham, F. M. (1989). Assessment of treatment integrity in school consultation and prereferral intervention. *School Psychology Review*, 18, 37–50.
- Gresham, F. M., Gansle, K. A., & Noell, G. H. (1993a). Treatment integrity in applied behavior analysis with children. *Journal of Applied Behavior Analysis*, 26(2), 257–263. <http://doi.org/10.1901/jaba.1993.26-257>
- Gresham F. M, Gansle K. A., Noell G. H., Cohen S., Rosenblum S. (1993b). Treatment integrity of school-based behavioral intervention studies: 1980–1990. *School Psychology Review*, 22(2) 254–272.
- Gresham, F. M. (2009). Evolution of the Treatment Integrity Concept: Current Status and Future Directions. *School Psychology Review*, 38(4), 533-540.
- Grossman, H. (2004) *Classroom behavior management for diverse and inclusive schools*, (3rd ed.). Lanham, MD: Rowan and Littlefield
- Hagopian, L. P., Crockett, J. L., van Stone, M., Deleon, I. G. and Bowman, L. G. (2000). EFFECTS OF NONCONTINGENT REINFORCEMENT ON PROBLEM BEHAVIOR AND STIMULUS ENGAGEMENT: THE ROLE OF SATIATION, EXTINCTION, AND ALTERNATIVE REINFORCEMENT. *Journal of Applied Behavior Analysis*, 33: 433–449. doi:10.1901/jaba.2000.33-433
- Hagopian, L. P., Fisher, W. W., & Legacy, S. M. (1994). Schedule effects of noncontingent reinforcement on attention-maintained destructive behavior in identical quadruplets. *Journal of Applied Behavior Analysis*, 27(2), 317–325. <http://doi.org/10.1901/jaba.1994.27-317>

- Harn, B. A., Linan-Thompson, S., & Roberts, G. (2008). Intensifying instruction: Does additional instructional time make a difference for the most at-risk first graders? *Journal of Learning Disabilities, 41*(2), 115-125.
DOI: [10.1177/0022219407313586](https://doi.org/10.1177/0022219407313586)
- Henton, W. W., & Iversen, I. H. (1978). *Classical conditioning and operant conditioning: A response pattern analysis*. New York, NY: Springer.
- Herrnstein, R.J. (1970). On the law of effect. *Journal of the Experimental Analysis of Behavior, 13*, 243–66.
- Holden, B. (2005) Noncontingent Reinforcement. An Introduction. *European Journal Of Behavior Analysis, 6*(1), 1-8
- Horner, R. H. (1994). Functional assessment: Contributions and future directions. *Journal of Applied Behavior Analysis, 27*(2), 401–404.
<http://doi.org/10.1901/jaba.1994.27-401>
- Individuals with Disabilities Education Improvement Act (IDEA) of 2004, PL 108-446,
20 USC §§ 1400 *et seq*
- Iversen, I. H. (2005). Basic research, application, ethics, and recommendations regarding non-contingent reinforcement procedures. *European Journal of Behavior Analysis, 6*(1), 83-88.
- Iwata, B. A., Dorsey, M. F., Slifer, K. J., Bauman, K. E., & Richman, G. S. (1994). Toward a functional analysis of self-injury. *Journal of Applied Behavior Analysis, 27*(2), 197–209. <http://doi.org/10.1901/jaba.1994.27-197>

- Jenkins, L. N., Floress, M. T., & Reinke, W. (2015). RATES AND TYPES OF TEACHER PRAISE: A REVIEW AND FUTURE DIRECTIONS. *Psychology In The Schools, 52*(5), 463-476. doi:10.1002/pits.21835
- Jez, S. J., & Wassmer, R. W. (2015). The impact of learning time on academic achievement. *Education and Urban Society, 47*, 284–306.
- Jones, K. M., Drew, H. A., & Weber, N. L. (2000). Noncontingent peer attention as treatment for disruptive classroom behavior. *Journal of Applied Behavior Analysis, 33*(3), 343–346. <http://doi.org/10.1901/jaba.2000.33-343>
- Kazdin, A. E. (1980). Acceptability of alternative treatments for deviant child behavior. *Journal of Applied Behavior Analysis, 13*, 259–273.
- Kazdin, A. E. (1982). Symptom substitution, generalization, and response covariation: Implications for psychotherapy outcome. *Psychological Bulletin, 91*(2), 349-365
- Kahng, S. W., Iwata, B. A., DeLeon, I. G., & Wallace, M. D. (2000). A comparison of procedures for programming noncontingent reinforcement schedules. *Journal of Applied Behavior Analysis, 33*(2), 223–231. <http://doi.org/10.1901/jaba.2000.33-223>
- Kehle, T. J., Bray, M. A., Theodore, L. A., Zheng, Z., & McCoach, D. B. (2004). Emotional disturbance/social maladjustment: Why is the incidence increasing?. *Psychology In The Schools, 41*(8), 861-865. doi:10.1002/pits.20042
- Kerr, M.M., & Nelson, C.M. (2006). *Strategies for addressing behavior problems in the classroom*. (5th ed.) Upper Saddle River, NJ: Pearson Education, Inc.
- Kounin, J. (1970). *Discipline and Group Management in Classrooms*. New York: Holt, Rinehart & Winston.

