CONTINGENCY CONTRACTING IN THE ELEMENTARY GENERAL EDUCATION CLASSROOM

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Submitted to the Graduate Faculty of

The School of Education in partial fulfillment

of the requirements for the degree of

Doctor of Philosophy

University of Pittsburgh

2014

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University of Pittsburgh, 2014

Elementary teachers educating both students with and without disabilities require access to effective, easily implemented classroom management techniques to address challenging behaviors. One such intervention is a contingency contract. A review of literature suggests that contracts are implemented for students experiencing challenges with academic and social behaviors both with and without formally diagnosed disabilities in general and special education settings. However, there was little consideration of the social significance of behaviors, and contract goals were not often set according to behaviors of comparison peers. The purpose of the current study examined the effects of contingency contracts on engagement for three students in an elementary general education classroom for three participants exhibiting high rates of disengaged behavior during instruction. Contingency contracts were written with consideration of social significance and function of behavior, preference surveys, observation of comparison peers to set goals, and reinforcement for desired behaviors. Using an ABAB withdrawal design, duration of engagement and frequency of instances of engagement were both recorded. Experimental effects were observed when participants' duration of engagement increased and frequency of engagements decreased while under contract. The results suggest that contingency contracts can successfully be implemented to increase a desired behavior (engagement) with students in the general education classroom. Implications and future research directions immediately follow a discussion of the results.

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PREFACE

I would like to express my sincerest gratitude for the direction and assistance provided by my academic and research advisor, Dr. Douglas Kostewicz. His commitment to my success has made a difficult journey more achievable and his ongoing feedback has helped me improve my writing and research skills across the board.

I also wish to acknowledge all members of my committee for their direction with this capstone project. Without their support and feedback, I am sure this experience would have proved even more challenging.

Thanks, also, to Dr. Michelle McCollin of Slippery Rock University for her assistance and encouragement in pursuing this goal. Her passion for quality education for students with disabilities inspired me early in my career and continues to inspire me today.

I also owe a portion of my success to my understanding and supportive family. Their help has been invaluable and I am thankful for their sacrifice of time and resources to assist me in reaching this goal. Most notably, thank you to Elliot, my best friend and husband, for his unwavering love and commitment to helping me complete this degree. I dedicate this work to our beloved children. I hope they develop a passion for acquiring knowledge and that their pursuits contribute to a better future for us all.

1.0 INTRODUCTION

The Individuals with Disabilities Education Act (IDEA; 1990) and its subsequent reauthorizations (1997, 2004) require educational opportunities for students with disabilities to be provided in the appropriate least restrictive environment (LRE; Mastropieri & Scruggs, 1997; Obiakor, Harris, Mutua, Rotatori, & Algozzine, 2012). While some suggest general education is not appropriate for all students, many equate the LRE with instruction in a general education setting, thus resulting in increased instances of inclusion (Fuchs & Fuchs, 1994; Goodman, Hazelkorn, Bucholz, Duffy, & Kitta, 2011; Koegel, Harrower, & Koegel, 1999). According to the U.S. Department of Education's National Center for Education Statistics (NCES), 59.4% of all students with disabilities were included in the general education setting for 80% or more of the school day in 2009 (U.S. Department of Education National Center for Education Statistics, 2012). Difficulties with behavior in the classroom affect the degree to which some students (i.e., students with emotional and behavioral disorders) experience inclusion (Baker, 2005; Harrower & Dunlap, 2001).

Only 40% of students with Emotional and Behavioral Disorders (EBD) spent at least 80% of their school day in the general education classroom according to the NCES report (U.S. Department of Education National Center for Education Statistics, 2012). However, when comparing the cognitive abilities and academic achievement of students with other high-incidence or mild disabilities (i.e., specific learning disabilities, mild intellectual disabilities,

language impairments, other health impairments, or students considered to have a high-functioning autism spectrum disorder), students with EBD perform similarly (Gage, Lierheimer, & Goran, 2012; Sabornie, Cullinan, Osborne, & Brock, 2005). Unsurprisingly, students with EBD were found to have greater difficulties with behavior (Gage et al., 2012; Sabornie et al., 2005), which may account for the differences in their rates of inclusion.

Teacher attitudes toward inclusion and students with disabilities, which contributes to the success or failure of inclusive placements, can vary significantly (Carpenter, & McKee-Higgins, 1996; Mikami, Griggs, Reuland, & Gregory, 2012; Ross-Hill, 2009). Inadequate preparation in classroom management during teacher training affects the degree of confidence teachers have in implementing behavior plans and selecting appropriate behavior interventions (Baker, 2005; Jordan, Schwartz, & McGhie-Richmond, 2009). Although individual teacher training programs vary, there are inconsistent requirements for classroom management coursework in teacher preparation programs (Harvey, Yssel, Bausserman, & Merbler, 2010).

The absence of adequate pre-service preparation in classroom management presents teachers difficulties in choosing effective behavior interventions for individual students (Marchant, Heath, & Miramontes, 2013) Teachers may also resist changing behavior management methods from more traditional classroom management techniques (Bambara, Goh, Kern, & Caskie, 2012; Clement, 2010). When choosing between various behavior management techniques, it is necessary to consider that even an evidence-based practice will probably not be effective if the classroom teacher lacks the skill or motivation to implement it with fidelity (Witt, 1986). Teachers are not only interested in an intervention's effectiveness, but are also concerned with the amount of time required to implement a given approach (Elswick, & Casey, 2011). Classroom teachers prefer easy to implement interventions that increase instructional time

(Niesyn, 2000; Witt, 1986). One potentially easy to implement, individualized behavior management strategy is a contingency contract.

A contingency contract is an effective, positive behavior intervention that includes access to reinforcement (Downing, 2002, 2007; Simonsen, Fairbanks, Briesh, Myers, & Sugai, 2008). Contingency contracting in the educational setting includes the manipulation of antecedent and consequence variables to affect a student's patterns of behavior. Contracting involves creating a written document between the teacher and the student that specifies a target behavior, a set criterion for performance of the target behavior, and the consequence available to the student upon meeting that criterion (Downing, 2002, 2007). Contracts have demonstrated effectiveness for individual or small groups of students with and without disabilities in the elementary setting to attend to disruptive or other problematic behaviors (e.g., Allen, Howard, Sweeney, & McLaughlin, 1993; Allen & Kramer, 1990; De Martini-Scully, Bray, & Kehle, 2000; Hawkins et al., 2011; LaNunziata, Hill, & Krause, 1981; Mruzek, Cohen, & Smith, 2007; Schoen & James, 1991; Wilkinson, 2003), and to increase academic skill (Kidd & Saudargas, 1988). Contracts have also been found effective with elementary whole-class behavior (Besalel-Azrin, Azrin, & Armstrong, 1977; Thomas, Lee, McGee, & Silverman, 1987; Williams & Anandam, 1973).

Although effective, contract creation and application processes vary widely in the research base and prior research sometimes was inconsistent with recommendations regarding the development of behavioral management applications. When selecting target behaviors, it is important to choose behaviors to change that will result in a positive impact on the child's daily life (i.e., behaviors with social significance; Kroeger & Phillips, 2007). However, the behaviors were largely teacher nominated with few reasons provided for target behavior choice or social validity concerns. When developing behavior interventions, it is also recommended that

information regarding behavior function be used to guide creation and implementation (Downing, 2007; Dunlap et al., 2006, Ellingson, Miltenberger, Stricker, Galensky, & Garinghouse, 2000). Only a small number of contracts were created with the inclusion of functional considerations (e.g., Mruzek et al., 2007; Wilkinson, 2003). Behavioral interventions should also serve to improve student behavior by teaching or reinforcing alternative or appropriate behaviors in place of a disruptive or problematic behavior (Lewis & Sugai, 1999). Reinforcing replacement behaviors with contingency contracting is possible (e.g., Allen et al., 1993; Allen & Kramer, 1990; Kidd & Saudargas, 1988; LaNunziata et al., 1981; Mruzek et al., 2007), but not widely used. While some researchers attended to function of behaviors or targeted replacement behaviors, researchers provided no examples of attending to all three concerns which included selecting socially significant behaviors.

In order to increase the rates of inclusive success for students with disabilities who experience difficulty with behavior, there is a need for teacher-friendly, effective positive behavior management tools which can be applied in the inclusive setting (Obiaker et al., 2012; Soodak, 2003). Because contingency contracts likely meet the requirements of being effective and efficient, it is necessary to understand how to implement contracts most successfully in the inclusive classroom. There are limited differences in the academic and cognitive characteristics of students with EBD and other high incidence disabilities (Gage et al., 2012; Sabornie et al., 2005) and effective teaching strategies can be effective for students with and without disabilities (Jordan et al., 2009). Because of this, contingency contracts used to increase a desired behavior, developed with consideration of social significance and function should be examined when implemented in the inclusive setting for students exhibiting problem behaviors regardless of diagnosis.

2.0 LITERATURE REVIEW

There are numerous benefits to all participants in an inclusive classroom, including social interaction and involvement of students with disabilities and their non-disabled peers (Lipsky & Gartner, 1995; Pennsylvania Technical Training and Assistance Network, 2013). Positive academic results have been observed for both students with and without disabilities who receive academic instruction in inclusive settings (Salend & Garrick Duhaney, 1999). Individuals of all ability levels are expected to interact in community settings as adults, which lead some to suggest that there are broader societal benefits of educating students with disabilities with their peers (Gartner & Lipsky, 1998).

2.1 TEACHER ATTITUDE AND THE SUCCESS OF INCLUSION

The inclusion of students with disabilities is affected by the teachers responsible for facilitating achievement in that placement. Teacher attitude contributes to the success or failure of behavior management attempts, thus increasing or decreasing opportunities for inclusion (Carpenter, & McKee-Higgins, 1996; Mikami et al., 2012). General education teachers do not share a universally positive attitude toward the inclusion and acceptance of students with disabilities in the inclusive classroom (Ross-Hill, 2009). Inclusive educators who feel less prepared to address

behavior challenges may also be less willing to implement individual behavior plans or deliver individualized reinforcement (Baker, 2005). Teachers who feel ill-prepared might then experience difficulty implementing the most effective teaching and management practices overall (Jordan et al., 2009).

An increasing skill set may improve inclusive perceptions and attitudes, however, many general education teachers may not receive the proper training experiences (Forlin & Chambers, 2011; Glazzard, 2011; Tillery, Varjas, Meyers, & Smith Collins, 2010). In 2005, only 3% of teacher training institutions responding to a nation-wide survey indicated that a dedicated course on inclusive classroom management was required as part of their training programs (Harvey et al., 2010). While some states now require a certain amount of dedicated course content in educating students with diverse needs during teacher education programs (e.g., Pennsylvania's requirement of 270 hours of coursework or experiences dedicated to providing accommodations and adaptations in inclusive settings; Pennsylvania Department of Education, 2009), there is no federal regulation specifying what coursework teacher preparation programs must include.

While accredited teacher certification programs must ensure that candidates demonstrate competencies related to classroom management, teacher training programs' courses on behavior management still vary (Clement, 2010; Council for Accreditation of Educator Preparation, 2013; Oliver & Reschley, 2010). Teacher attitude may be affected by feeling under-prepared, and these attitudes contribute to the success of inclusion (Baker, 2005; Carpenter & McKee-Higgins, 1996; Jordan et al., 2009; Mikami et al., 2012). To facilitate inclusive success, teachers of students with disabilities, especially E/BD, require access to and training in the use of effective, proactive classroom management strategies (Carpenter & McKee-Higgins, 1996; Niesyn, 2009; Regan & Michaud, 2011; Soodak, 2003; von der Embse et al., 2011).

2.2 INCLUSION AND PLACEMENT DECISIONS FOR STUDENTS WITH DISABILITIES

Data from 2009 indicates that students with EBD were placed in separate schools for students with disabilities more frequently than students in any other high-incidence disability category. According to the NCES, 13.2% of students with EBD, compared with only 0.6% of students with specific learning disabilities (SLD) and 3% of all students with disabilities, were placed in separate schools (U.S. Department of Education National Center for Education Statistics, 2012). Positive interventions must be implemented in order to facilitate the greatest rate of inclusive education for students with behavioral difficulties. When seeking to address behavior concerns in the inclusive classroom, preventative options are often the most effective methods (Downing, 2007; Murdick & Petch-Hogan, 1996). In accordance with IDEA (2004), IEP teams are compelled to consider the provision of positive behavioral interventions and support for students whose behaviors impede their learning or the learning of others.

2.3 POSITIVE BEHAVIOR SUPPORTS TO FACILITATE INCLUSION

Positive behavior support (PBS) is one framework that calls for effective interventions for managing behavior. In part, PBS provides guiding ideas for identifying and selecting effective behavior management built on the principles of behavior analysis, which may yield better experiences for students exhibiting behavior difficulties (Carr et al., 2002; Frey, Lingo, & Nelson, 2008; Horner, 2000; Sugai et al., 2000). Teachers are compelled by IDEA to provide

students with PBS if their learning or the learning of others is affected by behavior problems (Simonsen, Jeffrey-Pearsall, Sugai, & McCurdy, 2011; U.S. Department of Education Office of Special Education Programs, 2009).

Providing PBS includes a proactive approach to managing behaviors involving data-driven decision making and delivering research-based interventions in response to that data (Horner, 2000; Jolivette, Stitcher, Nelson, Scott, & Liaupsin, 2000; Sugai et al., 2000; U.S. Department of Education Office of Special Education Programs, 2009). However, PBS simply provides a framework for provision of these services, meaning it may still be difficult for teachers to choose an effective intervention for an individual student (Marchant et al., 2013). While IDEA (2004) also mandates the completion of a functional behavior assessment (FBA) and development of positive behavior support plans (PBSP) for students who have disabilities and struggle with behavior, the content and implementation of these plans vary in quality and consistency (Killu, Weber, Derby, & Barretto, 2006). Teachers still require access to effective, positive strategies to incorporate into PBSPs and apply within a PBS framework.

2.4 BASIC CLASSROOM MANAGEMENT STRATEGIES

A range of classroom management techniques to develop positive behavior change exist. Some proactive strategies, referred to as antecedent interventions, are designed to be implemented before behavior problems are observed with the intention of decreasing the likelihood that the specific behavior will occur (Carpenter & McKee-Higgins, 1996; Cooper, Heron, & Heward, 2007). However, traditional classroom management systems often rely on reacting to problem behaviors rather than acting to reduce them (Colvin, Kameenui, & Sugai, 1993). Most

practitioners are familiar with reactive strategies that focus on manipulating the events that take place after a behavior is exhibited, which are considered consequence-based strategies (Sidman, 2011).

2.5 ANTECEDENT INTERVENTIONS

Making changes to the environment in order to prevent problem behaviors is a common approach used by teachers to avoid disruptive behaviors in the classroom (e.g., changing seating arrangements, offering choices, having work ready for students as soon as they enter the classroom, providing transition warnings; Codding, Feinberg, Dunn, & Carr, 2005; Cooper et al., 2007). Many approaches, like consistent scheduling, setting clear rules or behavior expectations, lesson planning that actively involve students, or structured opportunities for peer interaction, involve advanced planning on the part of the teacher (Reitz, 1994). Creating a more positive classroom environment can have beneficial effects on student engagement and reduce issues with discipline (Mayer & Mitchell, 1993). However, teachers may find that antecedent interventions that affect how a student will interact with consequences (e.g., how consequences are made available, or manipulations intended to increase or decrease the appeal of a consequence) are necessary to adequately manage student behavior (Colvin et al., 1993; Wilder & Carr, 1998).

2.6 CONSEQUENCE BASED INTERVENTIONS

Consequence-based classroom management approaches can fall into two categories: reinforcing, or approaches intended to increase occurrence of desirable behaviors, and punishing, or procedures implemented to decrease unwanted behaviors (Landrum, Tankersley, & Kauffman, 2003). The two categories refer broadly to the function of the consequences presented. Simply stated, for a consequence (i.e., stimuli that follows a behavior in time) to have a reinforcing or punishing effect, the future likelihood of the behavior either increases or decreases, respectively (Landrum et al., 2003; Mather & Goldstein, 2001).

Individuals respond to consequences differently. In other words, certain consequences may have either a reinforcing or punishing effect depending on the person or situation. Classroom teachers may misapply the concepts of reinforcement and punishment (Cooper et al., 2007), especially by assuming that one reinforcer or punisher will work in the same way for all students or that a certain consequence will always function the same for a target individual. Increasing a practitioner's ability to identify reinforcing or punishing stimuli for individual students may allow for a better selection process from a variety of management techniques.

2.6.1 Reinforcement based interventions

A simple and efficient approach involving reinforcement has teachers providing praise to students following observation of desired behaviors (Downing, 2007; Landrum et al., 2003; Niesyn, 2000; Simonsen et al., 2008). To enhance effectiveness, teachers must deliver praise often, as immediately as possible, and worded as specific to the behavior as possible (Landrum et

al., 2003; Sutherland, 2000). Effective and efficient, praise also combines with and enhances other management approaches (Taffel, O'Leary, & Armel, 1974).

Implementing a token economy, while more complex than praise, also can improve appropriate behaviors. A token economy is a behavior change system in which students earn tokens for adherence to specified rules and can exchange the tokens to "purchase" tangible items or other backup reinforcement (Murdick & Petch-Hogan, 1996; Simonsen et al., 2008). While token economies may be common choices for managing classroom behaviors built on positive reinforcement, teachers may find that distributing tokens and managing other components of the economy time-consuming (Drabman & Tucker, 1974). Teachers must exercise caution when choosing back-up reinforcers to ensure those consequences act as reinforcers (O'Leary & Drabman, 1971). Although not all reinforcers cost money (e.g., activity reinforcers have little to no associated expense), cost of the overall system can also affect the implementation of token economies (Drabman & Tucker, 1974).

2.6.2 Punishment based interventions

In certain situations, reinforcement-based interventions may prove inadequate. Thus, behavior management procedures based on punishment can effectively decrease behavior if implemented appropriately. An effective and individualized behavior management approach based on a punishing contingency is time-out from reinforcement (Simonsen et al., 2008). Time-out involves removing a student's access to the reinforcement available in the classroom setting based on the occurrence of an undesirable behavior (Landrum et al., 2003; Ryan, Sanders, Katsiyannis, & Yell, 2007; Simonsen et al., 2008). However, not all types of time-out are

considered as acceptable as others (e.g., exclusionary as compared to non-exclusionary time-outs), and teachers may fail to establish a sufficiently reinforcing environment in the classroom for time-out to become a punishing condition (Kazdin, 1980; Ryan et al., 2007).

Teachers might consider implementing a classroom management program including response-cost procedures. Response-cost is the act of removing an already earned reinforcer contingent upon observation of problem behaviors (Conyers et al., 2004; Downing, 2007; Landrum et al., 2003; Simonsen et al., 2008). Examination of response cost has typically involved token systems where students begin with a set number of tokens and lose them when problem behaviors occur (Conyers et al., 2004; Simonsen et al., 2008). Response cost is more effective when implemented with positive reinforcement (Broughton & Lahey, 1978). Additionally, because response cost often includes use of a token system, some of the same concerns with token economies apply (e.g., ease or cost of implementation).

2.6.3 Intervention considerations

When choosing between various behavior management techniques, it is necessary to consider that even an evidence-based practice will probably not be effective if the classroom teacher lacks the skill or motivation to implement it with fidelity (Witt, 1986). Teachers are not only interested in an intervention's effectiveness, but are also concerned with the amount of time required to implement a given approach (Elswick, & Casey, 2011). Classroom teachers prefer easy to implement interventions that increase instructional time (Niesyn, 2000; Witt, 1986). A contingency contract is an effective, teacher friendly, positive behavior intervention that includes access to reinforcement (Downing, 2002, 2007; Simonsen et al., 2008).

2.7 CONTINGENCY CONTRACTS

Contingency or behavior contracting in the educational setting involves creating a written document between a student and teacher (Downing, 2002). Cooper et al. (2007) discuss that contingency contracts can yield positive results because they actually package together several effective behavior management components, including rule-governed behavior and positive consequences with the provision of explicit behavioral feedback. Contingency contracts may work in a similar way to contingencies guided by the Premack Principle (Downing, 2002; Murphy, 1988), also known as "Grandma's Law" (Cooper et al., 2007, p. 271). The Premack Principle makes access to a highly preferred activity contingent upon completion of a less preferred activity (Cooper et al., 2007, p. 271; Murphy, 1988, p. 258).

Contingency contracts manipulate both antecedent and consequence conditions, can include both reinforcement and punishment, and compare favorably to traditional behavior change techniques. Contracts can be more teacher friendly than token economy implementation with or without response cost, which may be complex and time consuming (Drabman & Tucker, 1974). Contracts can also be used alongside verbal praise or other evidence based practices to create an effective treatment package (Cooper et al., 2007). Contracts also may prove a more ethical classroom management approach than some time-out procedures as teachers do not remove the student from instruction (Kostewicz, 2010). As an antecedent approach, practitioners use a contract to identify a target behavior, a specific consequence for emitting certain rates of the behavior, and duration of the contract or number of behavior occurrences needed to meet the agreed contingency, then consequences are delivered if the contract goal is met (Downing, 2002,

2007). Teachers can create contracts for one or all students, focus on social or academic behaviors, and implement alongside pre-existing management approaches.

In order to create a contingency contract, Downing (2002) provides a teacher-friendly guide that follows similar steps to creating many effective, individualized interventions. Practitioners should first identify a behavior of concern and consider the situation (e.g., where, when) and other antecedent events. Downing also recommends teachers develop a hypothesis about the function of the identified behavior before the data collection stages begin, an additional benefit being that a hypothesis of function supports planning reinforcing or punishing consequences. Baseline data should be collected so that an accurate behavioral goal can be set and to evaluate the effectiveness of an intervention during implementation (Downing, 2002; Smith, n.d.). Contracts must specify the individuals who will be involved (e.g., student and teacher plus any other stakeholders as necessary). A final section will state how the success of the contract will be evaluated. Contingency contracts can be printed, signed, and displayed to further encourage student ownership of the behavior and contract outcomes (Downing, 2002).

Research on contingency contract implementation has primarily focused on use with older adolescents and adults in clinical or community settings. Contingency contracts have helped adults decrease the use of alcohol and drugs (e.g., Petry, Alessi, Marx, Austin, & Tardif, 2005; Petry, Martin, Cooney, & Kranzler, 2000), more frequently keep appointments (e.g., Hayes, Efron, Richman, Harrison, & Aguilera, 2000) and adhere to treatment regimens (e.g., Gallucci & Smolinski, 2001). Research also suggests contract effectiveness when used in conjunction with other treatment programs for adults with mental illness (e.g., token economies; Corrigan, 1991).

Examination of contingency contracting has also occurred in the educational setting. Homme (1966) initially implemented contingency contracts with adolescent students at-risk for dropping out vas cited in Cantrell, Cantrell, Huddleston, & Woolridge, 1969). Since Homme's original investigations, contingency contracts have been used with high school and college students (e.g., Bristol & Sloane, 1974; Kelley & Stokes, 1983; Newstrom, McLaughlin & Sweeny, 1999), in clinical settings (e.g., Flood & Wilder, 2002; Vaal, 1973), and in the home (e.g., Beidel, Turner, & Taylor-Ferreira, 1999; Blechman, Taylor, & Schrader, 1981; Miller & Kelley, 1994).

2.7.1 Purpose of the review

Contingency contracting with elementary aged students meets the definition of a positive behavior support. However, a majority of the previously mentioned literature regarding contingency contracts is less applicable to students in elementary classroom settings. It is unclear if certain contract variables (e.g., individual characteristics of participating students, chosen consequences for inclusion in contracts, using contracts to increase versus decrease target behaviors) may lead to greater success. The purpose of the current review identifies research articles reporting an examination of contingency contracts in elementary school settings. Specific questions include: Who has participated in contingency contracting studies and what behaviors and consequences do researchers target and provide?; How do researchers create and implement contingency contracts in the elementary school setting?; and What effect does contingency contracting have on student behavior?

2.8 METHODS

A review of the literature was conducted to locate articles that examined contingency contract implementation with elementary-aged students in the elementary classroom setting. Studies including participants with and without disabilities were included due to the common academic and cognitive characteristics of students with EBD or other behavioral difficulties and students with other high-incidence disabilities (Gage et al., 2012; Sabornie et al., 2005). Additionally, Kauffman, Mock, and Simpson (2007) suggest that students with EBD are under-identified, so students not identified as having a disability but experiencing difficulties with behavior are likely also served in these settings. Three computerized databases (i.e., PsycINFO, PsycARTICLES, and ERIC) served as the basis for the initial search. Descriptors and possible truncations included *behavior contracts* or *contingency contracts,* and *elementary* or *middle school*. An ancestral search of articles that met criteria followed, with an additional step of hand-searching two journals focused on behavior analysis in settings which serve school-aged students with disabilities (i.e., *Journal of Applied Behavior Analysis*, *Journal of Behavioral Education)*. To meet criteria for this review, articles had to:

1. Appear in a peer-reviewed journal. Publications in other locations (e.g., dissertations) were not included (e.g., Klein & Mechelli, 1973).
2. Involve the reported manipulation of an independent variable (i.e., contingency contract), while measuring the observable effects on a dependent variable (e.g., rates of academic behavior, disruptive behavior, or other behaviors affecting school performance such as truancy). Studies that did not include observed student behavior outcomes or were based solely on teacher survey results did not meet inclusion criteria (e.g., Cantrell, Cantrell,

Huddleston, & Woolridge, 1969; Lassman, Jolivette, & Wehby, 1999; White-Blackburn, Semb, & Semb, 1977).

3. Include the implementation, either in isolation or as part of a treatment package, of a contingency or behavior contract. Studies met criteria for inclusion if the treatment included a document that contained at least: A) a statement of expected teacher and student behaviors; and B) consequences provided contingent upon adhering to the stated expectations. Studies using an intervention referred to as a contract that did not include consequences for reaching behavior targets were not included (Martin et al., 2003; Slavin, 1980).
4. Describe the investigation of contingency contracts in a school-based setting. Contingency contracts implemented in the home, clinical, or other settings were not included (e.g., Beidel, Turner, & Taylor-Ferreira, 1999; Blechman, Taylor, & Schrader, 1981; Flood & Wilder, 2002; Miller & Kelley, 1994; Vaal, 1973).
5. Focus on students in the elementary or middle school settings (K-8th grades), with or without disabilities. Articles exclusively featuring students in high school or college were not included (e.g., Bristol & Sloane, Jr., 1974; Kelley & Stokes, 1982; Newstrom, McLaughlin, & Sweeney, 1999).

The initial electronic database search yielded 231 possible articles of which 16 met criteria for inclusion. The ancestral search resulted in one article, but the hand search of the two identified journals returned no additional results. A total of 16 articles *(*Allen et al., 1993; Allen & Kramer, 1990; Besalel-Azrin et al., 1977; De Martini-Scully et al., 2000; Hawkins et al., 2011; Hess, Rosenberg, & Ley, 1990; Kidd & Saudargas, 1988; Kieffer & Goh, 1981; LaNunziata, Hill, & Krause, 1981; Mruzek et al., 2007; Ruth, 1996; Schoen & James, 1991; Self-Brown, &

Matthews, 2003; Thomas et al., 1987; Wilkinson, 2003; Williams & Anandam, 1973) found in 12 different journals met inclusion criteria for this review (Table 1).

Study	Students/Setting	Independent Variables	Dependent Variables	Outcomes
Allen, Howard, Sweeney, & McLaughlin (1993)	Three students in second and third grade general education settings; gender, exact age, disability unknown	Teacher implemented contingency contracts	% of 10-min momentary-time sampling intervals of on-task behaviors (e.g., completing assignments, remaining seated, being attentive)	Range of behaviors in BL 1 16-23.3% increased to 63.3-67% during final BL phase
Allen & Kramer (1990)	One 12 year old 6th grade male with EBD in special education	Teacher and school psychologist implemented contract in pre-existing token economy	% of predetermined personal hygiene behaviors exhibited on a daily basis	BL mean of 13% observed behaviors increased to 70% in treatment
Besalel-Azrin, Azrin, & Armstrong (1977)	20 5th grade students in general education setting, no diagnoses indicated	Treatment package with classroom rules, teacher-student consultation meetings, self-correction with positive practice, charting progress, and contingency contracts written and implemented in school and sent home	Number of teacher reported behaviors exhibited by each student selected from a list of 52 possible classroom behaviors, plus one independent observation of the treatment group and a control group	BL average 7.2 problems per student, at one month, rates approx. 1.5 problems/student for exp. group and 4.5 problems/student in control. Observation found exp. group not following rules 14% of time, compared to 27% in control
De Martini-Scully, Bray, & Kehle (2000)	Two female second grade students with no disability diagnosis in general education setting	Treatment package with contingency contracts, precision request, token economy, and mystery motivators	% of 15-sec intervals of inappropriate classroom behaviors (e.g., making noises, talking out, out of seat, noncompliance)	BL1 rate for S1 46%, decreasing to 15% in T1, 24% in BL2, and 21% in T2. S2 rate in BL1 35%, decreasing to 24% in T1, 25% in BL2 and 18% in T2
Hawkins, Kingsdorf, Charnock, Szabo, Middleton, Phillips, & Gautreaux (2011)	Three boys, one 8 (S1) and two 12 (S2 and S3) with autism in an independent day school for children with autism; Fourth 13 year old boy had contract at home	Contingency contracts for all four; Ss 2 and 3 had consequences delivered at home; S3 also had request cards for quiet work space; S4's contract and consequences delivered at home and his results were not considered in review	S1: duration out-of-seat and frequency of touching peers' hair; S2: % of intervals with time away from table and frequency of assaults; S3: frequency of assaults.	S1: Time away from table significantly decreased to acceptable rates, and assaults dropped to zero. S2: Number of assaults in final phase substantially lower than first phase. S3: Out of seat duration and frequency of hair-touching dropped to near zero in final phase.

Study	Students/Setting	Independent Variables	Dependent Variables	Outcomes
Hess, Rosenberg, & Ley (1990)	13 students (3 female and 10 male) in 6th-8th grades plus 13 control students. Total of 24 with LD, 1 with SLI, and 1 with EBD, in general education	Contingency contracts and group counseling	Rates of days truant across three 10-week periods (pre -, during, and post- treatment)	Group average decreased from 1.83 in pre-treatment to 0.89 during treatment. Maintenance not observed with 1.74 mean in follow-up
Kidd & Saudargas (1988)	Two elementary students, one male 6th grader and one female 3rd grader with no disabilities in general education	Contingency contracts with varying positive consequences (con.), negative con., or positive and negative con.	% of assigned mathematics problems completed and % of those problems correct	Completion: S1 mean 100% across study. S2 mean 92% in BL, 99% with + or +/- con., and 75% with – con. Accuracy: 72% and 74% in BL respectively, 91% and 86% with + or +/- con., and 69% and 59% with – con.
Kieffer & Goh (1981)	64 3rd and 4th grade students, half of which were low-SES in a public school setting, no disability status indicated	Individual contingency contracts	WISC-R scores of middle- and low-SES groups compared to middle- and low- control groups	IQ scores of students in mid-SES were significantly higher than low-SES group, but no significant difference between contract group and control group
LaNunziata, Jr., Hill, & Krause (1981)	Three Male students 8-12 years (grade not specified) in self-contained EBD support; A fourth student included in the study who did not receive a contract in treatment	Contingency contract for students 1 and 2, contract and social modeling for student 3	Varied by students 1-3; % of opportunities to respond with thank yous and positive self-statements in a 60min period; % 10sec intervals in a 10min period with on task behavior (e.g., actively engaged in work); % of peer distractions ignored and neat papers turned in	S1 thank yous and self-statements 15.8% and 13.8% respectively in BL to 95.4 and 91.8% with contract; S2 % of on task behavior ranged from 53.8 in BL to 85.4% with contract; S3 ignored distractions and returned neat papers 5.5% and 0% respectively in BL to 83.8% and 95% in final contract/modeling phase
Mruzek, Cohen, & Smith (2007)	Two male students, ages 10-11 in inclusive and special ed. settings, one with EBD, ADHD, probable Asperger's, and one with ASD	Treatment package including contingency contracting, self-monitoring, and token economy	% of 60min intervals where rule-violating behavior did not occur more than three times (e.g.. aggression, destruction, inappropriate verbalizations, tantrums) in a changing-criterion design	S1 BL rates of 33% and S2 BL of 38% both increased steadily with an upward slope ending near or above 90% (according to visual analysis)

Study	Students/Setting	Independent Variables	Dependent Variables	Outcomes
Schoen & James (1991)	11 year old fifth grade boy with no disability diagnosis	Precision teaching, self-monitoring, and a contingency contract	Frequency of the student calling-out when he was expected to raise his hand	BL number of 34 call-outs/day decreased to 7/day
Self-Brown & Matthews (2003)	18 fourth grade students in general education classrooms with no information on diagnoses; 46 students in two other groups did not participate in the contingency contracting condition	Two interventions implemented for comparison with two different groups of students and one control group; Interventions include contingency contracts with student selected goals and a token economies	Number of learning goals (e.g., mastery of a certain skill) or performance goals (e.g., grade) chosen by individual students	Students in contingency contracting condition set significantly more learning goals than the other two groups, and selected more learning than performance goals
Thomas, Lee, McGee, & Silverman (1987)	197 second, fifth grade students in two schools; Whole group playground setting, no information provided on disability diagnoses	Teacher implemented contingency contracts	Number of misbehaviors (identified as misbehaviors towards teachers and peers, abuse of objects and abuse of rules) observed in 15min intervals on the playground	Second grade mean in school 1 and 2 respectively dropped from 1.18, 1.15 in BL to 0.44, 0.96 with contracts; Fifth grade mean in schools 1 and 2 dropped from BL 0.92, 1.12 to 0.14, 0.3
Wilkinson (2003)	7 year old 1st grade girl exhibiting disruptive behaviors in general education	Teacher developed contract implemented by teacher with behavioral consultation given to teacher	% of 10-sec partial intervals with disruptive behavior in 15-min observation sessions	BL rate of 46.6% of intervals with disruptive behavior dropped to 12.4% during treatment
Williams & Anandam (1973)	44 seventh grade students in two general education classrooms, no disability information provided	Teacher developed contingency contracts addressing academic and social behaviors with contingent points	Number of points on a scale where advances in letter grade tied to earned points and drops in letter grade to points lost; Grades based on points earned from contracts for desirable behaviors and non-occurrence of undesirable behaviors	First semester grades increased over pre-contract semester by average of 48.67 pts for groups 1 and 2 across all teachers (control = 18.5) and dropped by 10.17 (control = 31.5)

Note. S = student, BL = baseline, EBD = Emotional/Behavioral Disorder, T = treatment, SES = Socio-economic status, LD = Learning Disability, SLI = Speech/Language Impairment, ASD = Autism Spectrum Disorder, OHI = Other Health Impaired

Table 1. Summary of Reviewed Studies

2.9 RESULTS

2.9.1 Who and what: Participants, behaviors, and consequences

2.9.1.1 Participants and settings

Participants in the 16 reviewed studies included students with and without disabilities between first and eighth grade. Participant number ranged from one (Allen & Kramer, 1990; Schoen & James, 1991) to 197 (Kieffer & Goh, 1981). Students had disabilities such as emotional and behavioral disorders (EBD; Allen & Kramer, 1990; Hess et al, 1990; LaNunziata et al., 1981; Mruzek et al., 2007; Ruth, 1996), specific learning disability (SLD; Hess et al., 1990; Ruth, 1996), autism (Hawkins et al., 2000; Mruzek et al., 2007), or no documented disability (Kidd & Saudargas, 1988; Schoen & James, 1991; Wilkinson, 2003). In total, five studies included students with EBD (Allen & Kramer, 1990; Hess et al., 1990; LaNunziata et al., 1981; Mruzek et al., 2007; Ruth, 1996), two researchers worked with students with an autism spectrum disorder (Hawkins et al., 2011; Mruzek et al., 2007), and two more included students with SLD (Hess et al., 1990; Ruth, 1996). Students with speech language impairments (Hess et al., 1990) or other health impairments (Ruth, 1996) were also participants.

Students without disabilities served as participants in four instances (De Martini-Scully et al., 2000; Kidd & Saudargas, 1988; Schoen & James, 1991; Wilkinson, 2003) while six additional reports did not disclose whether students had disability diagnoses or not (Allen et al., 1993; Besalel-Azrin et al., 1977; Kieffer & Goh, 1981; Self-Brown & Matthews, 2003; Thomas et al., 1987; Williams & Anandam, 1973). Researchers primarily included participants due to specific disruptive classroom behaviors regardless of disability (e.g., Allen et al., 1993; De

Martini-Scully, 2000; Hawkins et al., 2011; LaNunziata et al., 1981; Mruzek et al., 2007; Schoen & James, 1991; Wilkinson, 2003). Other selection factors included difficulty with personal hygiene (Allen & Kramer, 1990) or, in cases of whole-classroom participation, teacher reported behavior difficulties (Besalel-Azrin et al., 1977; Thomas et al., 1987; Williams & Anandam, 1973).

While all studies occurred in elementary or middle school settings, the majority of studies took place in the general education classroom (Allen et al., 1993; Besalel-Azrin et al., 1977; De Martini-Scully et al., 2000; Hess et al., 1990; Kidd & Saudargas, 1988; Kieffer & Goh, 1981; Thomas et al., 1987; Schoen & James, 1991; Self-Brown & Matthews, 2003; Wilkinson, 2003; Williams & Anandam, 1973). Additional settings included self-contained classrooms (Allen & Kramer, 1990; LaNunziata et al., 1981; Ruth, 1996), bridging both general and special education classrooms (Mruzek et al., 2007), and a private school for students with autism (Hawkins et al., 2011).

2.9.1.2 Target behaviors

Researchers used contingency contracts in an attempt to increase rates of appropriate behaviors, decrease inappropriate behaviors, or both. Researchers focused on building academic and academic-related behaviors such as math accuracy and task completion (Kidd & Saudargas, 1988), IQ test performance (Kieffer & Goh, 1981), class preparation and attending to tasks (e.g., Allen et al., 1993), remaining seated, (e.g., Williams & Anandam, 1973), and submitting complete, neat work (e.g., LaNunziata et al., 1981). Other targeted behaviors included personal hygiene skills (Allen & Kramer, 1990), saying “thank you” and making positive self-statements

(LaNunziata et al., 1981), meeting personal goals set during the contracting process (Ruth, 1996), and setting intrinsic goals versus extrinsic goals (Self-Brown & Matthews, 2003).