- Kowalewicz, E. A., & Coffee, G. (2014). Mystery Motivator: A Tier 1 classroom behavioral intervention. *School Psychology Quarterly, 29*(2), 138-156.
doi:10.1037/spq0000030
- Landau, S., & McAninch, C. (1993). Young children with attention deficits. *Young Children, 48*(4), 49–58.
- Lane, K. L., Smither, R., Huseman, R., Guffey, J., & Fox, J. (2007). A Function-Based Intervention to Decrease Disruptive Behavior and Increase Academic Engagement. *Journal Of Early & Intensive Behavior Intervention, 3-4*(4-1), 348-364.
- Lalli, J. S., Casey, S. D., & Kates, K. (1997). Noncontingent reinforcement as treatment for severe problem behavior: some procedural variations. *Journal of Applied Behavior Analysis, 30*(1), 127–137. <http://doi.org/10.1901/jaba.1997.30-127>
- Leff, S. S., Thomas, D. E., Shapiro, E. S., Paskewich, B., Wilson, K., Necowitz-Hoffman, B., & Jawad, A. F. (2011). Developing and Validating a New Classroom Climate Observation Assessment Tool. *Journal of School Violence, 10*(2), 165–184.
<http://doi.org/10.1080/15388220.2010.539167>
- Madsen, C. H., Becker, W. C., & Thomas, D. R. (1968). Rules, praise, and ignoring: elements of elementary classroom control. *Journal of Applied Behavior Analysis, 1*(2), 139–150. <http://doi.org/10.1901/jaba.1968.1-139>
- Madsen, Charles H., Madsen, Clifford K., Saudargas, Richard A., Hammond, William R., Smith, Jill B., & Edgar, David E. (1970). Classroom raid (rules, approval, ignore, disapproval): A cooperative approach for professionals and volunteers. *Journal of School Psychology, 8*(3), 180-185.

- Marcus, B. A., & Vollmer, T. R. (1996). Combining noncontingent reinforcement and differential reinforcement schedules as treatment for aberrant behavior. *Journal of applied behavior analysis, 29*(1), 43–51. doi:10.1901/jaba.1996.29-43
- Martens, B., Witt, J., Elliott, S., Darveaux, D., & Abeles, Norman. (1985). Teacher Judgments Concerning the Acceptability of School-Based Interventions. *Professional Psychology: Research and Practice, 16*(2), 191-198.
- McComas, J. J., Thompson, A., & Johnson, L. (2003). The effects of pre-session attention on problem behavior maintained by different reinforcers. *Journal of Applied Behavior Analysis, 36*, 297–307.
- McIntyre, L. L., Gresham, F. M., DiGennaro, F. D., & Reed, D. D. (2007). Treatment Integrity of School-Based Interventions with Children in the Journal of Applied Behavior Analysis 1991-2005. *Journal of Applied Behavior Analysis, 40*(4), 659–672. <http://doi.org/10.1901/jaba.2007.659-672>
- McLean, L., Sparapani, N., Toste, J. R., & Connor, C. M. (2016). Classroom quality as a predictor of first graders' time in non-instructional activities and literacy achievement. *Journal of School Psychology, 56*, 45–58.
- Morris P., Millenky M., Raver C., & Jones S. (2013). Does a Preschool Social and Emotional Learning Intervention Pay Off for Classroom Instruction and Children's Behavior and Academic Skills? Evidence From the Foundations of Learning Project. *Early Education And Development, 24*(7), 1020-1042.