Contract terms also may have included a reduction of an undesirable behavior. Participants were expected to engage in decreased rates of behaviors like: invasions of personal space (e.g., hair-touching, assaultive behavior like kicking and hitting; Hawkins et al., 2011); making noise or talking (De Martini-Scully et al., 2000); out-of-seat behaviors (De Martini-Scully et al., 2000; Hawkins et al., 2011); defiance and tantruming (Mruzek et al., 2007; Wilkinson, 2003); inappropriately calling out during instruction (Schoen & James, 1991); truancy (Hess et al., 1990); and exhibiting disruptive behavior on the playground (Thomas et al., 1987) or in the classroom (Besalel-Azrin et al., 1977; Williams & Anandam, 1973).

Only three studies specifically mention the potential function of the target behavior. Mruzek et al. (2007) reports behavior function but fails to elaborate on the determination process. Wilkinson (2003) examined baseline data of defined disruptive behaviors with the classroom teacher and determined function with a descriptive analysis. Hawkins et al. (2011) reference assumed functions of behaviors, rather than using formal analysis methods, for one participant. Although mentioning function, none reported formally establishing a clear link between function identification and consequence determination.

2.9.1.3 Consequences

By definition, a contingency contract references the consequence provided contingent on the appearance of specified behaviors (e.g., Downing, 2002, 2007; Smith, n.d.). Some consequences were chosen by the student from a menu of options (Besalel-Azrin et al., 1977; Hess et al., 1990; Kieffer & Goh, 1981; Mruzek et al., 2007) or in discussion with a teacher (Besalel-Azrin et al.,

1977; Kidd & Saudargas, 1988; Ruth, 1996; Schoen & James, 1991). The investigator or teacher simply made consequence decisions in four studies (Hess et al., 1990; Ruth, 1996; Thomas et al., 1987; Wilkinson, 2003). One investigation included consequences in the form of points connected to end of term grades (Williams & Anandam, 1973). In two designs, a menu of consequences available was based on the results of a preference assessment or survey (Kieffer & Goh, 1981; Mruzek et al., 2007).

Common consequence options included inexpensive tangible or edible items or access to activities during free time. Specific tangible consequences included candy (Thomas et al., 1987); stickers or notes home (Wilkinson, 2003); tokens in an existing token economy (Allen & Kramer, 1990; Self-Brown & Matthews, 2003); or tokens in a token system developed specifically for the intervention that granted access to mystery motivators (De Martini-Scully et al., 2000). Non-material consequences involved extra recess, access to preferred classroom responsibilities (e.g., line leader; Kidd & Saudargas, 1988), or free time for approved activities (e.g., using a personal music player or drawing; Besalel-Azrin et al., 1977; Kidd & Saudargas, 1988; Mruzek et al., 2007; Thomas et al., 1987; Williams & Anandam, 1973). Other less tangible rewards included stars or checks on the contract itself and verbal praise (Mruzek et al., 2007; Self-Brown & Matthews, 2003), or a homework pass for the weekend (Schoen & James, 1991). One study based points for class grades on meeting terms of the contract set in academic and social behavioral terms (Williams & Anandam, 1973).

All but two contingency contract studies reported offering exclusively positive consequences (Kidd & Saudargas, 1988; Williams & Anandam, 1973). Both study designs included at least one phase with response cost such as loss of recess (Kidd & Saudargas, 1988) or lost points from grades (Williams & Anandam, 1973). Negative additional consequences

(positive punishment; i.e., additional homework) were included in only one study (Kidd & Saudargas, 1988).

2.9.2 Contract creation and implementation

2.9.2.1 Writing the contract

During the contract writing process, research procedures differed by whether the student was included as an active member of the development team or not. Nine studies (Besalel-Azrin et al., 1977; Hawkins et al., 2011; Kidd & Saudargas, 1988; Mruzek et al., 2007; Ruth, 1996; Schoen & James, 1991; Self-Brown & Matthews, 2003; Wilkinson, 2003; Williams & Anandam, 1973) reported including at least one student during individual contract writing and decision making. Five reports indicated that students were not included in development (Allen & Kramer, 1990; De Martini-Scully et al., 2000; Hess et al., 1990; Kieffer & Goh, 1981; Thomas et al., 1987). Without student input, either teachers (Thomas et al., 1987), principal investigators (Hess et al., 1990; Kieffer & Goh, 1981), or a consultant or researcher working with the teacher (Allen & Kramer, 1990; De Martini-Scully et al., 2000) maintained sole responsibility for writing the contract. Two additional reports did not include sufficient detail to determine who participated in contract development (Allen et al., 1993; LaNunziata et al., 1981).

When formally involved, students most commonly assisted in negotiating contingent consequences (Besalel-Azrin et al., 1977; Kidd & Saudargas, 1988; Mruzek et al., 2007; Ruth, 1996; Schoen & James, 1991; Wilkinson, 2003; Williams & Anandam, 1973). In other studies, students helped to define the target behavior (Besalel-Azrin et al., 1977; Hawkins et al., 2011;

Ruth, 1996; Wilkinson, 2003; Williams & Anandam, 1973) and set personal goals as part of the contract (Ruth, 1996; Self-Brown & Matthews, 2003).

2.9.2.2 Introducing the contract to student

In 13 studies (Allen & Kramer, 1990; Besalel-Azrin et al., 1977; De Martini-Scully et al., 2000; Hawkins et al., 2011; Hess et al., 1990; Kidd & Saudargas, 1988; Kieffer & Goh, 1981; Mruzek et al., 2007; Ruth, 1996; Schoen & James, 1991; Self-Brown & Matthews, 2003; Thomas et al., 1987; Wilkinson, 2003), students received instruction on all components of the contract, though authors provided few specific details. In addition, students verbally agreed to (Allen & Kramer, 1990; Hess et al., 1990; Kieffer & Goh, 1981) or signed the contract (Besalel-Azrin et al., 1977; De Martini-Scully et al., 2000; Hawkins et al., 2011; Kidd & Saudargas, 1988; Mruzek et al., 2007; Schoen & James, 1991; Self-Brown & Matthews, 2003).

Ruth (1996) and Thomas et al. (1987) did not have students agree to the contract. Thomas et al. (1987) still provided instruction and Ruth (1996) had students participate in development in lieu of agreeing to terms. Three other studies did not detail whether students received explicit instruction on or agreed to contract terms (Allen et al., 1993; LaNunziata et al., 1981; Williams & Anandam, 1973). Other researchers cite previous resources as specific reasons for excluding students in decision making. LaNunziata et al. (1981) reportedly followed contingency management recommendations provided by Stephens (1978) in which teachers dictate contract terms without students. Allen et al. (1993) mirrors Homme's (1969) recommendations and also excludes students from decision making. Hess et al. (1990) also referenced instructions provided by Homme in a 1976 revision but did give students a chance to verbally agree.

2.9.2.3 Consequence delivery

Consequences were typically delivered within a day of the contract term. The most immediate delivery of reinforcement was described in designs that also used tokens as placeholder reinforcement until the contingent consequences could be delivered (Allen & Kramer, 1990; De Martini-Scully et al., 2000). Some designs included consequence delivery at the end of the day (Allen et al., 1993; Kidd & Saudargas, 1988; Mruzek et al., 2007) or at the end of the class period where contracts were in place (Williams & Anandam, 1973). Consequences were delayed until the next day (Besalel-Azrin et al., 1977) or until the end of the week (Self-Brown & Matthews, 2003). Kieffer and Goh (1981) used contingency contracts for a single test administration, but consequences were delivered at home. Hawkins et al. (2011) also examined contracts with same day home-based consequence delivery.

2.9.2.4 Criterion for contract termination

The contract implementation length typically followed a time-based criterion. Time-based contracts varied in duration from a one-time use contract connected to a single test performance (Kieffer & Goh, 1981) to an entire school year (Hawkins et al., 2011). One study included contracts with daily goals, a weekly goal of reaching four out of five days' goals, and an ultimate goal of meeting the weekly goal four weeks in a row; each day's contract had the potential for a new target behavior (Ruth, 1996). Mruzek et al., (2007) noted the termination of all contracts once students reached the pre-set behavioral criterion in a changing-criterion design.

Other reports did not specifically indicate the duration or review of contracts. De Martini-Scully et al. (2000) and Thomas et al. (1987) described phases that lasted two weeks, but did not indicate if the same contract was active for the entire two-week period or if new contracts were

developed and implemented during that time. Wilkinson (2003) referred to observation sessions instead of days and did not reference a set behavioral criteria to signify an end to the contract terms or if the students followed the same contact across phases.

Teachers and students reviewed contingency contracts every day (Allen et al., 1993; Allen & Kramer; 1990; Besalel-Azrin et al., 1977; Hawkins et al., 2011; Hess et al., 1990; Thomas et al., 1987; Williams & Anandam, 1973) or on a weekly basis (Schoen & James, 1991) as another way to support implementation. Contract review sessions were not always described in detail. However, some authors described contract review sessions as renegotiating consequences with the remaining original contract intact (Besalel-Azrin et al., 1977; Hess et al., 1990).

2.9.3 Effect of contingency contracts

2.9.3.1 In isolation

Authors in seven studies (Allen et al., 1993; Allen & Kramer, 1990; Kidd & Saudargas, 1988; Kieffer & Goh, 1981; Thomas et al., 1987; Wilkinson, 2003; Williams & Anandam, 1973) implemented a contingency contract in isolation. Implementation of contracts in these studies successfully decreased rate and duration of problem behaviors in the classroom (e.g., noncompliance, tantruming, throwing objects; Wilkinson, 2003; Williams & Anandam, 1973) and on the playground (e.g., abuse of equipment, acting out towards peers; Thomas et al., 1987). Wilkinson (2003) provided consultation to a teacher and assisted in decreasing intervals of problem behaviors in the classroom from 46.6% to 12.4% of intervals during treatment. Thomas et al. (1987) also implemented contracts to reduce rates of problematic playground behaviors for multiple whole classrooms of students across two schools. The average number of misbehaviors

in two second grade classrooms decreased from an average of 1.17 per recess period to 0.7 and in two fifth grade classrooms, misbehaviors dropped from an average of 1.02 to 0.22.

Researchers also used contracts to improve in-class behaviors (e.g., being on-task, remaining in-seat). Allen et al. (1993) recorded an average of between 16%-23.3% of intervals with on-task behaviors in baseline across three students, which improved to 63.3%-67% of intervals with contracting. Personal hygiene behaviors were also improved with contingency contracts. Allen and Kramer (1990) introduced contracting with a 12-year old boy with EBD and monitored six different behaviors. The boy demonstrated hygienic behaviors 13% of the time in baseline and increased to 70% under contract conditions (Allen & Kramer, 1990).

Two studies which included contingency contracts in isolation yielded mixed results. Kidd and Saudargas (1988) examined positive and negative consequences presented in varying combinations within the different iterations of the contract, discovering that student behaviors dropped below baseline averages under contracts with negative-only consequences. However, any contracting phase with a positive consequence (including positive and negative consequences offered in combination) resulted in improvements in mathematics task completion and accuracy for both students. Kieffer and Goh (1981) implemented a contract during a single administration of an IQ test, finding that contracts resulted in significantly better performance for students in the low-SES category under contract when compared to students in the same SES status who were not under contract; this research also investigated the effect of offering different categories of consequences (tangible or social) to students in middle- and low-SES categories and found no significant difference between these two consequence types.

2.9.3.2 With other interventions

Nine studies presented treatment packages that included a contingency contract (Besalel-Azrin et al., 1977; De Martini-Scully et al., 2000; Hawkins et al., 2011; Hess et al., 1990; LaNunziata et al., 1981; Mruzek et al., 2007; Ruth, 1996, Schoen & James, 1991; Self-Brown & Matthews, 2003). Packages included a contract with the following concurrent treatments: student-teacher conferences, posted rules, self-correction, positive practice, and charting progress (Besalel-Azrin et al., 1977); precision request, a token economy, and mystery motivators (De Martini-Scully et al., 2000); consequences delivered at home for school-based contracts with pre-existing token economy (Hawkins et al., 2011); group counseling (Hess et al., 1990); social modeling (LaNunziata et al., 1981); and a token economy with self-monitoring in the final phase of a changing-criterion design (Mruzek et al., 2007). De Martini-Scully et al. (2000) used contracts to explicitly outline the other facets of the treatment package, while the others simply included a contingency contract in addition to the other approaches in the package. Schoen & James (1991) tested three treatment packages; only one package included a contingency contract alongside self-monitoring, role-playing, and a reminder note displayed on the student's desk. The third package with contracting led to a decrease of daily call outs from 34 in baseline to 7 per day.

Overall problem behaviors in the classroom (e.g., noncompliance, disruption, being out-of-seat, destruction of materials, calling out) were reduced with packages including contracts (Besalel-Azrin et al., 1977; De Martini-Scully et al., 2000; Hawkins et al., 2011; Mruzek et al., 2007; Schoen & James, 1991). Rates of truancy decreased from a group average of 1.83 unexcused days per week to 0.89 per week with contracts and group counseling in place (Hess et al., 1990). Contingency contracts, consequences delivered at home, and use of request cards resulted in reduced frequency of student assaultive behaviors to such a great degree that one

participant was able to spend more time integrated with other students in the private school following the intervention (Hawkins et al., 2011). LaNunziata et al. (1981) implemented a treatment package with contracting and social modeling. Percentage of intervals of ignoring distractions from peers increased from 5.5% in baseline to 83.8% with contracts and submitting neat papers rose from 0% of opportunities to 95% during treatment. For a second student, frequency of saying thank-you and making positive self-statements rose from 15.8% and 13.8% of chances respectively in baseline to 95.4% and 91.8% of respective opportunities during intervention (LaNunziata et al., 1981).

2.10 DISCUSSION

The current review identifies research articles reporting an examination of contingency contracts in elementary school settings. Specific questions addressed information about those who participated in contingency contracting and the behaviors selected and consequences delivered, procedures for contract creation and use, and the effects that contracts have on student behaviors. Researchers from the 16 reviewed studies implemented contracts that included an identified behavior to change (e.g., academic, social, or both), specific targets to reach (e.g., increasing desired behaviors or decreasing unwanted behaviors) and the available consequence for meeting contingencies (i.e., tangible, social, or activity reinforcers).

2.10.1 Contract participants, behaviors, and consequences

2.10.1.1 Participants

Researchers successfully implemented contracts with participants both with and without disabilities from first to eighth grade in both general and special education settings. The findings suggest contracts can effectively change student behavior from a variety of elementary ages and settings. The combination of outcomes from elementary-aged students and previous research with older children (e.g., Kelley & Stokes, 1982) and adults (e.g., Petry et al., 2000, 2005) speaks to contracting's external validity and generalizability (Stokes & Baer, 1977). However, Thomas et al. (1987) present one finding of note regarding age of participants. Thomas et al. found that contracts had slightly stronger effects for the fifth rather than second grade classrooms suggesting additional factors (e.g., wording, presentation, behavior identification, and instruction) may come into play when choosing and implementing contracts for younger elementary students.

Participants of varying disability diagnoses benefitted from contingency contracts. There were no observable differences in the degree of effectiveness of contracting for students with or without disability diagnoses. Students with EBD exhibited higher rates of appropriate social skills (Allen & Kramer, 1990; LaNunziata et al., 1981) and increased rates of rule-following behavior (Mruzek et al., 2007). Contracts reduced aggressive behaviors for students with autism to the extent that participants could be reintegrated to larger group settings at a residential school for students with ASD (Hawkins et al., 2011). Students without disability diagnoses also had more positive experiences in the general education classroom as a result of contracting, including increased compliance with teacher requests (De Martini-Scully et al., 2000), decreased disruptive

classroom behavior (Wilkinson, 2003), and decreased call-outs during instruction (Schoen & James, 1991).

2.10.1.2 Defining behaviors

Researchers and practitioners must clearly define behaviors for both measurement and decision making (Bicard & Bicard, 2012; Downing, 2007; Johnston & Pennypacker, 2009). Clear, operational definitions allow for observers to objectively determine the occurrence and non-occurrence of behavior (Downing, 2007). Reviewed contract literature contained a wide variety of behavioral definitions from well-defined (e.g., Allen & Kramer, 1990) to ambiguous (e.g., Wilkinson, 2003). Particularly clear behavioral definitions had students demonstrate personal hygiene by showing up to school with clean, brushed hair wearing different clean clothes than the day before (Allen & Kramer, 1990) or decrease hair-pulling behavior, defined as "touching, flicking or blowing other people's hair without their permission" (Hawkins et al., 2011). Less clear definitions included tantruming (Wilkinson, 2003) or calling out (Schoen & James, 1991) with no additional clarification or definition provided. Weak behavioral definitions make observing and recording data on the occurrence and non-occurrence of target behaviors difficult (Johnston & Pennypacker, 2009), and clear behavioral definitions are imperative for evaluating the effectiveness of a given intervention (Riley-Tillman & Burns, 2009). Target behaviors should be operationally defined to increase the accuracy of data collection and to allow for more consistent behavior management implementation (Lee, Vostal, Lylo, & Hua, 2011).

In addition to clearly defining a behavior, it is necessary to consider the social significance of chosen target behaviors and treatment in the lives of participants. Target behaviors should not be selected solely because of the effect the behavior has on others; instead

target behaviors should be identified in order to positively impact the student's current situation (Cooper et al., 2007). However, the majority of designs with individual or small groups of participants included teacher-nominated target behaviors with no reference to considering social significance (Allen et al., 1993; Allen & Kramer, 1990; De Martini-Scully et al., 2000; Hawkins et al., 2011; Kidd & Saudargas, 1988; Schoen & James, 1991; Wilkinson, 2003). While reducing certain behaviors (e.g., assaulting others; Hawkins et al., 2011) can have obvious positive impacts on the participant's social interaction with other students, these factors were not explicitly discussed. The social significance of a potential target behavior should be part of the process for identifying behaviors to remediate and potential interventions to follow (Kroeger & Phillips, 2007).

Problem behaviors may occur for a variety of reasons including a student attempting to fulfill an unmet need or being presented with difficult tasks (Downing 2007; Frey & Wilhite, 2005). An assessment of the function of target behaviors should be part of the process of defining behavior and evaluating the success of a behavioral intervention (Ervin, Ehrhardt, & Poling, 2001; Ellingson et al., 2000). Problem behaviors in the school setting are more likely to be reduced if a behavior's function has been considered and guides development (Downing, 2007; Dunlap et al., 2006, Ellingson et al., 2000). Classroom based functional assessment has been incorporated into the creation of behavior management packages with considerable success in the school environment for students with and without disabilities (e.g., Musser, Bray, Kehle, & Jenson, 2001; Nahgahgwon, Umbreit, Liaupsin, & Turton, 2010; Roberts, Marshall, Nelson, & Albers, 2001; Sterling-Turner, Robinson, & Wilczynski, 2001). However, only two studies within this review reference consideration of the function of behaviors when creating contracts (Mruzek et al., 2007; Wilkinson, 2003). Without conducting an analysis of the functions of a

behavior, teachers may misalign treatment by determining incorrect behavior function. Incorrectly guessing about or not considering function could result in wasted time or adding unnecessary components to treatment packages (Sterling-Turner et al., 2001) or increasing problem behaviors (Cooper et al., 2007).

2.10.1.3 Replacement behaviors

Following function determination for problem behavior, researchers and teachers should identify potential appropriate alternative behaviors to teach and reinforce instead (Lewis & Sugai, 1999). If students do not have the opportunity to learn an appropriate response, long-term behavior change is less likely to occur (Ducharme & Shecter, 2011). Some targeted problem behaviors may have an incompatible replacement behavior, meaning that the target behavior and the replacement behavior cannot be performed simultaneously. Authors in three reviewed studies developed interventions designed to increase individual appropriate behaviors that, based on author description, were incompatible with the identified problem behaviors (Allen et al., 1993; Allen & Kramer, 1990; Kidd & Saudargas, 1988). Allen & Kramer (1990), for example, targeted behaviors that were identified as topographically incompatible (e.g., appropriate hygiene was in part defined as having clean hair and clothes which is incompatible with having dirty hair and clothes).

Not all behaviors have incompatible replacements. A student may engage in a class of behaviors (e.g., breaking pencils) which do not have directly incompatible and functionally similar replacement behaviors (Bicard & Bicard, 2012). In cases such as these, replacement behaviors are identified which are alternative responses that serve a similar function (Lewis & Sugai, 1999). Two additional reports indicated that contracts were implemented to increase

behaviors (LaNunziata et al., 1981; Mruzek et al., 2007). LaNunziata et al. (1981) described that to address problematic social skills behaviors of three students, contracts were used that included increasing alternative behaviors like saying thank you and making positive self-statements. Increasing rule following behavior was the target of contracts implemented with two students by Mruzek et al. (2007).

All five of these investigations demonstrated that the contingency contracts positively affected the target behaviors with no obvious differences between contracts used to teach incompatible versus alternative behaviors. For example, Kidd and Saudargas (1988) targeted incomplete work by reinforcing the incompatible behavior of submitting completed work. The contracts' effectiveness with one participant was demonstrated by her rate of 85% completed tasks in baseline increasing to 100% in the final baseline phase. LaNunziata et al. (1981) addressed poor self-attitude exhibited by one student through reinforcing the alternative behavior of making positive self-statements. In baseline, the student made positive self-statements when prompted an average of only 13.8% of attempts; this increased to an average of 91.8% under contract, reaching 100% at the end of the phase. This performance was maintained during a second baseline phase with a 100% average of positive self-statements, even though the contract phase had terminated.

2.10.1.4 Selecting reinforcers and determining preference

Identification of potentially reinforcing stimuli presents a crucial factor to effectively creating behavior change interventions (Horrocks & Higbee, 2008; Kuhn et al., 2006). Multiple individuals made consequence choices within the reviewed studies. Students chose the majority of consequences in contingency contracts (Besalel-Azrin et al., 1977; Hess et al., 1990; Kidd &

Saudargas, 1988; Kieffer & Goh, 1981; Mruzek et al., 2007; Ruth, 1996; Schoen & James, 1991). Other reviewed studies established consequence options by teacher or researcher determination (Hess et al., 1990; Ruth, 1996; Thomas et al., 1987; Wilkinson, 2003). While a child's verbalizations may not always accurately reflect how reinforcers will affect future behavior (Baer, 1990), teachers may not always accurately predict the effectiveness of consequences without student input (Cote, Thompson, Hanley, & McKerchar, 2007). Administering a stimulus preference assessment or survey may be imperative when developing behavior change programs for students with disabilities (King & Kostewicz, in press), and also might provide direction when selecting reinforcement for students in general education settings (Schanding, Tingstrom, & Sterling-Turner, 2009).

A stimulus preference assessment formally offers certain stimuli to a student in a systematic way to determine preference (Schanding et al., 2009; Snyder, Higbee, & Dayton, 2012). Less formal versions of determining preference could include asking directed open-ended questions or interviewing significant others in a student's life (Cooper et al., 2007; Davis et al., 2010). Outside of preference surveys (e.g., Kieffer & Goh, 1981; Mruzek et al., 2007), no specific formal attention was given to individual consequence properties (e.g., reinforcing or punishing) for participating students. Making an assumption that all possible consequences will have the same reinforcing properties for all students can result in designing ineffective treatment (Davis et al., 2010).

2.10.2 Creating and implementing contingency contracts

2.10.2.1 Student as an active participant

Students were involved with contract development through the selection of goals or target behaviors (Ruth, 1996; Self-Brown & Matthews, 2003; Wilkinson, 2003) and choosing consequences (Kidd & Saudargas, 1988; Mruzek et al., 2007; Ruth, 1996; Schoen & James, 1991; Wilkinson, 2003). Participation was described as voluntary in only one study (Ruth, 1996). While student involvement in contract creation may increase goal achievement (e.g., Ruth, 1996), it is not clear if active student involvement is necessary for contingency contracting success when attending to specific behaviors. It may be inappropriate for high degrees of involvement in contract creation (e.g., Kidd & Saudargas, 1988; Mruzek et al., 2007; Schoen &James, 1991; Wilkinson, 2003). Students with EBD, for example, may benefit more from pre-established structure (Kostewicz, Ruhl, & Kubina, 2008), so behavior targets and contingencies may be more appropriately identified by the practitioner through a form of functional analysis or preference surveys or assessments. Although there was not a significant difference in the effectiveness of studies more actively involving students versus studies that did not include the student in contract development, it is necessary to consider the benefits of more or less involvement per individual student.

2.10.2.2 Presentation to students

Contracts were typically discussed with students prior to implementation. Nearly every investigation, with the exception of Allen et al. (1993), LaNunziata et al. (1981), and Williams and Anandam (1973), indicated that contracts were taught to or discussed with students, though

there were very few implementation details provided. Students were asked to agree to the contract verbally or in writing in all but six studies (Allen et al., 1993; LaNunziata et al., 1981; Ruth, 1996; Thomas et al., 1987; Wilkinson, 2003; Williams & Anandam, 1973). Cited resources for contract development (i.e. Homme, 1969, 1976; Stephens, 1978) did not include explicit direction for students to agree to a contract. More recent resources (e.g., Cooper et al., 2007; Downing, 2002, 2007) suggest that contracts should include a signature line for students and teachers.

2.10.2.3 Delivery of consequences

Consequence delivery varied and was not clearly explained in most studies. All reports, except Hawkins et al. (2011) and Kieffer and Goh (1981), included delivering consequences in school. Hawkins et al. and Kieffer and Goh both implemented contracts that included contingent consequences delivered in the home the same day. Time between the student emitting the target behavior and consequence delivery also varied from immediate (Williams & Anandam, 1971) to consequences provided only once per week (Self-Brown & Matthews, 2003). Consequence delivery may have had little effect on success of the contracts examined in this literature base, but so few details about consequence delivery make this conclusion difficult to substantiate. Although immediate delivery of consequences typically strengthens a behavior, delayed contingent consequences can also effectively improve targeted behavior and promote generalization (Salzberg, Hopkins, Wheeler, & Taylor, 1964).

2.10.3 Contract effects

Even though contracts were implemented as isolated interventions, some of these were done in addition to pre-existing treatments that were in use during baseline. For example, Allen and Kramer (1990) implemented a contingency contract on top of a previously running token economy with tokens delivered as contract consequences. The results observed with this particular approach would be most relevant to a situation with an already established token economy. Fewer conclusions can be drawn from studies that included contracts in combination with other treatments unless the intervention package was to be replicated. It is not possible to parcel out effects if the contract was implemented in combination with other interventions, so those studies which used contracts as part of a package have limited potential for generalizing to other classrooms or students.

A contingency contract had negative effects on target behavior in only one phase of one study in the reviewed literature (Kidd & Saudargas, 1988). The contract in question was written to include positive punishment for failing to meet the day's target of mathematics accuracy and task completion. If a student did not meet his or her goal, additional homework would be assigned to be completed that night. In the phase with the negative consequence contract, one student's accuracy rate dropped to 69% from 93% in the prior positive consequence phase. A second student's task completion and accuracy were 100% and 94% respectively during a positive and negative consequence contract but both dropped to 73% and 59% under a negative only contract. Because other contracting phases in this study included increases in the measured behaviors, the negative consequence was likely the cause for the decrease in behaviors.

2.10.4 Implications for practitioners

Teachers searching for feasible classroom management strategies should consider contingency contracts. De Martini-Scully et al. (2000) found that interventions including contingency contracts present as convenient problem solving tools in the classroom setting. Contingency contracts also offer a way to individualize behavior management, through creating a unique contract to use with each student. Guides for creating contingency contracts exist (e.g., Homme, 1969, 1976) and can assist with planning the contracting process. However, additional resources are necessary because older guides and the majority of reviewed studies did not include sufficient information for replication or for creating or implementing contracts without additional support. Other resources provide more detail about contingency contracting (e.g., Cooper et al., 2007), but this information is not necessarily directed to classroom teachers and is embedded with more specialized content. Classroom management texts might also contain helpful information (e.g., Downing, 2007) but may not have enough explicit instruction for contract creation.

Mruzek et al. (2007) has presented a report that contains a step-by-step list to create a contract (including administering an analysis of the function of behaviors) and a sample contract; in combination with other instructions (e.g., Cooper et al., 2007; Homme, 1969, 1976; Downing, 2007) contingency contract creation and implementation by individual teachers should be feasible. Two possible resources with specific task-lists for contract creation are Downing (2002) and Mruzek et al. (2007). These two articles in combination feature examples and step-by-step instructions for moving from identifying problem behaviors (including defining, considering

function, and monitoring) to writing the contracts (e.g., goal setting, setting criteria for termination, and contract selection) and implementing contracts with students in the classroom.

Contracts can easily be added to pre-existing classroom management applications. Some of the reviewed studies (e.g., Allen & Kramer, 1990; Hawkins et al., 2011) included contingency contracts alongside other behavioral interventions. Because the conditions in any given classroom can vary significantly, it is necessary for teachers to have simple, add-on behavior management approaches. Contingency contracts can be added to classroom management options (e.g., token economies, precision request, self-monitoring) that are already in place. This is especially useful if a whole-class management approach is successful for most students and additional supports are required for one student or a small group.

While designing a classroom management approach to include contingency contracts, teachers should plan to conduct additional research or seek other explicit guides or consultative support. Decisions about the types of behaviors and consequences to include in contracts should also be made carefully. For two student participants in research by Kidd and Saudargas (1988), negative only consequences resulted in lower performance on mathematics tasks than in baseline conditions. These results suggest that teachers should consider including positive consequences over punishing contingencies. Teachers can select from a variety of reinforcers, but preference assessments may lead to the most appropriate and reinforcing options, as seen in Mruzek et al. (2007). The function of problem behaviors should be analyzed and carefully considered when choosing target behaviors. Contracts should be used to teach acceptable, replacement behaviors that are incompatible with or are functionally alternative to the problem behaviors.

2.10.5 Directions for future research

While other bodies of research exist supporting the use of contingency contracts in institutional settings, with parents implementing contracts, and with older students, using contracts in isolation in elementary classrooms has less support. As discussed above, teachers require more guidance on contingency contract implementation in the classroom including how to best introduce contracts to students and whether participants should be asked to agree verbally or in writing. This review of literature did not identify studies which explicitly determined the categories of disability or individual student characteristics which contingency contracts proved most effective, so further research should continue to define characteristics of students for whom contracts are most successful. Results of Thomas et al. (1987) suggest that better outcomes when using contingency contracts with fifth graders than with second graders. However, the age range of students in other studies varies from first to eighth grade. Researchers should continue to identify the most appropriate age ranges and disability categories for implementing contingency contracts.

The main procedural elements of contracts (i.e., behaviors and consequences) were included in all versions of contracts in the reviewed studies. However, there was little consensus on how behavior targets and consequences were identified and chosen and how students were involved in the contract development process. Future examinations of contracts should consider the functions of behaviors and could benefit from using preference assessments to identify consequences. Any behavior change program should also teach appropriate replacement behaviors, so contracts which aim to reduce inappropriate behavior should include an additional element of teaching new behavior in order to increase the social validity of treatment.

More research is required to determine if contracts can effectively increase desirable behaviors while reducing problem behaviors. Because students were included in creating contracts in different ways (e.g., choosing consequences, choosing target behaviors, setting goals), further research should identify the degree to which participants should be involved and individual demographic characteristics that could suggest appropriate levels of involvement. For the benefit of practitioners, researchers should continue to provide clarification and specific guidance on how to use contingency contracts in elementary classrooms, including instruction on how to best select, define, and monitor target behaviors, select goals and criterion, introduce contracts to students, and implement them in the classroom. Researchers can also continue to identify the most appropriate population of students based on qualifiers like disability diagnoses and age.

2.10.6 Conclusions and research questions

Contingency contracts combine multiple behavioral modification techniques into a simple treatment that can be applied on top of other management approaches (e.g., Allen & Kramer, 1990; Hawkins et al., 2011) or in isolation (e.g., Allen et al., 1993; Thomas et al., 1987), making them realistic for practitioner use. Given the need for classroom management strategies for use in inclusive environments, contingency contracts can serve as an easy to implement approach with some demonstrated promise for decreasing problematic behaviors. When choosing target behaviors, practitioners should consider the function of problem behaviors (e.g., Mruzek et al., 2007; Wilkinson, 2003) and focus on reinforcing desired behaviors which are incompatible with or alternative to problem behaviors (e.g., Kidd & Saudargas, 1988; LaNunziata et al., 1981).

Research also included little consideration of the social significance of target behaviors. Contract implementation can occur with students with various disabilities (e.g., Mruzek et al., 2007; Ruth, 1996) or without disabilities (e.g., De Martini-Scully et al., 2000; Schoen & James, 1991) at the elementary level. Further research is needed in determining if contracts can increase appropriate behaviors, and refinement on the process of incorporating evaluations of social significance and the function of behaviors is necessary. Thus, the purpose of the current study serves to determine the effects of a contingency contract that is developed following a consideration of the function and social significance of target behaviors on increasing functionally equivalent replacement behaviors. Specifically, the study will answer the following question: What effect will a contingency contract have on the behavior of elementary aged students in an inclusive setting when the contract is: developed based on the results of a functional assessment and preference survey; and designed to increase occurrence of a socially valid replacement behavior?

3.0 METHODS

3.1 PARTICIPANTS AND SETTING

The study took place in an inclusive third grade classroom in a rural public elementary school which serves approximately 700 students in kindergarten through sixth grade. After receiving university (Appendix A) and school district approval to conduct the research, the experimenter contacted the classroom teacher for student nominations. The classroom teacher identified potential participating students based on three criteria. First, students must exhibit high levels of perceived problem behaviors during academic instruction. Second, students must not currently have a behavior plan in place targeting any classroom behaviors. Third, students must receive instruction in an inclusive setting. The classroom teacher identified six possible students for participation. After initial screening (see Procedures below), parental consent and student assent (Appendix B), observation, and review of academic performance, three students were selected: John, Greg, and Max (Table 2). Of the other three nominated students, parental consent and student assent was obtained for two. These two students did not experience the same degree of academic difficulty and through initial observation it was determined that they did not display the same level of disruptive behaviors as the final three participants.

Student	*Age*	*Gender*	*Classification*	*Academic Grade at Study Onset*
Greg	8	Male	None	Mathematics: 69.4% (D+)
John	8	Male	SLD	Mathematics: 60.3% (D-)
Max	9	Male	None	Reading: 36.3% (F)

Note: SLD = Specific Learning Disability

Table 2. Participants

John and Greg, aged eight, and Max, aged nine, all displayed academic difficulties due to problems remaining engaged with academic instruction and materials. John had a specific learning disability in reading and displayed difficulties in other academic areas (e.g., math). According to his IEP, John received the accommodations of testing in a separate environment and had the option of his test questions read aloud during mathematics. Greg and Max did not have a special education diagnosis at the study onset, but did struggle during academic instruction due to disengaged behaviors. Unrelated to study outcomes, Max did receive a diagnosis of a specific learning disability upon study completion. The classroom teacher also identified three comparison students categorized as displaying average appropriate/inappropriate classroom behavior. All three provided parental consent and student assent for inclusion (Appendix C).

Prior to the study, the classroom teacher intervened with non-engagement behaviors by reminding students to "look, listen, and do," employing physical proximity, providing one-on-one or small group support, or verbal prompting to return to work. The teacher also occasionally used a verbal reprimand for students who left their workspace without permission during instruction. Students also may have lost recess for incomplete work that was assigned during instructional periods. Other than the noted positive and negative verbal interactions, no additional repercussions and no other formal behavior plans or management techniques occurred during the course of the study relating to behavior during instruction.

Video-taped observations occurred in the classroom during instruction. Individuals present during observations included approximately 21 students, the classroom teacher, a student teacher from a nearby university, and the experimenter. Due to the necessity of capturing the entire classroom, parents of all students had the opportunity to opt-out having their child appear on camera by returning an opt-out permission slip sent home to parents (Appendix D). Only one non-participating student's parents requested their child not appear on film. The experimenter positioned the video camera in such a way as to not capture that student's image. Individual meetings with the three participating students occurred in the back of the classroom at a table for group workspace except for the first meeting to explain the study and obtain student assent, which took place at a desk in the hallway just outside of the classroom.

3.1.1 Materials

Necessary materials for in-class observations included a stopwatch, a digital video recorder and a tripod, and randomized momentary-time sampling sheets indicating four random intervals per minute with space to mark engagement. The experimenter used paper copies of the functional assessment screening tool (Appendix E; FAST; Iwata, DeLeon, & Roscoe, 2013), the prioritizing target behaviors worksheet (Appendix F; Cooper et al., 2007, p. 64) and the social significance worksheet (Appendix G; Cooper et al., 2007, p. 57) during participant screening and identification. After obtaining consent/assent, other necessary forms included the open-ended stimulus preference survey (Appendix H), a reinforcer menu listing the available consequences for each participant corresponding to his preference survey responses (example in Appendix I),

contingency contracts for each participant (example in Appendix J), and the fidelity checklists for initial and daily contract review (Appendices K and L respectively).

The experimenter employed a uniquely-colored folder for each participant and a magnetic clip to affix to the teacher's desk for the intervention phases, along with stickers for the task record section of the contingency contracts, the identified tangible and edible reward preferences for participants (e.g., mechanical pencils, refill lead, colored pens, Hot Wheels cars, Jolly Ranchers, Hershey Kisses) and a bin for storing the available items in the classroom. Duration and frequency of the dependent variable was measured by reviewing the recorded video and using the MOOSES software (Tapp, Wehby, & Ellis, 1995) on a Hewlett Packard iPAQ.

3.1.2 Dependent variable

The experimenter measured the dependent variable, engagement, across two dimensions during 15 minute daily observations: duration and frequency. The experimenter employed a modified definition of engagement (Clare, Jenson, Kehle, & Bray, 2000; Skerbetz & Kostewicz, in press). Student engagement consisted of maintaining eye focus on a targeted task, the teacher, or a peer who had permission to speak (e.g., speaking while giving an answer or asking a question or a partner or small group member with whom the participant was assigned to work). Engagement ceased when students focused on anything else during instruction (e.g., in the desk, on another peer without permission to speak, another peer's paper).

Engagement duration consisted of the amount of seconds per 900 (i.e., 15 minutes) the student met the definition of engagement during each daily observation. The MOOSES software tallied frequency based on switching between two conditions: engaged or non-engaged. Each

time the student initiated the engagement condition counted as a single instance of engagement reported as engagements per 15 minutes. Each instance of engagement ended once the student entered an instance of non-engagement (see above) and/or left the room.