- McComas, J. J., Thompson, A. and Johnson, L. (2003). THE EFFECTS OF PRESESSION ATTENTION ON PROBLEM BEHAVIOR MAINTAINED BY DIFFERENT REINFORCERS. *Journal of Applied Behavior Analysis*, 36, 297–307. doi:10.1901/jaba.2003.36-297
- McGoey, K. E., & DuPaul, G. J. (2000). Token reinforcement and response cost procedures: Reducing the disruptive behavior of preschool children with attention-deficit/hyperactivity disorder. *School Psychology Quarterly*, 15(3), 330-343. doi:10.1037/h0088790
- Montague, M., Enders, C., & Castro, M. (2005). Academic and Behavioral Outcomes for Students at Risk for Emotional and Behavioral Disorders. *Behavioral Disorders*, 31(1), 84-94.
- Neary, E. M., Eyberg S. M. (2002). Management of disruptive behavior in young children. *Infants and Young Children*, 14(4), 53-67.
- Nolan, J. D., & Filter, K. J. (2012). A Function-Based Classroom Behavior Intervention Using Non-Contingent Reinforcement plus Response Cost. *Education & Treatment Of Children*, 35(3), 419-430.
- Northup, J., Broussard, C., Jones, K., George, T., Vollmer, T. R., & Herring, M. (1995). The differential effects of teacher and peer attention on the disruptive classroom behavior of three children with a diagnosis of attention deficit hyperactivity disorder. *Journal of Applied Behavior Analysis*, 28(2), 227–228.
<http://doi.org/10.1901/jaba.1995.28-227>

- Parsonson, B. S., & Baer, D. M. (1978). Training generalized improvisation of tools by preschool children. *Journal of Applied Behavior Analysis, 11*(3), 363–380.
<http://doi.org/10.1901/jaba.1978.11-363>
- Peterson, L., Homer, A. L., & Wonderlich, S. A. (1982). The integrity of independent variables in behavior analysis. *Journal of Applied Behavior Analysis, 15*(4), 477–492. <http://doi.org/10.1901/jaba.1982.15-477>
- Pompelia, S. (2018). 50 State Comparison: Instructional Policies. Retrieved from <https://www.ecs.org/50-state-comparison-instructional-time-policies/>
- Reed G. K., Ringdahl J. E., Wacker D. P., Barretto A., Andelman M. S. (2005). The effects of fixed-time and contingent schedules of negative reinforcement on compliance and aberrant behavior. *Research in Developmental Disabilities, 26*, 281-295.
- Rice, J.K. (1999). The impact of class size on instructional strategies and use of time in high school mathematics and science courses. *Educational Evaluation and Policy Analysis, 21*(2), 215-229.
- Richards, S. B., Taylor, S. B., Ramasamy, R., & Richards, R. Y. (1999). Single-subject research. Applications in educational and clinical settings. San Diego, CA: Singular.
- Riley, Jessica L., McKevitt, Brian C., Shriver, Mark D., & Allen, Keith D. (2011). Increasing On-Task Behavior Using Teacher Attention Delivered on a Fixed-Time Schedule. *Journal of Behavioral Education, 20*(3), 149-162.
- Ringdahl, J. E., Vollmer, T. R., Borrero, J. C., & Connell, J. E. (2001). Fixed-time schedule effects as a function of baseline reinforcement rate. *Journal of Applied Behavior Analysis, 34*(1), 1–15. <http://doi.org/10.1901/jaba.2001.34-1>

- Roantree, C. F. and Kennedy, C. H. (2006). A PARADOXICAL EFFECT OF PRESESSION ATTENTION ON STEREOTYPY: ANTECEDENT ATTENTION AS AN ESTABLISHING, NOT AN ABOLISHING, OPERATION. *Journal of Applied Behavior Analysis, 39* 381–384.
doi:10.1901/jaba.2006.97-05
- Roecks, A.L. (1980). Instructional cost and utilization of classroom time for fifth grade students of differing achievement levels. *Journal of School Psychology, 18*, 381-387.
- Sanetti, L. H., Gritter, K. L., & Dobey, L. M. (2011). Treatment Integrity of Interventions With Children in the School Psychology Literature from 1995 to 2008. *School Psychology Review, 40*(1), 72-84.
- Simmons, D. C., Kame'enui, E. J., Harn, B., Coyne, M. D., Stoolmiller, M., Santoro, L. E., ... Kaufman, N. K. (2007). Attributes of effective and efficient kindergarten reading intervention: An examination of instructional time and design specificity. *Journal of Learning Disabilities, 40*(4), 331-347.
- Skinner, B. F. (1948). 'Superstition' in the pigeon. *Journal Of Experimental Psychology, 38*(2), 168-172. doi:10.1037/h0055873
- Skinner, C. H., Cashwell, C. S., & Dunn, M. S. (1996). Independent and interdependent group contingencies: Smoothing the rough waters. *Special Services in the Schools, 12*, 61–77.
- Smith, D., & Rivera, D. M. (1993). *Effective discipline* (2nd ed.). Austin, TX: Pro-Ed