3.1.3 Independent variable

The independent variables (IV) consisted of a daily contingency contract, daily performance feedback, initial role play of target behavior, and student-chosen consequences.

3.1.3.1 Daily contingency contract

Each contract included the participant's name and sections identifying the target behavior, goal in terms of intervals of engagement, and the behavior of the teacher (i.e., consequences available contingent upon meeting set behavior targets and when these consequences were to be delivered; Appendix J). The contract terms were developed with a consideration of the social significance of the target behavior and an analysis of the function of target behaviors (Appendices F and D), as well results of the preference survey (Appendix H) for each participant following a combination of steps outlined by Mruzek et al. (2007) and Cooper et al. (2007). A sample contract is included in Appendix J. Contract presentation was conducted by the primary researcher according to the procedures outlined in the fidelity checklist for initial contract review and role play (Appendix K) or subsequent daily contract review (Appendix L). The target criterion for contract success was based on the comparison students' average MTS intervals of engagement during the initial baseline phase (see Procedures for specific goals).

3.1.3.2 Daily performance feedback

Daily performance feedback included notifying each participant whether he met his contracting goal as soon as possible (i.e., after instruction or during a transition from one activity to another) by using a star sticker as a placeholder for the delivery of earned consequences.

3.1.3.3 Role-play of target behavior

Role play of target behavior occurred on the first days of treatment Phases 2 and 4. The steps included: verbally defining the target behavior, demonstrating the target behavior and asking the participant to demonstrate the target behavior, demonstrating a non-example of the target behavior and asking the participant to demonstrate a non-example, and showing or describing to the participant a mix of four more examples or non-examples and asking him to differentiate between the two. The process continued until the participant could differentiate correctly a total of four times.

3.1.3.4 Student-chosen consequences

An open-ended preference survey (Appendix H) was conducted with each student in order to generate a list of potential reinforcers. The results of the surveys were discussed with the classroom teacher in order to identify which reinforcers were realistic and options were written on an individual reinforcer menu (Appendix I) which included three categories: things, food, and activities (Table 3). During daily contract review, each student was shown the reinforcer menu and asked to choose one. Participants also had the option to look at the bin of reinforcers to select items that may not have been explicitly written on their contract and to request to add new

items to the reinforcer menu through the course of the study. The chosen consequence was written in the appropriate space on that day's contingency contract.

3.1.4 Experimental design

An A-B-A-B withdrawal design was used to evaluate the effects of the independent variable on the dependent variable (Cooper et al., 2007; Johnston & Pennypacker, 2009; Kennedy, 2005; Riley-Tillman & Burns, 2009). Phases included a baseline phase, an intervention phase with independent variable implementation, a withdrawal phase, and a second intervention phase. Data were gathered during all phases until relatively stable engagement duration responding was present (Johnston & Pennypacker, 2009). Criterion for contingent reinforcement was the same in both intervention phases. To demonstrate effects of contingency contracting on engagement behavior, this withdrawal design allowed for comparisons of baseline performance to behaviors under contract (Phases 1 to 2), and offered the opportunity for replication of these effects between Phases 3 and 4 (Cooper et al., 2007; Johnston & Pennypacker, 2009). Reversal to baseline levels could be observed when the intervention was withdrawn at the onset of Phase 3. Further experimental control was observed by comparing behaviors under intervention Phases 2 and 4 (Kennedy, 2005; Riley-Tillman & Burns, 2009).

3.1.5 Procedures

3.1.5.1 Participant nomination and selection of target behaviors

The classroom teacher nominated six students for possible participation in this study. The teacher called parents (see script in Appendix M) to briefly inform them of the purpose of the study and

that parental consent forms with more information would be sent home (Appendix B). Using student identification numbers, she also completed the prioritizing potential target behaviors form for all nominees (Appendix F; Cooper et al., 2007, p. 64). The prioritizing target behaviors form asked the classroom teacher to consider between two and four possible target behaviors for each student and to rate those behaviors on several different questions. As parental consent forms were returned, the experimenter obtained student assent. One student's parent did not return the consent form while the other five granted approval.

The experimenter reviewed the results of the prioritizing target behaviors form and conducted two initial observations of all five potential participants. Results suggested that lack of eye contact during instruction and incomplete work were both listed and prioritized at the same level for each student. Based on initial observations, the prioritizing target behaviors form, and review of grades, three students met participant criteria; the other two nominated students did not demonstrate frequent problem behaviors and maintained higher academic scores. For the three participating students, the experimenter defined the target behavior of engagement (see above) to attend to both prioritized skills. The teacher also completed the worksheet for evaluating social significance of a target behavior (Appendix G; Cooper et al., 2007, p. 57). The evaluation of social significance required the classroom teacher to consider whether improving the behavior would elicit reinforcement in the natural environment or whether changing the behavior might encourage others to engage with the participant in a more socially appropriate way. The results suggested that reducing non-engagement (by targeting an improvement in engagement behavior) was socially significant for all participants because a reduction would: result in reinforcement in the natural environment, predispose others (i.e., peers and teacher) to interact positively with the student, and allow for the student to engage in more challenging academic behavior.

During the final two pre-baseline observations, the experimenter completed an Antecedent-Behavior-Consequence chart for all three participants. The results of the ABC analyses suggested an escape/avoidance consequence maintained disengagement; students most often avoided or delayed work completion. The teacher also completed a FAST (Iwata et al., 2013) for all three participants with the results supporting each ABC analysis. Highest scores occurred under the social/escape category.

3.1.5.2 Baseline condition (Phase 1)

During baseline, the experimenter recorded video of the majority of the classroom during three 15-minute observations sessions per day. Each session was designated for one participant (i.e., Greg and John each during a different 15 minute session of mathematics and Max during a 15 minute session of reading/language arts). The experimenter determined engagement/non-engagement in the classroom through a momentary time sampling (MTS) procedure. In a pre-determined, randomized fashion, the experimenter noted the engagement state for the observed participant once every 15 seconds for the entire 15 minutes (total of 60 instances). Reviewed videos later determined engagement/non-engagement for comparison students and for duration and frequency of engagement.

3.1.5.3 Preference survey and determining consequences

The experimenter conducted a preference survey with each participant near the end of baseline and prior to the first contingency contracting phase (Appendix H). Brief, open-ended preference assessment interviews were conducted according to questions listed in Cooper et al. (2007). During the preference survey session, each participant was asked to choose a uniquely colored

folder for use during intervention observation sessions. Three categories of possible consequences were listed: Things, Food, and Activities (Table 3).

Things	Food	Activities
• Mechanical pencil • Three pieces of refill lead • Two pencil top erasers • Colored pen • Folder • Hot Wheels car • Yo-yo	• Capri Sun • Four Hershey Kisses • Two pretzel rods • Fun-size M&Ms • Fun-size Skittles • Four Jolly Ranchers	• Watering classroom plants • Emptying recycling bin • Classroom librarian (i.e., being responsible for straightening the classroom library) • Floor duty (i.e., helping teacher check and clean the floor at the end of the day)

Table 3. Available consequences

Based on the results from preference surveys, observations, and discussion with the teacher, a list of at least 12-15 possible reinforcers was developed per participant and used during intervention sessions (noted below).

3.1.5.4 Intervention condition (Phase 2)

A paper contract for each participant was printed daily that included the student's name, defined behavior, the criterion required for access to contingent consequences, blank lines for writing chosen consequences, and two signature lines for the participant and the general education teacher. The primary researcher introduced the first contract to the participants through discussion and role play (Appendix K). Initial contract review required the experimenter to meet with each participant individually, review all sections of the contract, define the target behavior through role-play (see Independent Variables for description), discuss goals, and ask participants to choose contingent reinforcers.). Goals for Jeff and Greg involved meeting 51 intervals of engagement and Max had to meet 50. In order to help the participants conceptualize their MTS

interval goal, each participant's average number of MTS intervals with engagement from baseline was visually presented on a graph with a second visual aid displaying the student's contract target (Appendix N).

Participants were involved in contract development by choosing the reinforcing items or activities available contingent upon meeting behavior targets. The student was shown a reinforcer menu and asked "What would you like to earn today?" Participants were also given the chance to look through the bin containing the tangible options while making their decisions. Participants were also given the option of asking for new items to be included throughout the study that were not initially listed on the preference survey (e.g., one participant earned a yo-yo and a second participant requested that option be added to his reinforcer menu). The chosen consequence was written on the blank spaces of the contract. The primary researcher restated all contract terms and asked the participant to sign his name and to take the contract to the teacher for her signature. The classroom teacher would read the contract, comment on the participant's chosen consequence, and encourage him to work hard to earn his reward before signing her name at the bottom. The contract was then placed in the participant's uniquely colored folder along with the fidelity checklist for that day. For all contracting days following the first day of the Phases 2 and 4, contract development included a review of the prior day's contract and performance, a short reminder of the target behavior, and restating the criterion required for contingent reinforcement. Choosing reinforcers and having the contract signed by the participant and the teacher was the same on initial and subsequent contracting days. Daily contract review followed the steps listed on the fidelity checklist in Appendix L.

Observations during intervention sessions occurred in the same manner as baseline except videos solely focused on the target participant. Before the start of each contracting

observation, the participant was quietly notified his contract session was beginning and his folder was clipped to the front of the teacher's desk for the duration of the 15 minute observation. At the conclusion of the intervention observation, the experimenter immediately tallied the total of engaged intervals and notified each participant of his performance and whether he met his goal as soon as possible (e.g., a break in instruction because of transition to a new activity or a switch in subjects). Each participant was either congratulated on his success and given a sticker to affix to his contract (e.g., Allen & Kramer, 1990; De Martini-Scully et al., 2000; Mruzek et al., 2007) or notified that he could try again with the next contract to meet his goal and earn a reward. For unsuccessful attempts, the experimenter provided specific feedback (e.g., "I noticed you talking to your neighbor and that was not being engaged"). Consequences from the things list were delivered either with the daily performance feedback for items that could be used during instruction like pencils or before recess for non-instructional items like toys. Food consequences were given before lunch, and all consequences from the activities list were completed at the end of the day.

3.1.5.5 Withdrawal condition (Phase 3)

During the withdrawal conditions, the experimenter removed all aspects of the intervention (i.e., review and contracting procedures, selection and delivery of consequences, notifying participants when they were being observed). Observations occurring during the withdrawal condition mirrored baseline observations for all participants (See above).

3.1.5.6 Intervention condition (Phase 4)

Students reentered intervention following the withdrawal condition. The second intervention condition followed procedures established in the first intervention condition, including maintaining the same available consequences, same behavior goal, and role-play practice. The final intervention condition concluded with the ending of instruction during the school year.

3.1.6 Procedural fidelity

During each day's contract review, the experimenter completed a fidelity checklist. Two checklists were used including a procedural checklist for initial contract review (Appendix K) and daily contract review (Appendix L). The experimenter completed all steps (100%) of the intervention across all participants.

3.1.7 Reliability

To calculate reliability, the experimenter reviewed videos and re-tallied duration and frequency using the MOOSES software for 20% of the video-taped observation sessions. A total agreement formula was used to calculate a percentage (smaller frequency count or total duration / larger frequency count or total duration) x 100 (Kennedy, 2005, p. 115). The results indicated that reliability averages for duration and frequency were 99% (r. 97-100) and 95% (r. 82-100) respectively.

3.1.8 Social validity

Following the final intervention day, the participants and classroom teacher were asked to complete social validity surveys (Appendices M and N respectively). Participants were verbally asked open-ended questions (e.g., Did you like using contracts? Why/why not? Did the contracts make you want to try harder? Would you keep using contracts if you could?; Appendix O). The teacher was also provided with a written social validity measure including one open-ended question and nine Likert scale questions (Appendix P). The open-response question asked the teacher to indicate what she would change about the intervention. Using a 5-point Likert scale, the teacher was also asked to rate various aspects of the treatment (e.g., How successful was the treatment?; Will you continue to use contingency contracting with this student or students?; Would you use this process for a contingency contract for other students?). The experimenter met with the teacher to discuss the responses to the social validity questionnaire, and during that interview she provided further clarification about her written answers.

4.0 RESULTS

4.1 COMPARISON STUDENTS

Comparison students included two males and one female receiving instruction at the same time and in the same classroom as participating students. Table 4 displays the average number of MTS intervals meeting the engagement criterion across Phase 1 observations and average seconds and frequency of engagement during a sample (20%) of baseline observations for comparison students.

		Comparison Student 1	*Comparison Student 2*	*Comparison Student 3*	*Ave.*
Ave. MTS intervals meeting engagement criterion during:	Greg's observation sessions	54	54	57	55
	John's observation sessions	52	51	54	52
	Max's observation sessions	47	49	54	50
Ave. seconds of engagement during:	Greg's observation sessions	820	855	873	861
	John's observation sessions	726	812	848	792
	Max's observation sessions	698	731	846	743
Ave. frequency of engagement during:	Greg's observation sessions	16	7	5	7
	John's observation sessions	12	8	10	9
	Max's observation sessions	12	12	13	12

Note: MTS = Momentary Time Sampling.

Table 4. Comparison students' average scores

A total of 101 observations across the three comparison students provided input in creating realistic momentary time sampling (MTS) goals for each participating students' contingency contract. During Greg's observations, the three students met the engagement criterion in an average of 55 intervals. Students met behavioral goal in an average of 52 intervals during John's observations and 50 during Max's. The resulting MTS goals for Greg, John, and Max resulted in 51, 51, and 50 intervals.

In addition, the experimenter coded 20% of each comparison students' engagement duration and frequency providing another link between the MTS sampling procedure and actual performance. Table 4 shows comparison student 3 remained engaged the longest with the fewest number of engagements mirroring the higher MTS intervals scores. When considering the average results across the three comparison students, the greatest duration length and number of MTS intervals occurred during Greg's sessions and the least during Max's. Average frequency followed a similar but reversed pattern with the lowest average observed during Greg's sessions and the highest during Max's.

4.2 PARTICIPATING STUDENTS

4.2.1 Seconds of engagement

Figure 1 illustrates the seconds of engagement for Greg, John, and Max during 15 minute (900 second) observation sessions. The horizontal axis displays consecutive calendar days while the vertical axis indicates the total duration of engagement in seconds. All dots represent the number of seconds of engagement. Small and large dots represent days the student failed to meet and

successfully met the MTS or contract criterion, respectively. Phase change lines one and three indicate a switch from baseline to the implementation of the intervention (contingency contract). Phase change line two represents a removal of the intervention and a return to baseline conditions.

4.2.2 Seconds of engagement during Phase 1 (Baseline 1)

During baseline (Figure 1), all three students exhibited highly variable duration of engagement. John averaged 578 seconds ranging from 415 to 774. Averaging more time, Greg and Max engaged for 583 (r. 427-680) and 594 (r. 509-710) seconds, respectively. John and Max demonstrated a flat to slightly decreasing trend, while Greg showed a slightly increasing baseline trend. Additionally, no student met the MTS criterion during any baseline observation.

4.2.3 Seconds of engagement during Phase 2 (Intervention 1)

With the introduction of contingency contracting in Phase 2, all three students experienced an initial increase in the seconds of engagement (Figure 1). John initially jumped from 451 to 731 seconds with the introduction of the contract. Greg and Max also jumped up to lesser degrees (680 to 802 and 554 to 686 seconds). All students demonstrated low levels of variability and moderately increasing trends. Levels of engagement duration also increased from baseline amounts. Greg's levels rose from 583 to 812 with John (578 to 738) and Max (594 to 768). Regarding the MTS or contact criterion, Greg met the contracted goal each day in Phase 2. John and Max met the goal seven out of eight intervention days.

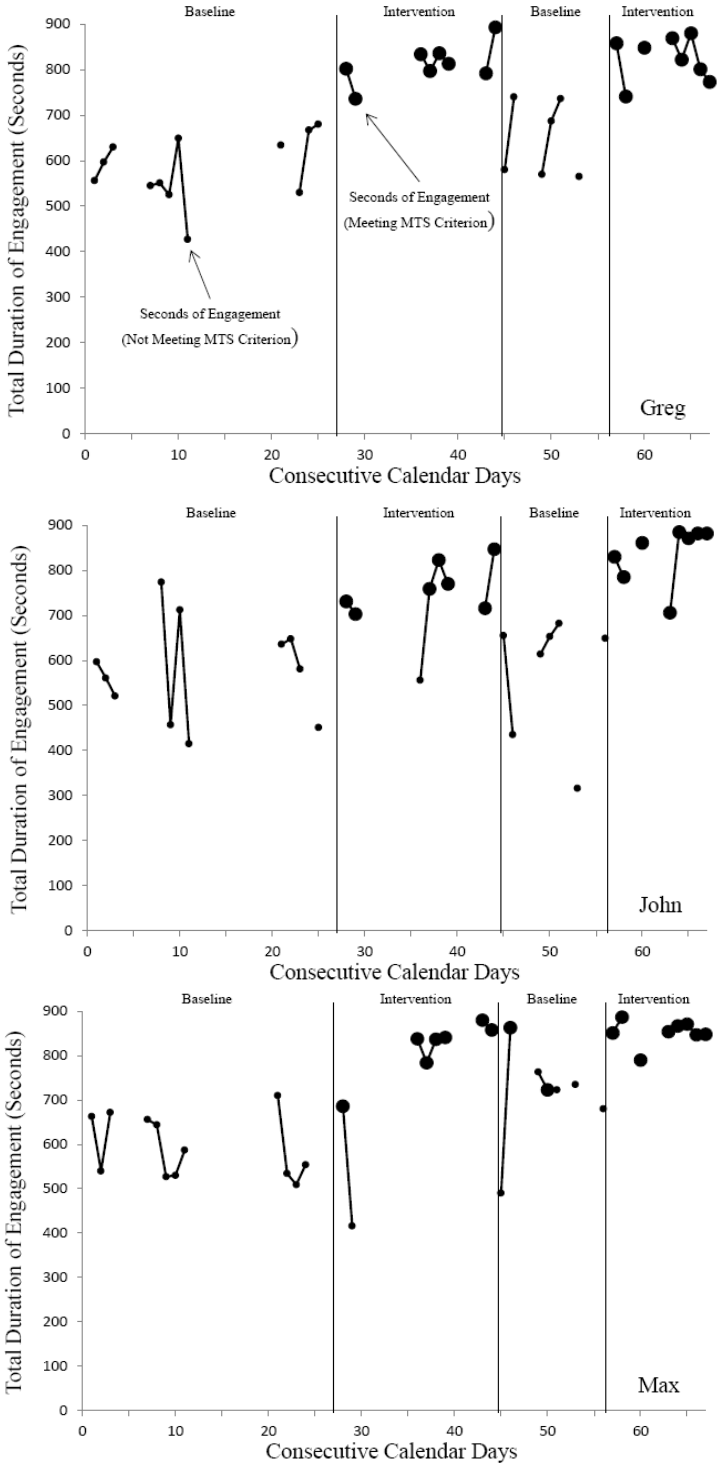

Figure 1. Seconds of engagement

4.2.4 Seconds of engagement during Phase 3 (Baseline 2)

All three students initially decreased engagement levels when reintroduced to baseline conditions (i.e., removal of the contingency contract). After the initial decrease, two students (Greg and Max) showed an immediate, but not stable, increase to engagement rivaling treatment levels. Greg and John had highly variable responding times with slightly decreasing trends. Max displayed a steadily decreasing trend with little variability. All students had engagement levels somewhat comparable to the first baseline and lower than the first intervention phase. John engaged for less average time (572 seconds) as compared to his first baseline (578) and intervention (738). Greg and Max both displayed more average seconds engaged during the second baseline (646 and 711) as compared to the first baseline (583 and 594), but fewer than intervention (812 and 768). With the contract no longer in effect, Greg and John failed to meet the MTS criterion on any day. Max, on the other hand, did meet the criterion two out of seven days.