- Snyder, J., Low, S., Schultz, T., Barner, S., Moreno, D., Garst, M., & ... Schrepferman, L. (2011). The impact of brief teacher training on classroom management and child behavior in at-risk preschool settings: Mediators and treatment utility. *Journal Of Applied Developmental Psychology, 32*(6), 336-345.
doi:10.1016/j.appdev.2011.06.001
- Spilt J, Leflot G, Onghena P, Colpin H, Spilt J. (2016). Use of Praise and Reprimands as Critical Ingredients of Teacher Behavior Management: Effects on Children's Development in the Context of a Teacher-Mediated Classroom Intervention. *Prevention Science, 17*(6):732-742.
- Stage, S. A., & Quiroz, D. R. (1997). A meta-analysis of interventions to decrease disruptive classroom behavior in public education settings. *School Psychology Review, 26*(3), 333–368.
- Sugai, G. & Horner, R. H. (2006). A promising approach for expanding and sustaining school-wide positive behavior support. *School Psychology Review, 35*(2), 245-259.
- Sulzer-Azaroff, B. & Mayer, R. (1991). *Behavior analysis for lasting change*. Fort Worth, TX: Holt, Reinhart & Winston, Inc
- Sutherland, K. S., Wehby, J. H., & Copeland, S. R. (2000). Effect of varying rates of behavior-specific praise on the on-task behavior of students with EBD. *Journal Of Emotional & Behavioral Disorders, 8*(1), 2.
- Theodore, L. A., Bray, M. A., & Kehle, T. J. (2004). A Comparative Study of Group Contingencies and Randomized Reinforcers to Reduce Disruptive Classroom Behavior. *School Psychology Quarterly, 19*(3), 253-271.

- Thomas, D. R., Becker, W. C., & Armstrong, M. (1968). Production and elimination of disruptive classroom behavior by systematically varying teacher's behavior. *Journal of Applied Behavior Analysis, 1*(1), 35–45.
<http://doi.org/10.1901/jaba.1968.1-35>
- Van Acker, R., & Grant, S. H. (1996). Teacher and student behavior as a function of risk for aggression. *Education & Treatment Of Children, 19*(3), 316.
- Vollmer, T. R., Iwata, B. A., Zarcone, J. R., Smith, R. G., & Mazaleski, J. L. (1993). The role of attention in the treatment of attention-maintained self-injurious behavior: noncontingent reinforcement and differential reinforcement of other behavior. *Journal of Applied Behavior Analysis, 26*(1), 9–21.
<http://doi.org/10.1901/jaba.1993.26-9>
- Walberg, H. J. (1984). Improving the productivity of America's schools. *Educational Leadership, 41*(8), 19–27.
- Wilder, D. A. and Carr, J. E. (1998). Recent advances in the modification of establishing operations to reduce aberrant behavior. *Behavioral Interventions, 13*, 43–59.
- Witt, J. C., Daly, E. M., & Noell, G. (2000). *Functional assessments: A step-by-step guide to solving academic and behavior problems*. Longmont, CO: Sopris West.
- Witt, J. C., & Elliott, S. N. (1982). The response cost lottery: A time efficient and effective classroom intervention. *Journal of School Psychology, 20*, 155-161.
- Witt, J. C. and Elliott, S. N. (1985). Acceptability of classroom intervention strategies. In T. R. Kratochwill (Ed.), *Advances in School Psychology, 4*, 251-288. Mahwah, NJ: Erlbaum.

- Witt, J. C., Elliott, S. N., & Martens, B. K. (1984). Acceptability of behavioral interventions used in classrooms: The influence of amount of teacher time, severity of behavior problem, and type of intervention. *Behavioral Disorders, 9*, 95–104.
- Witt, J. C., & Martens, B. K. (1983). Assessing the acceptability of behavioral interventions used in classrooms. *Psychology in the Schools, 20*, 510–517.
- Workman, E. A, Kindall, L. M., & R.L. Williams (1980). The Consultative Merits of Praise-Ignore Versus Praise-Reprimand Instruction. *Journal of School Psychology, 18*(4), 373-380
- Zlomke, K., & Zlomke, L. (2003). Token economy plus self-monitoring to reduce disruptive classroom behaviors. *Behavior Analyst Today, 4*(2), 177-182.