4.2.5 Seconds of engagement during Phase 4 (Intervention 2)

Seconds of engagement immediately increased for all three participants when contingency contracts restarted. Levels during the final intervention phase outpaced all previous phases with students engaged for an average of 823 (Greg), 838 (John), and 852 (Max) seconds per observation. Greg and Max showed some variability with a stable, high trend and John produced less variability with a moderately increasing trend. All students met the MTS criterion for each observed session.

4.2.6 Engagement duration summary

Across the four phases, all students remained engaged longer with a contingency contract in place. Behavior either slowly (Max) or quickly (John and Greg) deteriorated under normal classroom conditions, but rebounded in treatment conditions. Outside of two instances, students met an active criterion (i.e., reached the MTS criterion) and did not reach criterion without the active contract.

4.3 FREQUENCY OF ENGAGEMENT

Figure 2 displays the frequency of engagement for all three participants during observation sessions. The horizontal axis represents consecutive calendar days and engagement frequency occurs along the vertical axis. Dots represent the number of observed engagements per student per 15 minutes observation. Phase change lines one and three indicate a switch from baseline to the implementation of the intervention (contingency contract). Phase change line two represents a removal of the intervention and a return to baseline conditions.

4.3.1 Frequency of engagement during Phase 1

Figure 2 indicates that all three students engaged with high levels of variability during Phase 1. Greg averaged 30 engagements (r. 17-41), John 22 (r. 10-32), and Max 27 (r. 17-39). Max had a relatively stable trend while both Greg and John displayed decreasing trends.

4.3.2 Frequency of engagement during Phase 2

Students did not experience an initial change in engagement frequency with the introduction of contracts in Phase 2. Over time, however, all three showed moderately decreasing trends with frequency levels lower than baseline. Greg dropped, on average, from 30 to 13 engagements and Max from 27 to 14. John also showed a decrease in level from average of 22 to 14.

4.3.3 Frequency of engagement during Phase 3

Returning to baseline classroom procedures coincided with an increase in the number of engagements for all three students. Following an initial jump in level, engagements showed an increase in variability and in one case an increasing trend (Max). Average engagements practically returned to baseline levels for all three students (Greg – 25, John – 27, Max – 27).

4.3.4 Frequency of engagement during Phase 4

In the final contracting phase included a decrease in the level of frequency of engagements for all three participants. Greg and Max performed with relatively flat trend and slight variability while John exhibited a decreasing trend with less variability along that trend. Frequency for all participants was similar to that observed in Phase 2.

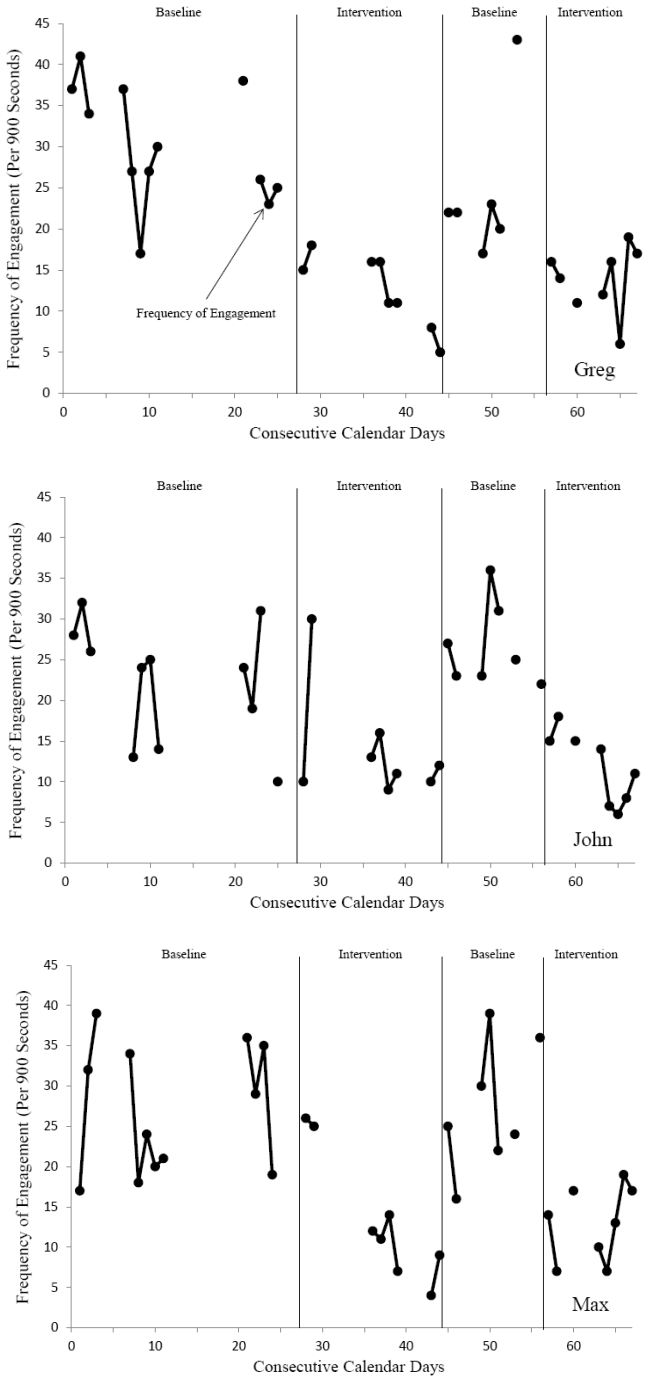

Figure 2. Frequency of engagement

4.3.5 Summary of engagement frequency

Over the course of the study, all students displayed fewer engagements per 15 minute observation in the presence of the contingency contract. Considering students spent more time engaged under the same condition suggests that students spent more time engaged per engagement occurrence with treatment in place. Thus, removal of the contract contingency coincided with more engagements and less engaged time.

4.4 SOCIAL VALIDITY

Social validity data involved examining answers to 1) open ended student interview questions, 2) open ended teacher interview questions, and 3) written questions provided to the teacher. Students uniformly indicated the enjoyment of using contracts due to the presence of rewards (i.e., programmed reinforcers). Each felt contracts helped improve their ability to remain engaged and would like to continue using contracts, if possible. The students mentioned peers noticed the presence of the contracts but did so without asking any direct questions. Finally, the students liked the process and did not feel any changes necessary.

The teacher also had an opportunity to respond to open-ended questions about the study. Possible changes she would have liked to see involved starting the intervention earlier in the year and employing other items (i.e., school supplies) as rewards. If responsible for implementation, the teacher felt she would have increased the observation times from 15 minutes to entire periods and would have preferred to play a greater role in contract creation and review.

In addition to the interview, the teacher responded to written questions about the study. The teacher answered *somewhat likely* to using the intervention package in the same way with the participant students or with other students in the class due, in part, to an inability to collect observational data. The classroom teacher did, however, respond to *definitely* using this intervention with modifications for participants and other students in her classroom. She indicated she *somewhat* liked the intervention in the study the way it was implemented, and that the intervention was *somewhat* helpful for participants. In other words, she saw behavioral improvement under contract conditions but little carryover to other times of day. She also responded *somewhat* when asked if she thinks other teachers would like the intervention or if the intervention would help other students currently in her classroom. The intervention, she noted, could be very useful for other students or teachers with some modifications. She also responded *not very much* when asked if having the intervention implemented as it was in her classroom helped her manage behaviors. She further explained that having the target behaviors limited to engagement did not seem to affect other disruptive behaviors that happened during other times of the day.

5.0 DISCUSSION

Teachers must have the skills to attend to problem behaviors exhibited by included students with or at risk for behavioral disorders (Oliver & Reschley, 2010). In order to do this, teachers need to have access to realistic and individualized behavior management strategies ready for implementation (Farmer, Reinke, & Brooks, 2014). Researchers have examined contingency contracts, an intervention both reasonable and effective, in the special education classroom (e.g., LaNunziata et al., 1981), separate schools (e.g., Hawkins et al., 2011), and therapeutic settings (e.g., Flood & Wilder, 2002). However, less research support exists for contingency contracts implemented in the elementary general education classroom, leading to the following research question: What effect will a contingency contract have on the behavior of elementary aged students educated in an inclusive setting?

Results from the current study suggest an experimental effect between the use of contingency contracts and students' engagement behavior. All three students showed increases to the duration of engagement and presented with fewer engagements in the presence of the independent variables (i.e., contracts), suggesting longer duration of engagement per instance. On the other hand, students decreased engaged time and demonstrated more engagements with decreasing duration per instance without a contract in place. In addition to engagement's relation to academic and behavioral outcomes (Skinner & Belmont, 1993), the improvements to student engagement both support and extend the current contracting literature (e.g., De Martini-Scully et

al., 2000; Mruzek et al., 2007; Schoen & James, 1991). Unlike previous research, the current study included all noted contract development and implementation steps and expanded others.

Contingency contracts contain three primary sections: a stated target behavior, criterion for success, and the contingent reinforcement for meeting the criterion (Downing, 2002). The contracts used during the current study contained all indicated sections. First, the experimenter had students focus on and practice the behavior of engagement. Second, students had the requirement of working toward an engagement criterion based off peer performance. Third, students had the opportunity to choose to work for a variety of preferred items delivered as a result of meeting contractual goals. The experimenter also followed other important contract development steps, including asking students to select consequences (e.g., Hess et al., 1990), considering the function of behavior (e.g., Wilkinson, 2003), conducting preference assessments (e.g., Mruzek et al., 2007) and reviewing contracts daily (e.g., Allen & Kramer, 1990). Participants' improved engagement could be a result of several factors, including the availability of reinforcers identified through a preference survey, goal setting based on the behaviors of normative peers, or the unique contract development process.

5.1 REINFORCERS

Proper alignment of consequences that function as reinforcers determine the effectiveness of many interventions (e.g., Keyl-Austin, Samaha, Bloom, & Boyle, 2012). To determine student preference, an open-ended questionnaire was administered. Open-ended preference surveys have produced positive outcomes in previous studies with students with high incidence disabilities in educational settings (e.g., Mintz, Wallace, Najdowski, Atcheson, & Bosch, 2007). Participants,

in the current study, had access to personally selected preferred stimuli when meeting contract goals (e.g., Ruth, 1996). Because choices might change over time, preference assessment should be an ongoing process (Lohrmann-O'Rourke, Browder, & Brown, 2000). Participating students had and used opportunities to request additional consequence options throughout intervention.

When responding to the follow up social validity questions, all participants noted that they liked using contracts, specifically due to the opportunity to earn rewards. Other unplanned reinforcement may have contributed to contracting success, including more appropriate interactions with peers during instruction or receiving behavior specific praise from the teacher (e.g., Sutherland, Wehby, & Copeland, 2000). Teacher and student interactions were not recorded but may need to be considered in similar settings where contracts have less success.

5.2 ROLE OF COMPARISON PEERS

In addition to reinforcers, goal setting can affect overall performance (Locke, Shaw, Saari, & Latham, 1981). Criterion for engaged behavior was set according to the observed performance of three comparison peers in the same classroom. Observing normative peers to establish behavioral goals serves as a measure of social validity (Storey & Horner, 1991) and may result in identifying a potentially successful criterion set to appropriate levels. The measurement of teacher-identified average comparison peers' rates of behavior in order to set goals represented a unique element when compared to the research base. Ennis, Jolivette, Frederick, and Alberto (2013) conducted a review of studies which included normative comparisons in behavioral research from 2007 to 2011. Their findings indicate that, in this window of time, very little research included comparison peers' rates of behavior as a measure of social validity. Of the two

studies identified by Ennis et al. (i.e., Fairbanks, Sugai, Guardino, & Lathrop, 2007; Shogren, Lang, Machalicek, Rispoli, & O'Reilly, 2011), normative peers' rates of behavior were monitored to assess the intervention's effectiveness. Reviewing the contingency contracting literature identified four additional studies that included at least one control peer to judge the effects of the intervention (De Martini-Scully et al., 2000; Hess et al., 1990; Kieffer & Goh, 1981; Self-Brown & Matthews, 2003). However, no contracting studies included behavioral goals set according to the measured behavior of normative peers.

Students with or at-risk for disabilities should, when appropriate, be held to the same standards as their peers in terms of performance in order to fully integrate into society (Storey & Horner, 1991). By also observing comparison peers during baseline to determine the acceptable rates of behavior, social validity for this treatment was enhanced (Kennedy, 2005). To insure that representative standards were obtained, the classroom teacher nominated peers who she felt were likely to display average rates of target behavior. As the participants met goals set near the teacher's desired levels of behavior, they also may have met with higher incidence of teacher praise, potentially transferring additional reinforcement to a natural contingency in the classroom instead of the programmed reinforcers alone.

5.3 CONTRACT DEVELOPMENT

The process of developing and reviewing contingency contracts varied widely across the research base, including differences in who was involved (e.g., students and teachers; Kidd & Saudargas, 1988; teacher, student, and behavior consultant; Allen & Kramer, 1990) or if contracts were used as part of a treatment package (e.g., De Martini-Scully et al., 2000) or in

isolation (e.g., Wilkinson, 2003). Implementation of contracts consisted of daily review and student and teacher signatures (e.g., Mruzek et al., 2007). Some previous researchers observed success without obtaining signatures (e.g., Allen & Kramer, 1990) or reviewing contracts on a less frequent basis (e.g., LaNunziata et al., 1981). In each case, however, other concurrent, packaged interventions may better explain the positive findings (e.g., token economy; Allen & Kramer, 1990). For contingency contracts implemented with no other management approaches, frequent review of expected behavior and criterion, along with obtaining a student's signature to indicate agreement, may be a key to success.

The contract introduction process, which included visual representation of goals and role-play of the replacement behavior, was also unique to the previously existing research and may have contributed to the intervention's outcome. When using contracts to affect problematic behaviors on the playground, results of Thomas et al. (1987) suggest that contingency contracts might be more effective for fifth grade participants than for the second graders included in the study. As this intervention was implemented in the third grade classroom only, direct comparison to other grade levels is not possible. However, the positive effects observed with third graders may indicate a preferred method of contract presentation and goal setting for students in the lower-elementary grades than procedures used by Thomas et al. Role-play and visual representation may have provided the antecedents necessary for contract effectiveness.

5.4 FUNCTION OF BEHAVIOR

Behavioral interventions which are developed based on the function of a problem behavior are recommended for creating behavior change (Dunlap et al., 2006). In the current study, contract

creation included a consideration of the function of behavior (e.g., Wilkinson, 2003). Antecedent-behavior-consequence notes during observation and the results of the FAST (Iwata et al., 2013) suggested that all three participants would become disengaged from instruction and assignments to avoid task completion. Additionally, all three participants indicated preference for classroom activities related to the function of avoidance (e.g., having free time to draw or use the computer). After consulting the teacher, the experimenter could not offer escape-related (e.g., homework passes) or free-time based (e.g., computer time) consequences. In response, the experimenter made available teacher-approved consequences that did not relate to the hypothesized function of behavior but still met student preference. Since all students still displayed experimental effects (i.e., increased engagement under contractual conditions) either the preference survey identified sufficient reinforcer options, the descriptive analysis may not have directly linked to function (see Iwata & Dozier, 2008), multiple factors maintained non-engagement, or the appearance of the targeted behavior received additional reinforcement from the classroom environment. For example, unmeasured increases in teacher praise contingent upon increased engagement may have contributed to the intervention's success.

5.5 MEASUREMENT OF ENGAGEMENT

Frequency and duration of behavior encompass two of the three dimensions of behavior (Johnson & Pennypacker, 2009). Interval sampling (e.g., MTS intervals), a common measure within the contract literature (e.g., Allen et al., 1993) provides only a sampling of true behavior. The experimenter chose to focus on true measures of engagement: frequency and duration (e.g., Skerbetz & Kostewicz, in press). Other researchers previously used contracts to intervene on

more than one behavior (e.g., Mruzek et al., 2007; Wilkinson, 2003) but no other researchers identified in this review included the measurement of multiple dimensions of behavior. Increasing the duration of time that a student spends engaged in an instructional task is beneficial, but a student may cycle from engagement to non-engagement at high frequencies. Ideal effects of an intervention would be a concurrent decrease in frequency with an increase in total duration. Measuring frequency of engagement without also considering total duration of engagement could be misleading, as a frequency decrease could also conceivably correspond with a duration decrease.

When measured on a binary scale of either engaged or non-engaged, the frequency of engagements and non-engagements increase or decrease together. A students' decreased frequency of non-engagement and increased duration of engagement can result in increased opportunities to respond and receive teacher praise during instruction. Teacher praise and increased opportunity to respond can affect both academic and behavioral changes in positive ways (Moore Partin, Robertson, Maggin, Oliver, & Wehby, 2010; Sutherland, Alder, & Gunter, 2003). In the non-contract Phases 1 and 3, frequency was variable and at a higher level than with contracts. A decrease in the frequency of engagement that happened concurrently with increased duration, as observed in contracting conditions, suggests that the amount of time students spent engaged in their tasks not only increased, but the engagement to non-engagement cycle happened less often.

Because it is unrealistic for a classroom teacher to measure total duration of a behavior while delivering instruction, the experimenter also used a MTS measure while observing classroom behavior. The MTS data was used to set contingency contracting goals in terms that students could both understand and the experimenter could score during the observation to

provide more immediate feedback. However, MTS data can be misleading when compared to total duration (Skerbetz & Kostewicz, in press). For instance, Max's goal for MTS intervals with engagement was set at 50 out of 60 intervals per observation. In Phase 3 with no contract, Max would have met his MTS goal on day 50 while only being engaged for 723 seconds; his average engagement for Phase 3 was 711 seconds. Shorter MTS intervals may be more accurate than sampling with longer intervals (e.g., Kearns, Edwards, & Tingstrom, 1990); however, measuring total duration of behavior can provide the most representative picture of the behavior (Cooper et al., 2007).

The target behavior in this study, engagement, was defined by the direction of a student's eye contact alone and not by what the student was actually doing (e.g., Clare et al., 2000). True academic engagement may not be fully assessed by the direction of eye-focus. Specifically, during the course of the study, John would sometimes draw or doodle on his paper instead of actively working on his task. The behavioral definition in this case could potentially have targeted work completion or correctness (e.g., Kidd & Saudargas, 1988), but the classroom structure did not allow for a consistent, daily measure of a similar academic task across the study.

5.6 LIMITATIONS

The current study contained a few possible limitations. First, students may have reacted to the observer in the classroom and the presence of the camera. The experimenter positioned the camera and took observations from the front of the classroom to capture eye movement/contact. The more obtrusive placement may have resulted in participant reactivity (see Kazdin, 1979). In

an attempt to control for some reactivity, the experimenter sat in the room and set up the camera for a week prior to baseline and did not change positions for the duration of the study.

Second, the experimenter did not control for the type of instruction during observations. In other words, the teacher delivered material in a variety of formats (e.g., small group, large group, seat work, etc.). Students, however, had to meet the expectation of engagement under each condition regardless of differences to difficulty. Also, adults in the classroom delivered differing amounts of attention to each student depending on the type of instruction. The experimenter did eventually code different types of lessons and did not find patterns tied to duration and frequency of engagement and lesson type.

Third, the classroom teacher did not make all categories of potential consequences available to the experimenter. For example, the results of all descriptive analyses of behavior suggested a function of escape/avoidance. When presented, the teacher declined the use of any escape contingencies for the students (e.g., homework pass). While the results suggest that using other consequences still produced experimental effects, matching consequence and perceived function may have had better results.

Fourth, the experimenter did not use matched comparison peers. Ennis et al. (2013) suggests matching a participant with a peer or comparison peers based on relevant characteristics (e.g., gender, race, intelligence, etc.). The primary investigator used teacher report to match comparison peers to participants and did not consider other characteristics. For example, nominated students included two boys and one girl; however, no female students served as participants. Engagement aims did cover an average of three students, rather than one, lessening the need for matching and all participants could meet established goals. Though participants were coincidentally all the same race, goals may have been slightly different if participants had

been matched to peers by other characteristics like gender, intelligence, or academic ability in the observed academic subject. Participants still met their goals set according to the normative data, but observed effects may have been different had they been matched.

5.7 IMPLICATIONS FOR PRACTITIONERS

Contingency contracts represent a realistic and effective option for managing classroom behaviors in a whole classroom setting (e.g., Allen et al., 1993; Schoen & James, 1991). The success of these contracts in the general education setting paired with the teacher's overall satisfaction and interest in the intervention further support contract implementation in an inclusive classroom environment. During the course of the study, the experimenter remained consistently present and able to review contracts with students each day and focus on individual participants during observations. A classroom teacher may find it difficult to monitor student behaviors for total duration or following a short time sampling schedule (e.g., 15 seconds as used in this design), which might be required to accurately assess behavior and gauge contract success. Thus, behavioral goals for contracts implemented by teachers might require different terms. Instead of MTS with variable approximate 15 second intervals, a target behavior may need to be measured on a schedule with longer MTS intervals such as a minute. By increasing intervals, teachers increase error. A potentially more accurate measurement might include tying contracts to an academic task (e.g., Kidd & Saudargas, 1988), which would also yield a permanent product to be evaluated after the contracting session ended easing in class data collection.

Before implementing a contingency contract to change behavior, it is recommended that pre-intervention measures be conducted (e.g., analysis of the function of behaviors, define behaviors in clear and measurable way, consider of the social validity of a behavior, conduct baseline observations; Downing, 2002). Assistance from a consultant or special education staff member may be helpful or necessary in order to complete these pre-intervention steps. Additionally, setting behavioral goals according to normative peers may contribute to more realistic criterion and more positive results.

The social validity questionnaire responses provided by the classroom teacher indicated that she would have preferred to be involved with daily contract review sessions, but her schedule did not allow for participation. Finding the time to review contracts on a daily basis may prove difficult for some practitioners. The classroom teacher also stated that she would have preferred to offer different rewards (specifically citing that she'd prefer to offer school supplies only instead of toys or candy), which may not prove to be reinforcing for all students. Teachers may find that a handful of consequences are easier to include in their classroom management plans than others (e.g., accessing additional free time, offering tangible prizes like school supplies), but these consequences will not have the same reinforcing or punishing properties for all students. Preference surveys can lead to potentially more reinforcing stimuli (Mintz, Wallace, Najdowski, Atcheson, & Bosch, 2007), and it may be necessary to establish realistic ways to offer some of those consequences in order for behavior management attempts to be successful.

5.8 FUTURE RESEARCH

Contingency contracts as created in this study were successful in isolation, and results suggest that implementation in the general education classroom to affect engaged behavior is realistic. Replication of the measures to define and set target behaviors and criterion as part of contract development is warranted. Further examinations of contingency contracts in the general education classroom should directly include students with EBD who receive instruction with non-disabled peers. Additional behaviors outside of engagement, such as clear academic outcomes, should be targeted through contracting in order to support increased inclusion of students with EBD.

The use of comparison peers to set behavioral goals, a unique element to this intervention as compared to the research base, should be examined further with respect to contract creation and goal setting. The inclusion of normative peers supports setting a socially valid criterion (Storey & Horner, 1991). Teacher satisfaction may also be secured if the classroom teacher is asked to identify peers whose behavior is considered satisfactory and participants are able to meet goals set by observing those peers. Setting goals in accordance with peer behavior could also lead to establishing realistic and appropriate expectations for students with disabilities.

In order for this intervention to become most applicable in the general education classroom, future research can also focus on modifications that allow for realistic practitioner implementation in an inclusive classroom setting. The teacher noted that fading reinforcement and lengthening contracting sessions may be preferred to 15 minute sessions with daily consequence delivery. Investigations including contingency contracts should explore ways to include a fading schedule of reinforcement. The current classroom structure did not allow for

consequences which were directly related to the perceived function of behavior. Additional research into contingency contracts can more closely tie the available consequences with the function of the problem behavior to determine if different effects are observed when function and consequence are linked. Investigation of contracting using a multiple baseline across settings design might allow for further consideration of whether contracts will be effective for different academic subjects or with different teachers for participants who switch classrooms during the school day.

6.0 CONCLUSIONS

Many teacher-controlled classroom variables contribute to the success or failure of inclusion for students with or at risk for emotional/behavioral disorders (Kern, Delaney, Clarke, Dunlap, & Childs, 2001). Without adequate access to effective and efficient behavior management interventions, teachers may continue to struggle with the inclusion of students with EBD or other behavior concerns. The contingency contracts used in the current study affected the duration and frequency of engaged behavior for three participants in an inclusive classroom. Other research has suggested that contracting can have a positive impact on other academic (e.g., Kidd & Saudargas, 1988) or disruptive (e.g., Schoen & James, 1991) classroom behaviors in the general education setting. However, few previous researchers developed contingency contracts with as much emphasis on social validity, including setting socially valid goals through the observation of normative comparison peers. With some modifications to the measurement of behaviors under contract, a general education classroom teacher could feasibly implement these contracts in a whole class setting to reinforce appropriate replacement behaviors. When disruptive or other problem behaviors are managed in an inclusive setting, individual students with EBD or other disabilities can successfully be included to a greater degree.

APPENDIX A

INSTITUTIONAL REVIEW BOARD APPROVAL

University of Pittsburgh
Institutional Review Board

3500 Fifth Avenue
Pittsburgh, PA 15213
(412) 383-1480
(412) 383-1508 (fax)
http://www.irb.pitt.edu

Memorandum

To: Kaleena Selfridge, MEd

From: Christopher Ryan, PhD , Vice Chair

Date: 2/6/2014

IRB#: PRO13120271

Subject: Contingency Contracting to Improve Appropriate Behaviors by Students in the Regular Education Elementary Classroom

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The University of Pittsburgh Institutional Review Board reviewed and approved the above referenced study by the expedited review procedure authorized under 45 CFR 46.110 and 21 CFR 56.110. Your research study was approved under:
45 CFR 46.110.(6)
45 CFR 46.110.(7)

This study has been approved under 45 CFR 46.404 for the inclusion of children. The IRB has determined that the written permission of one parent is sufficient.

The risk level designation is Minimal Risk.
Approval Date: 2/6/2014
Expiration Date: 2/5/2015

For studies being conducted in UPMC facilities, no clinical activities can be undertaken by investigators until they have received approval from the UPMC Fiscal Review Office.

Please note that it is the investigator's responsibility to report to the IRB any unanticipated problems involving risks to subjects or others [see 45 CFR 46.103(b)(5) and 21 CFR 56.108(b)]. Refer to the IRB Policy and Procedure Manual regarding the reporting requirements for unanticipated problems which include, but are not limited

to, adverse events. If you have any questions about this process, please contact the Adverse Events Coordinator at 412-383-1480.

The protocol and consent forms, along with a brief progress report must be resubmitted at least one month prior to the renewal date noted above as required by FWA00006790 (University of Pittsburgh), FWA00006735 (University of Pittsburgh Medical Center), FWA00000600 (Children's Hospital of Pittsburgh), FWA00003567 (Magee-Womens Health Corporation), FWA00003338 (University of Pittsburgh Medical Center Cancer Institute).

Please be advised that your research study may be audited periodically by the University of Pittsburgh Research Conduct and Compliance Office.

APPENDIX B

PARTICIPANT PARENTAL CONSENT/STUDENT ASSENT FORM

Parental Consent for a Child to Participate in a Research Study

Study Name:	**Contingency Contracting to Increase Appropriate Behaviors in the Elementary General Education Setting**
Research Director:	Kaleena Selfridge, M. Ed. University of Pittsburgh 5136 WWPH 230 S. Bouquet St. Pittsburgh, PA 15260 (724) 301-`540
Faculty Mentor:	Douglas E. Kostewicz, Ph.D. University of Pittsburgh 5162 WWPH 230 S. Bouquet St. Pittsburgh, PA 15260 (412) 648-7113

The purpose of this research study is to examine the effectiveness of a contingency contract on improving appropriate behaviors for elementary students in the general education classroom. This research study will include five students in the general education classroom at Monsoon Area Elementary School. We will ask these students to participate in something called a **Contingency Contract**, which is also sometimes called a Behavior Contract. A Contingency Contract is a written document between a student and a teacher that lists: What the student's behavior will be (like "raising my hand to speak"), a Goal (for example "at least 8 out of 10 opportunities to speak during math class"), and the reward that will be provided to the student if he or she meets the goal. Your child is being considered for participation in this study because he or she is in the elementary general education classroom, is in the 3rd, 4th, 5th, or 6th grade, and, according to his or her teacher, has some difficulty with a specific behavior during instructional time in the classroom (even though these behaviors could be minor, like talking out instead of raising a hand to speak). Student participation in the study will be approximately 8-12 weeks (depending on how quickly behavior changes) and will take place during normal school hours in your child's general education classroom.

A contingency contract is a normal behavior management tool that can be used for students with and without disabilities in any school setting. The contingency contract will offer a small reward that your child chooses, examples could be extra free time to read a favorite book, the chance to be the line-leader, or small items like pencils or stickers, which will be awarded if your child can meet a goal set in the contract. Each contract will focus on **increasing** a positive behavior. For example, if the identified concern is that a student usually is **out of his assigned seat** for 75% of math class, the contract will be written so a reward is provided if the student can **stay in his seat** for at least 65% of math class. If the student stays in his seat for 50% of math class or more, he will earn the reward listed on the contingency contract.

If you and your child decide to agree to his or her participation in this study, the following will

happen:

- Mrs. Selfridge (the University of Pittsburgh researcher) will talk to his or her teacher about the specific behavior of concern. Your child's teacher will also be asked to complete two questionnaires to describe the behavior(s) of concern, and will be asked to provide ongoing behavioral feedback to Mrs. Selfridge throughout this study.
- Mrs. Selfridge will observe the whole classroom, taking notes and recording video of the entire room, to write a very clear definition of the behavior.
- Mrs. Selfridge and your child's teacher will talk about the behavior and choose an alternative behavior to reward. This alternative behavior will be a one that we would like to see happen instead. For example, if calling out during instruction is the identified concern, the alternative behavior could be raising a hand to speak.
- Your child will be asked to tell me about his or her preferences so that rewards can be selected.
- The first day, Mrs. Selfridge will write a contingency contract and spend 5-10 minutes with your child talking about the contract and expectations. Your child will choose his or her reward and that choice will be written on the contract. Most days, your child's teacher will talk about the contract instead of Mrs. Selfridge. Your child and your child's teacher will sign the contract each day.
- Mrs. Selfridge will observe and record video of a chosen academic class period for 20 minutes each day. She will use the observation to determine whether or not your child met his or her goal.
- If your child meets his or her goal, then he or she will get a sticker on the contract and the chosen reward will be delivered by the teacher as soon as possible in the classroom.
- A contract will be filled out every day until your child meets his or her goal three days in a row. After three days in a row, we will stop using the contract for a short period of time (at least five days) to monitor how the behavior changes without a contract in place – this is called a reversal. Daily contracts will be reissued after the reversal period, until your child meets his or her goal for three days in a row again.
- Your child will not be expected to perform a behavior differently or better than students considered average in his or her classroom.
- If your child is not able to meet the goal set for five days in a row, Mrs. Selfridge will meet with him or her again to review the expected behavior. After ten days without meeting goals, Mrs. Selfridge will set a lower goal that your child might be able to reach.
- Estimated duration of this study is between 20 and 60 days, depending on how long it takes to meet goals, or anytime you or child choose to stop participating. If your child's behavior is not changing with a contingency contract, he or she may be removed from the study. Mrs. Selfridge will make different recommendations about what your child's teacher can try instead, if necessary.
- At the end of study participation, your child and your child's teacher will be asked to answer some questions about whether or not he or she liked taking part in the study or suggest any changes.
- After the study, Mrs. Selfridge will share your child's research records with you if you would like.

Many other behavior management approaches are available. If you choose not to consent to your child's participation in this research study, Mrs. Selfridge, your child's teacher, or someone else at Monsoon Area Elementary School can suggest other alternatives for managing the behavior as needed. Your child's teacher may also decide not to pursue any additional behavior management.

Although minor, anticipated risks for participating in this study include: Disappointment at not

receiving the reward if that day's goal is not met, and needing to spend 5-10 minutes away from general classroom activities to fill out the contract each day. Peers may also ask questions about why your child is doing something different than some other students in the classroom. If any other negative side effects are observed by Mrs. Selfridge or your child's teacher (like increases in behavior problems) then you will be contacted and you can opt to end your child's participation at any time. Although less likely, a breach of confidential information is another possible risk. The research team and your child's teacher will take all efforts to maintain confidentiality.

Benefits of participating in this study could include an improvement in the specific behavior targeted in the contingency contracts, but is not a guaranteed outcome of participation.

To protect your privacy and maintain the confidentiality of information we obtain about your child, we will keep all information in a secure location. This includes all forms with your child's name and any video recorded at any time during the study. The only people who will have access to the forms with your child's name and results are your child's teacher, Mrs. Selfridge, and Dr. Kostewicz. Your child's research records will be written about in Mrs. Selfridge's doctoral dissertation and considered for future research publication. However, there will be no personally identifiable information about your child, your child's teachers, or the school district except to those people listed above, meaning that only fake names will be used. Any contact between the researcher and your child will be done in a private area of your child's classroom or in the hallway, in order to reduce the amount of peer awareness of study participation and reduce possible peer attention that your child might receive.

We will do everything in our power to respect and protect your privacy and the confidentiality of your child's research records. However, we cannot guarantee the confidentiality of these records. **No third party will have access to your child's identifiable information** (including relatives, other parents, other teachers who do not normally have access to your child's records, or other researchers), with one exception: The University of Pittsburgh Research Conduct and Compliance Office may review your child's identifiable information for monitoring the appropriate conduct of this research study.

You and your child can choose to stop participating in this research study at any time for any reason with no issue or punishment**. There are no financial costs to you or your child** as a result of participating in this study. Your child will also be asked to agree to participate in this study.

If you have any concerns about your child's participation in this research at any time, please call Kaleena Selfridge immediately at (724) 301-1540. You can also call Mrs. Selfridge if you have any questions about consent or participation at any point in time.

Your child's participation in this research study is completely voluntary and your decision whether or not to allow your child to participate in this research, or to later withdraw your child from it, will not affect you or your child's current or future academic or behavior progress. If you or your child decide you no longer wish to continue to participate after you have signed the consent form, you should contact Mrs. Selfridge at (724) 301-1540 or Dr. Kostewicz at (412) 648-7113. Any information obtained from your child up to that point will, however, continue to be used by the research team. Your decision to withdraw from this study will have no effect on your current or future relationship with the University of Pittsburgh or with Monsoon Area School District.

If the investigators feel that your child cannot complete the study requirements (for example,

unexpected changes in behavior)**, they may withdraw your child from the study and make recommendations for further assistance in the school setting as needed.** Questions about your child's rights as a research participant can be answered by the Human Subject Protection Advocate at the University of Pittsburgh IRB Office: 866-212-2668.

****

_____
Printed Name of Child

I understand that, as a minor (age less than 18 years), the above named child is not permitted to participate in this research study without my consent. Therefore, by signing this form, I give my consent for his/her participation in this research study.

_____ _____
Parent's Signature Date

_____
Relationship to child

FOR CHILDREN

The research has been explained to me, and I agree to participate.

_____ _____
Participant's Signature Date

VERIFICATION OF EXPLANATION TO PARENTS
I certify that I have carefully explained the purpose and nature of this research to parent in understandable language. They have had an opportunity to discuss it with me in detail. I have answered all questions and they freely agreed to participate in this research.

_____ _____
Printed Name of Person Obtaining Consent Role in Research Study

_____ _____
Signature of Person Obtaining Consent Date

VERIFICATION OF EXPLANATION TO STUDENT
I certify that I have carefully explained the purpose and nature of this research to the child in age-appropriate language. He or she has had an opportunity to discuss it with me in detail. I have answered all questions and he or she freely agreed to participate in this research.

_____ _____
Printed Name of Person Obtaining Consent Role in Research Study

_____ _____
Signature of Person Obtaining Consent Date

APPENDIX C

PARENTAL CONSENT FORM FOR COMPARISON STUDENTS

Parental Consent for a Child to Be Observed as Part of a Research Study

Study Name: **Contingency Contracting to Increase Appropriate Behaviors in the Elementary General Education Setting**

Research Director: Kaleena Selfridge, M. Ed.
University of Pittsburgh
5136 WWPH
230 S. Bouquet St.
Pittsburgh, PA 15260
(724) 301-1540

Faculty Mentor: Douglas E. Kostewicz, Ph.D.
University of Pittsburgh
5162 WWPH
230 S. Bouquet St.
Pittsburgh, PA 15260
(412) 648-7113

The purpose of this research study is to examine a behavior management tool for elementary students in the general education classroom. This research study will include participating students in the same general education classroom as your child at Monsoon Area Elementary School. I will be monitoring the classroom behavior of participating students, and will also need to monitor the behavior of some peers in the same room. Your child is being considered for participation as a control, or observation only, student in this study because he or she is in the same general education classroom, is in the 3rd, 4th, 5th, or 6th grade, and, according to his or her teacher, exhibits typical, age-appropriate behavior during instructional time in the classroom. The behaviors I will be observing and recording will be normal classroom behaviors, like hand-raising instead of calling-out to ask or answer a question. Control student participation in the study will last for a total of 25 observation sessions across five school days lasting 15-20 minutes each. The observations will take place during normal school hours in your child's general education classroom.

If you and your child decide to agree to his or her participation in this study, the following will happen:

- Mrs. Selfridge (the University of Pittsburgh researcher) will talk to your child about his or her willingness to be observed and ask him or her to agree to participate.
- Mrs. Selfridge will observe the whole classroom from the back of the room, recording video, and taking notes on rates of typical classroom behaviors for your child and other control students. She will not interact with or talk to your child in any other way.
- Your child will not be expected to do anything differently than any normal instructional school day.
- After the observation sessions, Mrs. Selfridge will still be in your child's classroom working with and observing other students and recording video of the whole classroom. However, she will no longer interact with or observe your child as an individual after those five days.