APPENDICES

Appendix A

School Recruitment Script

Read to Administrator:

My name is James Reynolds and I am a doctoral student in the School Psychology program at Oklahoma State University. I am looking for a site at which I can collect dissertation research data. I am requesting to work with students and teachers at your school to conduct a targeted intervention that will examine the most efficient and effective way to reduce disruptive behavior and increase academic engagement in classrooms. This study will consist of identifying students who may benefit from the study; an interview and initial observations of students to ensure they meet criteria for inclusion in the study; an intervention phase in which the teacher interacts with the students normally, and one in which they provide praise to their student at specific intervals. The intervention will run for 15 minutes per day for 4 to 6 weeks. Additionally, the classroom will be recorded during the intervention in order to ensure accuracy of data collection as well as inter-rater reliability. If you would like more information, please feel free to contact me at james.reynolds10@okstate.edu.

Thank you for your time

Appendix B

Teacher Recruitment Script

Read to Teacher:

My name is James Reynolds and I am a doctoral student in the School Psychology program at Oklahoma State University. I am looking for a classroom in which I can collect dissertation research data. I am requesting to work with you in you to conduct a targeted intervention that will examine the most efficient and effective way to reduce disruptive behavior and increase academic engagement. This study will consist of identifying students who may benefit from the study; an interview and initial observation of student to ensure they meet criteria for inclusion in the study; and two intervention phases, one in which you interact with the student normally, and one in which you provide praise to the student at specific time intervals. The intervention will run for 15 minutes per day for 4 to 6 weeks. Additionally, the classroom will be recorded during the intervention in order to ensure accuracy of data collection as well as inter-rater reliability. If you would like more information, please feel free to contact me at james.reynolds10@okstate.edu or your administrator.

Thank you for your time

Appendix C

Parent/Guardian Permission Form

PARENT/GUARDIAN PERMISSION FORM

OKLAHOMA STATE UNIVERSITY

PROJECT TITLE: Comparing the Efficiency of Reprimands and Non-Contingent Reinforcement in Reducing Disruptive Behavior in the Classroom

INVESTIGATOR(S):

James Reynolds, Ed.S., BCBA, NCSP, Doctoral Student at Oklahoma State University

Your child has been identified by his/her teacher as a student who would benefit from participation in a research project that is designed to increase school success. This consent form contains important information to help you decide if it is in your child's best interest to take part in this study.

PURPOSE:

The purpose of this study is to evaluate the efficiency at reducing student disruptive behavior when comparing a behavior intervention that consist of providing praise to your child at set intervals, to typical teaching methods within the general education classroom. If you choose to allow your child to participate in the study they will be receiving a behavioral intervention to reduce disruptive behavior and increase academic engagement.

PROCEDURES:

As part of the study your child will be receiving praise from the teacher. The study will consist of two phases. During the initial phase, called baseline, your student will be observed behaving and interacting with the teacher as would on a normal basis. During this phase your student will be monitored on both the frequency and duration of their disruptive behavior and academic engagement. This data will be used to determine appropriate intervals to deliver teacher praise in the second phase.

During this second phase the teacher will deliver praise such as “Jane you are doing a great job sitting in your chair” at set intervals. These intervals will be established based on the average time between the start of the observation and the first disruptive behavior during baseline. As with the initial phase, data collected during the second phase will look at both the frequency and duration of disruptive student behavior and academic engagement.

Your student will be videotaped during each phase. This video recording will be used to obtain accurate measurement of the duration of both disruptive behavior and academic

engagement, and ensure that encoded data is consistent between observers. This video recording will not be shared outside of the primary examiner, the research assistants, and the faculty advisors.

The study is expected to last approximately 4-6 weeks and will not begin until permission is signed and returned by you. This study will occur during normal classroom instruction. This study has been approved by the district, administration, the Institutional Review Board at OSU.

RISKS OF PARTICIPATION:

There are no known risks associated with this project which are greater than those ordinarily encountered in daily life.

BENEFITS OF PARTICIPATION:

A benefit of this study is that it will provide a behavioral support for students who demonstrate behavior that interferes with learning in the classroom. The study may lead to an improvement in behavior and academic engagement for your student. Additionally, the results of this study may provide the principal and teachers feedback about the effectiveness of this intervention and may lead to strategies for instructing students in the future.

CONFIDENTIALITY:

The records and data of this study will be kept private. Data will be housed at Oklahoma State University and only the principal investigator, the academic advisor, and the graduate research assistants working on the project will have access to it. During data collection only the principal investigator, the academic advisor, and the graduate research assistants working on the project will have access to identifiable information. At all data will be de-identified at the end of data collection. The results will be made available for both you and your child's teacher. Any written results will be done so anonymously and all identifying information will be removed from the data. De-identified data will be kept for 7 years after the study has been completed. Data will be kept for this length of time to cover applicable federal laws regulating research data storage for human subjects as well as ethical guidelines under the Behavior Analysis Certification Board.

COMPENSATION:

No monetary compensation will be provided for participating in this study. Benefits provided by the study are listed above.

CONTACT INFORMATION:

If you have any questions with regard to you or your students’ involvement in this study, please contact us at your earliest convenience:

James Reynolds

Dr. Gary Duhon

Doctoral Student

Associate Professor

Oklahoma State University

Oklahoma State University

(918) 557-9374

(405) 744-9463

For information on subjects’ rights, contact Dr. Hugh C. Crethar, IRB Chair, 223 Scott Hall, Stillwater, OK 74078, (405) 744-3377, or irb@okstate.edu

PARTICIPANT RIGHTS:

I understand that my child’s participation is voluntary, that there is no penalty for refusal to participate, and that I am free to withdraw my permission at any time. Even if I give permission for my child to participate I understand that he/she has the right to decline.

CONSENT DOCUMENTATION:

I have been fully informed about the procedures listed here. I am aware of what my child and I will be asked to do and of the benefits of my participation. I also understand the following statements:

I have read and fully understand this permission form.

I sign it freely and voluntarily.

A copy of this form will be given to me.

_____ **I give my permission for my child to be included in the research project.**

_____ **No, I prefer that my child not be included in the research project.**

Parent/Guardian Signature: _____ Date: _____

Student’s Name: _____

Appendix D

TEACHER PERMISSION FORM OKLAHOMA STATE UNIVERSITY

PROJECT TITLE: Comparing the Efficiency of Reprimands and Non-Contingent Reinforcement in Reducing Disruptive Behavior in the Classroom

INVESTIGATOR(S):

James Reynolds, Ed.S., BCBA, NCSP, Doctoral Student at Oklahoma State University

Your student has been identified by you and your administrative team as a student who could benefit from participation in a research project that is designed to increase school success. This consent form contains important information to help inform your decision on your willingness to participate in this study.

PURPOSE:

The investigators of this research project are requesting to work with you in conducting a targeted intervention that will examine the most efficient and effective way to reduce disruptive behavior and increase academic engagement in your classroom. If you choose to participate in this project, you will be implementing a behavioral intervention with a student from your class in the general education setting.

PROCEDURES:

To ensure your child will benefit from the study you will be asked to participate in a functional assessment on your student. This will consist of a standardized interview to discuss some of the behavioral problems your student is demonstrating and some possible reasons for these behaviors are occurring. Additionally, as part of the functional assessment your student will be observed in the classroom to determine how often the behavior your student has identified occurs. If your student meets the criteria for inclusion in the study you will participate in the steps below. Neither you, nor your student will be video recorded during the functional assessment phase of the study. If your student does not meet the criteria they will not participate and you will be provided with an alternative intervention or brief consultation of observed concerns.

The study will consist of two phases. In the first phase, called baseline, you will be asked to teach and interact with students as you normally would during instruction. In the next phase of the study, the intervention phase, you will provide attention in the form of praise which will be delivered at set intervals over a 15-minute observation. During the intervention phase, you will use a small battery operated device to provide external cuing of when to provide behavior specific praise to the students. This device called a *MotivAider*® is set to vibrate at specified intervals. In both phases student disruptive behavior and time engaged in the academic task will be monitored. The frequency and duration of your interactions with the student will be monitored as well.

If your student meets criteria for inclusion your class will be videotaped during the baseline and intervention phases of the study. This video recording will be used to obtain accurate measurement of the duration of both disruptive behavior and academic engagement, and ensure that encoded data is consistent between observers. This video recording will not be shared outside of the primary examiner, the research assistants, and the faculty advisors.

The study is expected to last approximately 4-6 weeks and will not begin until permission is signed and returned by you, the parent of the child participating in the study, and the parents of students not participating in the study. This study will occur during normal classroom instruction. This study has been approved by the district, administration, the Institutional Review Board at OSU.

RISKS OF PARTICIPATION:

There are no known risks associated with this project which are greater than those ordinarily encountered in daily life.

BENEFITS OF PARTICIPATION:

A benefit of this study is that it will provide an intervention and behavioral support for students who demonstrate disruptive behavior in the classroom. The study may lead to an improvement in behavior and academic engagement for your students. Additionally, the results of this study may provide the principal and teachers feedback about the effectiveness of this intervention and may lead to strategies for instructing students in the future.

CONFIDENTIALITY:

The records and data of this study will be kept private. Data will be housed at Oklahoma State University and only the principal investigator, the academic advisor, and the graduate research assistants working on the project will have access to it. During data collection only the principal investigator, the academic advisor, and the graduate research assistants working on the project will have access to identifiable information. At all data will be de-identified at the end of data collection. The results will be made available for both you and your child's teacher. Any written results will be done so anonymously and all identifying information will be removed from the data. De-identified data will be kept for 7 years after the study has been completed. Data will be kept for this length of time to cover applicable federal laws regulating research data storage for human subjects as well as ethical guidelines under the Behavior Analyst Certification Board.

COMPENSATION:

No monetary compensation will be provided for participating in this study. Benefits provided by the study are listed above.

CONTACT INFORMATION:

If you have any questions with regard to you or your students' involvement in this study, please contact us at your earliest convenience:

James Reynolds
Doctoral Student
Oklahoma State University
(918) 557-9374

Dr. Gary Duhon
Associate Professor
Oklahoma State University
(405) 744-9463

For information on subjects' rights, contact Dr. Hugh C. Crethar, IRB Chair, 223 Scott Hall, Stillwater, OK 74078, (405) 744-3377, or irb@okstate.edu

PARTICIPANT RIGHTS:

I understand that my participation is voluntary, that there is no penalty for refusal to participate, and that I am free to withdraw my permission at any time.

CONSENT DOCUMENTATION:

I have been fully informed about the procedures listed here. I am aware of what I will be asked to do and of the benefits of my participation. I also understand the following statements:

I have read and fully understand this permission form.
I sign it freely and voluntarily.
A copy of this form will be given to me.

I give my permission to participate in the research project.

No, I prefer not to participate in the research project.

Teacher Signature: _____ Date: _____

Appendix E

Video Recording Permission Form

Dear Parent/Guardian:

My name is James Reynolds and I am a School Psychology Doctoral student at OSU. This semester, your teacher will be working with me to assist in collecting dissertation data as a requirement for my graduation. The purpose of the study is to examine the efficiency of reducing disruptive behavior and increasing academic engagement in the regular classroom setting.

Each day either myself or a graduate student researcher will be observing the classroom and documenting disruptive behavior and academic engagement. As part of data collection your child's classroom will be video recorded for 15-20 minutes per day. While your student is not actively participating in the research, there is a possibility that they may be inadvertently captured in this video during some portion of this recording.

The primary purpose for collecting video data is to ensure reliability between in person and video observations. The data will be housed at Oklahoma State University and only the primary examiner, the research assistants, and the faculty advisors working on the project will have access to it. The records of this study will be kept private. As your student is not actively participating in the study, none of their identifiable information will be connected to the storage of data. Any data collected will be destroyed 7 years after the study has been completed.

Please complete and return the Permission Form to document your permission for these activities. If you have any questions, please email me at James.reynolds10@okstate.edu.

Sincerely,

James Reynolds, Ed.S., BCBA, NCSP

PERMISSION FORM

Student Name

School/Teacher

I, the parent/legal guardian of the child named above, have received and read your letter regarding the Oklahoma State University video data collection in my child's classroom and agree to the following:

(Please check the appropriate blank below.)

_____ **I DO** give permission for my child to appear on a video recording and understand my child's name will not appear in any written material accompanying the recording.

_____ **I DO NOT** give permission for my child to appear on the video recording, and understand that he/she will be seated outside of the recorded activities.

Parent Signature

Appendix F

Student Observation Form

	Student:		Date:		Teacher:		Time:	
	+ On Task	- Off Task	P = Praise	R = Reprimand				
1	+	-	+	-	+	-	+	-
2	P	R	P	R	P	R	P	R
3	+	-	+	-	+	-	+	-
4	P	R	P	R	P	R	P	R
5	+	-	+	-	+	-	+	-
6	P	R	P	R	P	R	P	R
7	+	-	+	-	+	-	+	-
8	P	R	P	R	P	R	P	R
9	+	-	+	-	+	-	+	-
10	P	R	P	R	P	R	P	R
11	+	-	+	-	+	-	+	-
12	P	R	P	R	P	R	P	R
13	+	-	+	-	+	-	+	-
14	P	R	P	R	P	R	P	R
15	+	-	+	-	+	-	+	-

Appendix G

Examples of Behavior Specific Praise Statements

One key component of the intervention that you will be implementing is the utilization of praise. Increasing the frequency of praise and positive attention, can lead to increases in appropriate behavior and less aggression directed towards peers (Snyder, Low, Schultz, Barner, Moreno, Garst, Leiker, Swink & Schrepferman, 2011). While the purpose of this study is to provide praise, please attempt to provide behavior specific praise. Behavior specific praise is a statement that labels an appropriate behavior that the student is doing.

Some examples of behavior specific praise;

“ _____ I like the way you are sitting in your seat”

“Thank you for working on your math worksheet”

“ _____, thank you for listening”

“ _____, you are doing a great job keeping your eyes on me”

Thank you again for participating in the study.

Reference:

Snyder, J., Low, S., Schultz, T., Barner, S., Moreno, D., Garst, M., & ... Schrepferman, L. (2011). The impact of brief teacher training on classroom management and child behavior in at-risk preschool settings: Mediators and treatment utility. *Journal Of Applied Developmental Psychology, 32*(6), 336-345.

Appendix H

Instructional Review Board Approval Letter

Oklahoma State University Institutional Review Board

Date: Thursday, August 17, 2017
IRB Application No ED1785
Proposal Title: Comparing the Efficiency of Reprimands and Non-Contingent Reinforcement in Reducing Disruptive Behavior in the Classroom

Reviewed and Processed as: Exempt

Status Recommended by Reviewer(s): Approved Protocol Expires: 8/16/2020

Principal Investigator(s):

James Reynolds
3398 E. 6th
Stillwater, OK 74075

Gary J Duhon
423 Willard
Stillwater, OK 74078

The IRB application referenced above has been approved. It is the judgment of the reviewers that the rights and welfare of individuals who may be asked to participate in this study will be respected, and that the research will be conducted in a manner consistent with the IRB requirements as outlined in section 45 CFR 46.

- The final versions of any printed recruitment, consent and assent documents bearing the IRB approval stamp are attached to this letter. These are the versions that must be used during the study.

As Principal Investigator, it is your responsibility to do the following:

1Conduct this study exactly as it has been approved. Any modifications to the research protocol must be submitted with the appropriate signatures for IRB approval. Protocol modifications requiring approval may include changes to the title, PI advisor, funding status or sponsor, subject population composition or size, recruitment, inclusion/exclusion criteria, research site, research procedures and consent/assent process or forms.

2Submit a request for continuation if the study extends beyond the approval period. This continuation must receive IRB review and approval before the research can continue.

3Report any adverse events to the IRB Chair promptly. Adverse events are those which are unanticipated and impact the subjects during the course of the research; and

4Notify the IRB office in writing when your research project is complete.

Please note that approved protocols are subject to monitoring by the IRB and that the IRB office has the authority to inspect research records associated with this protocol at any time. If you have questions about the IRB procedures or need any assistance from the Board, please contact Dawnett Watkins 219 Scott Hall (phone: 405-744-5700, dawnett.watkins@okstate.edu).

Sincerely,



Hugh Crethar, Chair
Institutional Review Board

VITA

James Alden Reynolds

Candidate for the Degree of

Doctor of Philosophy

Dissertation: COMPARING THE EFFICIENCY OF REPRIMANDS AND
NONCONTINGENT REINFORCEMENT IN REDUCING DISRUPTIVE
BEHAVIOR IN THE CLASSROOM

Major Field: School Psychology

Biographical:

Education:

Completed the requirements for the Doctor of Philosophy in School Psychology at Oklahoma State University, Stillwater, Oklahoma in July, 2019.

Completed the requirements for the Specialist in Education in School Psychology at Oklahoma State University, Stillwater, Oklahoma in May, 2011.

Completed the requirements for the Master of Science in Educational Psychology at Oklahoma State University, Stillwater, Oklahoma in December, 2009.

Completed the requirements for the Bachelor of Arts in Psychology at Oklahoma State University, Stillwater, Oklahoma in July, 2007.

Experience:

Pre-Doctoral Intern at the University of Nebraska Medical Center's Munroe Meyer Institute (Rural Integrated Care), July 2018-June 2019; Adjunct Faculty at the University of Central Oklahoma, Fall 2017; Systems-Level Consultant for Oklahoma Department of Education, August 2016-June 2018; School Psychologist at Stillwater Public Schools, August 2015-July 2016; School Psychologist at Edmond Public Schools, August 2012-June 2015, School Psychologist at Moore Public Schools, August 2011-May 2012, Specialist Level School Psychology Intern at Claremore Public Schools, August 2010-June 2011

Professional Memberships:

National Association of School Psychologists; American Psychological Association; National Association of School Psychologists; Oklahoma School Psychologist Association; Oklahoma State University School Psychology Graduate Organization