Although minor, anticipated risks of being observed for this study include: Your child might feel a little uncomfortable knowing that someone will be watching his or her behaviors. If any other negative side effects are observed by Mrs. Selfridge or your child's teacher, then you will be contacted and you can opt to end your child's participation at any time. Although less likely, a breach of confidential information is another possible risk. The research team and your child's teacher will take all efforts to maintain confidentiality.

To protect your privacy and maintain the confidentiality of information we obtain about your child, we will keep all information in a secure location. This includes the consent form, which will be the only form with your child's name, and all video. Mrs. Selfridge is the only researcher who will have access to your child's full name or other identifying information. The research records from this study will be written about in Mrs. Selfridge's doctoral dissertation and considered for future research publication. However, there will be no personally identifiable information about your child, your child's teachers, any other participating students, or the school district except to the members of the research team (including Mrs. Selfridge and Dr. Kostewicz), meaning that only fake names will be used. Any contact between the researcher and your child will be done in a private area in the child's classroom or in the hallway.

You and your child can choose to stop having your child observed for this research study at any time for any reason with no issue or punishment**. There are no financial costs to you or your child** as a result of participating in this study. Your child will also be asked to agree to be observed for this study.

If you have any concerns about your child's participation in this research at any time, please call Kaleena Selfridge immediately at (724) 301-1540. You can also call Mrs. Selfridge if you have any questions about consent or participation at any point in time.

Although we will do everything in our power to protect your privacy and the confidentiality of your child's research records, we cannot guarantee the confidentiality of your research records. However, **no third party will have access to your child's identifiable information** with one exception: The University of Pittsburgh Research Conduct and Compliance Office may review your child's identifiable information for monitoring the appropriate conduct of this research study.

Your child's participation as a control participant in this research study is completely voluntary and your decision whether or not to allow your child to be observed for this research, or to later withdraw your child from it, will not affect you or your child's current or future academic progress. If you or your child decide you no longer wish to continue to participate after you have signed the consent form, you should contact Mrs. Selfridge at (724) 301-1540 or Dr. Kostewicz at (412) 648-7113. Any information obtained from your child up to that point will, however, continue to be used by the research team. Your decision to withdraw from this study will have no effect on your current or future relationship with the University of Pittsburgh or with Monsoon Area School District.

If the investigators feel that your child cannot complete the study requirements (for example, unexpected changes in behavior or absences from school)**, they may withdraw your child from the study and make recommendations if any further assistance in the school setting is required.**

Questions about your child's rights as a participant can be answered by the Human Subject Protection Advocate at the University of Pittsburgh IRB Office: 866-212-2668.

****

_____
Printed Name of Child

I understand that, as a minor (age less than 18 years), the above named child is not permitted to participate in this research study without my consent. Therefore, by signing this form, I give my consent for his/her participation in this research study.

_____ _____
Parent's Signature Date

_____
Relationship to child

FOR CHILDREN

The research has been explained to me, and I agree to participate.

_____ _____
Participant's Signature Date

VERIFICATION OF EXPLANATION

I certify that I have carefully explained the purpose and nature of this research to the parent. They have had an opportunity to discuss it with me in detail. I have answered all of his/her questions and they freely agreed to participate in this research.

_____ _____
Printed Name of Person Obtaining Consent Role in Research Study

_____ _____
Signature of Person Obtaining Consent Date

I certify that I have carefully explained the purpose and nature of this research to the child in age appropriate language. They have had an opportunity to discuss it with me in detail. I have answered all of his/her questions and they freely agreed to participate in this research.

_____ _____
Printed Name of Person Obtaining Consent Role in Research Study

_____ _____
Signature of Person Obtaining Consent Date

APPENDIX D

WHOLE CLASS VIDEO OPT OUT FORM

Dear Parents/Guardians of Students in Room 304:

This letter is to inform you that there will be a research study being conducted in your child's classroom by a researcher from the University of Pittsburgh. The purpose of this study is to examine a behavior management tool for elementary students in the general education classroom. This study will include participating students in the same classroom as your child at Monsoon Area Elementary School. The Monsoon Area School District school board has already approved this research and Principal Marie Dickens is fully informed of the procedures for this research.

Unless you receive more information from the researcher, Kaleena Selfridge, or your child's teacher, your child will not be asked to participate in the research study.

This letter is to inform you that Mrs. Selfridge will be recording five daily, 15-20 minute videos of the whole classroom, but will only observe behaviors of participating students whose parents give specific consent. Video will only be recorded for the duration of the study, which is expected to last between 8 and 12 weeks. Because your child is in the same classroom, he or she could be captured in the background of the videos or if he or she passes in front of the camera during normal classroom activities.

The camera will not be focused directly on your child and no information about your child's behaviors in class will be noted in any research record. Mrs. Selfridge will also ensure that all efforts are taken to maintain the confidentiality of any video that is recorded in your child's classroom. This includes not sharing the video with anyone outside of the University of Pittsburgh research team and storing videos on a password protected hard drive in a locked cabinet. Your child's name will not be written in any research record.

If you have any questions about the process of capturing video, please do not hesitate to contact Kaleena Selfridge at kas257@pitt.edu or (724) 301-1540.

If you choose to opt-out of your child appearing on the recorded video, please sign and return this form to your child's teacher. Opting-out will have no negative consequences for your child and will not affect your child's current or future relationship with the University of Pittsburgh or the Monsoon Area School District.

To opt Out, Complete Below and Return by March 7, 2014

If you consent to video, no further action is necessary. To opt-out or for more information, check below:
Child's Name:_____ Guardian's Printed Name: _____
_____ I prefer not to have my child appear on the video captured by the researcher.
Guardian's Signature: _____ Date: _____
_____ I would like more information. Contact number or email: _____

APPENDIX E

FUNCTIONAL ASSESSMENT SCREENING TOOL (FAST)

FAST

Functional Analysis Screening Tool

Client:_____ Date:_____

Informant:_____ Interviewer:_____

To the Interviewer: The FAST identifies factors that may influence problem behaviors. Use it only for screening as part of a comprehensive functional analysis of the behavior. Administer the FAST to several individuals who interact with the client frequently. Then use the results to guide direct observation in several different situations to verify suspected behavioral functions and to identify other factors that may influence the problem behavior.

To the Informant: Complete the sections below. Then read each question carefully and answer it by circling "Yes" or "No." If you are uncertain about an answer, circle "N/A."

Informant-Client Relationship

1. Indicate your relationship to the person: ___Parent ___Instructor ___Therapist/Residential Staff _____(Other)
2. How long have you known the person? ____Years ____Months
3. Do you interact with the person daily? ____Yes ____No
4. In what situations do you usually interact with the person?
   ___ Meals ___ Academic training
   ___ Leisure ___ Work or vocational training
   ___ Self-care _____(Other)

Problem Behavior Information

1. Problem behavior (check and describe):
   __ Aggression _____
   __ Self-Injury _____
   __ Stereotypy _____
   __ Property destruction _____
   __ Other _____
2. Frequency: __Hourly __Daily __Weekly __Less often
3. Severity: __Mild: Disruptive but little risk to property or health
   __Moderate: Property damage or minor injury
   __Severe: Significant threat to health or safety
4. Situations in which the problem behavior is most likely to occur:
   Days/Times_____
   Settings/Activities _____
   Persons present _____
5. Situations in which the problem behavior is least likely to occur:
   Days/Times_____
   Settings/Activities _____
   Persons present _____
6. What is usually happening to the person right before the problem behavior occurs?_____
   _____
   _____
7. What usually happens to the person right after the problem behavior occurs?_____
   _____
   _____
8. Current treatments_____
   _____
   _____
   _____
   _____

1. Does the problem behavior occur when the person is not receiving attention or when caregivers are paying attention to someone else?	Yes	No	N/A
2. Does the problem behavior occur when the person's requests for preferred items or activities are denied or when these are taken away?	Yes	No	N/A
3. When the problem behavior occurs, do caregivers usually try to calm the person down or involve the person in preferred activities?	Yes	No	N/A
4. Is the person usually well behaved when (s)he is getting lots of attention or when preferred activities are freely available?	Yes	No	N/A
5. Does the person usually fuss or resist when (s)he is asked to perform a task or to participate in activities?	Yes	No	N/A
6. Does the problem behavior occur when the person is asked to perform a task or to participate in activities?	Yes	No	N/A
7. If the problem behavior occurs while tasks are being presented, is the person usually given a "break" from tasks?	Yes	No	N/A
8. Is the person usually well behaved when (s)he is not required to do anything?	Yes	No	N/A
9. Does the problem behavior occur even when no one is nearby or watching?	Yes	No	N/A
10. Does the person engage in the problem behavior even when leisure activities are available?	Yes	No	N/A
11. Does the problem behavior appear to be a form of "self-stimulation?"	Yes	No	N/A
12. Is the problem behavior less likely to occur when sensory stimulating activities are presented?	Yes	No	N/A
13. Is the problem behavior cyclical, occurring for several days and then stopping?	Yes	No	N/A
14. Does the person have recurring painful conditions such as ear infections or allergies? If so, list:_____	Yes	No	N/A
15. Is the problem behavior more likely to occur when the person is ill?	Yes	No	N/A
16. If the person is experiencing physical problems, and these are treated, does the problem behavior usually go away?	Yes	No	N/A

Scoring Summary

Circle the number of each question that was answered "Yes" and enter the number of items that were circled in the "Total" column.

Items Circled "Yes"				Total	Potential Source of Reinforcement
1	2	3	4	____	Social (attention/preferred items)
5	6	7	8	____	Social (escape from tasks/activities)
9	10	11	12	____	Automatic (sensory stimulation)
13	14	15	16	____	Automatic (pain attenuation)

Figure 1. Functional Analysis Screening Tool.

APPENDIX F

WORKSHEET FOR PRIORITIZING POTENTIAL TARGET BEHAVIORS

Worksheet for Prioritizing Potential Target Behaviors

Adapted from Cooper, Heron, & Heward, 2007, p. 64

Student name: _____ Date: _____ Person Completing Worksheet: _____
Rater's Relationship to Student: _____

Directions: Use the key below to rank each potential target behavior by the extent to which it meets or fulfills each prioritization criteria. Rankings will be totaled and will assist in selecting a target behavior to include in a contingency contract.

Key: 0 = No or Never; 1 = Rarely; 2 = Maybe or Sometimes; 3 = Probably or Usually; 4 = Yes or Always

Prioritization Criteria	**Potential Target Behaviors** 1.	2.	3.	4.
Does this behavior pose danger to the student or to others?	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4
How often does the problem occur?	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4
How long standing is the problem or skill deficit?	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4
Will changing this behavior produce a higher rate of reinforcement for the student?	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4
What is the relative importance of this target behavior to future skill development and independent functioning?	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4
Will changing this behavior reduce unwanted or negative attention from others?	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4
Will changing this behavior result in a positive impact for other important people in the child's environment?	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4
How likely is success in changing this behavior?	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4
Can the student already perform the behavior in the school setting?	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4
Totals:	_____	_____	_____	_____

APPENDIX G

WORKSHEET FOR EVALUATING SOCIAL SIGNIFICANCE OF POTENTIAL TARGET BEHAVIORS

Worksheet for Evaluating the Social Significance of Potential Target Behaviors

Adapted from Cooper, Heron, & Heward, 2007, p. 57

Student name: _____ Date: _____ Person Completing Worksheet: _____
Rater's Relationship to Student: _____
Behavior: _____

Considerations	Assessment	Rationale/Comments
Is this behavior likely to produce reinforcement in the student's natural environment after intervention ends?	Yes No Not Sure	
Is this behavior a necessary prerequisite for a more complex and functional skill?	Yes No Not Sure	
Will this behavior increase the student's access to environments in which other important behaviors can be acquired and used?	Yes No Not Sure	
Will changing this behavior predispose others to interact with the student in a more appropriate and supportive manner?	Yes No Not Sure	
Will mastering this behavior lead to the student being able to learn new or more complex behaviors?	Yes No Not Sure	
Is this an age-appropriate behavior?	Yes No Not Sure	
If this behavior is to be reduced or eliminated from the student's repertoire, has an adaptive and functional behavior been selected to replace it?	Yes No Not Sure	
Does this behavior represent the actual problem/goal, or is it only indirectly related?	Yes No Not Sure	

Summary notes/comments:_____
_____
_____
_____

APPENDIX H

STIMULUS PREFERENCE ASSESSMENT

Stimulus Preference Assessment
(Based on questions from Cooper, Heron, & Heward, 2007, p. 276)

Read questions to student and write notes on the student's response. If the student does not know an answer, use the prompts to encourage a response.

What are your favorite things to do at school? During free time or recess?

Prompt for answer: Things at school like be the line leader, or be in charge of passing out papers for the teacher? During free time like draw, use the computer, listen to music, play with puzzles or other toys in the classroom?

_____
_____
_____

What do you like to do during your free time at home?

Prompt for answer: Like play with friends, watch television, play video games?

_____
_____
_____

What are your favorite snacks and drinks?

Prompt for answer: Snacks like chips or candy? Drinks like juice or fruit punch?

_____
_____
_____

Do you like to listen to music? (If yes: What is your favorite kind of music or favorite musicians?)

Prompt for answer: Do you listen to the radio? Do you like music that your parents play?

_____
_____
_____

Can you tell me a few things you would work very hard to get or be able to do?

Prompt for answer: Any of the things you already told me that you like? (cite previous answers)

_____
_____
_____

APPENDIX I

SAMPLE REINFORCER MENU

Reinforcer Menu for: John

Instructions:

1. When directed to "Ask student to choose today's consequence from the Reinforcer Menu" in step 4 on the Procedures for Daily Contract Review, use this document.
2. Show student the document and say "Please choose one thing for us to write on your contract today."
3. If the student requests or if the student's reading level may limit his or her ability to independently read the options, read each category and option out loud.
    a. If reading aloud, you can stop at any time if the student chooses an item.
4. Write the student's chosen consequence on the contract according to step 5 on the procedures, and continue with steps 6-10 on that checklist.

Activities	Items	Food or Drink
• Library Clean Up • Floor Duty • Water Plants • Empty Recycle Bin	• Lead pencil • 3 pieces of refill lead • 2 Pencil-top erasers • Glitter pen	• Capri Sun to drink at lunch or drink at home • Pretzel pack to eat at lunch or eat at home • Jell-O cup to eat at lunch or eat at home • Starburst to eat at lunch or eat at home

APPENDIX J

SAMPLE STUDENT CONTRACT

John's Contract

TASK	REWARD
Who: John	Who: Mrs. Jones
What: Will remain *engaged* in his work	What: _____
When: For 15 minutes of math when his folder is clipped to Mrs. Jones's desk	_____
How Well: At least 51 of 60 intervals	When: _____
	_____
	How Much: _____

Student Sign Here: _____ Date: _____

Teacher Sign Here: _____

TASK RECORD

Today was a Success!

APPENDIX K

PROCEDURAL CHECKLIST FOR INITIAL CONTRACT REVIEW AND ROLE PLAY BY RESEARCHER

Procedural Checklist for Initial Contract Review and Role Play by Researcher

Student:_____ Researcher Initials: _____ Date: _____

Items needed for initial contract review and role play:

1. New contingency contract
2. Graph of Baseline (For Review Session: Previous Three Days' Performance)
3. Stickers That Will Be Available for Successful Days
4. Reinforcer Menu Developed Using Stimulus Preference Assessment Responses
5. Pen/pencil for signatures

	Task Completed?	Yes	No
1.	Print a copy of the new contract.		
2.	Tell student the goal of the contract. *E.g.. Mrs. Jones and I would like to help you do better with staying in your seat during math class.*		
3.	Define target behavior. *E.g.. Sitting in your seat means that your bottom or the back of your legs are touching your chair, that you are facing forward, and looking at the teacher or your work unless Mrs. Jones gives you permission to leave your chair.*		
4.	Demonstrate the target behavior.		
5.	Ask the student to demonstrate the target behavior.		
6.	Demonstrate non-examples of the target behavior.		
7.	Ask the student to demonstrate a non-example of the target behavior.		
8.	Show the student four more examples including a mix of two examples and two non-examples and ask the student to label each as an example or not.		
	If the student cannot correctly label examples and non-examples, continue the role-play by repeating steps 4-8 until the student can correctly respond.		
9.	Show the student the contract and define its purpose. *E.g., This is a contract that we will use to help you do a better job staying in your seat.*		
10.	Define the first three sections of the contract. *E.g., Here is your name, and this is a description of staying in your seat* (read aloud)*, which you will try to do better during the first 20-minutes of math class.*		
11.	Show student the baseline graph and define his baseline average. *E.g., Here is a graph of how many seconds you stayed in your seat during the first 20 minutes of math class each day last week. You were in your seat around 360 seconds for each math class.*		
12.	Define the student's contract goal. *E.g., Your new goal is to stay in your seat for at least 520 seconds during math class today. I will use a stopwatch and time every second you spend in your seat.*		
13.	Define that a consequence will be available if the student meets his goal. *E.g., If you can spend at least 520 seconds in your seat, you can earn a reward.*		
14.	Ask student to choose a reinforcer from the menu and write the consequence on the contract.		
15.	Restate all contract terms. *E.g., If you can stay in your seat for at least 520 seconds during the first 20 minutes of math class, you will get a sticker for your contract and Mrs. Jones will let you use the computer for the last 10 minutes of the day before dismissal.*		
16.	Collect signatures. *E.g., To show you agree to try and earn the reward, sign the contract. Mrs. Jones will also sign to show she will give you the reward if you earn it.*		

APPENDIX L

PROCEDURAL CHECKLIST FOR SUBSEQUENT CONTRACTING REVIEW BY RESEARCHER

Procedural Checklist for Daily Contract Review by Teacher: Student Selected Consequences

Student:_____ Teacher Initials: _____ Date: _____

Items needed for daily contract review:

1. Yesterday's contingency contract
2. Today's contingency contract
3. Reinforcer Menu
4. Pen/pencil for signatures

	Task Completed?	Yes	No
1.	Print a copy of today's contract.		
2.	Show student yesterday's contract and review yesterday's criterion and performance.		
	If successful, provide verbal praise.		
	If unsuccessful, make a positive statement like "You can try again today."		
3.	Show today's contract to student and define goal. E.g., "Yesterday your goal was 360 total seconds of in-seat behavior. Today, your goal is the same."		
4.	Ask student to choose today's consequence from the Reinforcer Menu		
5.	Write the consequence on the contract. E.g., 10-minutes of computer access at the end of the day.		
6.	Restate the contract terms. E.g., "Today your goal is to stay in your seat for at least 360 seconds during math. If you can do that, you will earn get a star on your contract and 10-minutes of computer time at the end of the day."		
7.	Say "If you agree to everything on this contract, sign here," pointing to the student's signature line.		
8.	If the student signs, the teacher should also sign the contract.		
	If student does not sign, offer a different consequence.		
	If student still does not sign, remind the student the contract is voluntary but the consequences can't be earned without signing the contract.		
	If no signature is obtained, ask the student why and note the reason on the back of the contract.		
9.	After signatures are obtained, place the contract in the student's folder at the back of the classroom.		
10.	Before math class begins, quietly remind the student of his goal. **This step can be completed by teacher and checked by primary researcher during observation.*		

APPENDIX M

SCRIPT FOR INTRODUCTORY PHONE CALL TO PARENTS BY TEACHER

Script for Introductory Teacher Phone-call Home to Parents

- Before consent forms are sent home to parents, please call and speak with the parent or leave a message providing the following information.
- For text in **bold** please read as written.

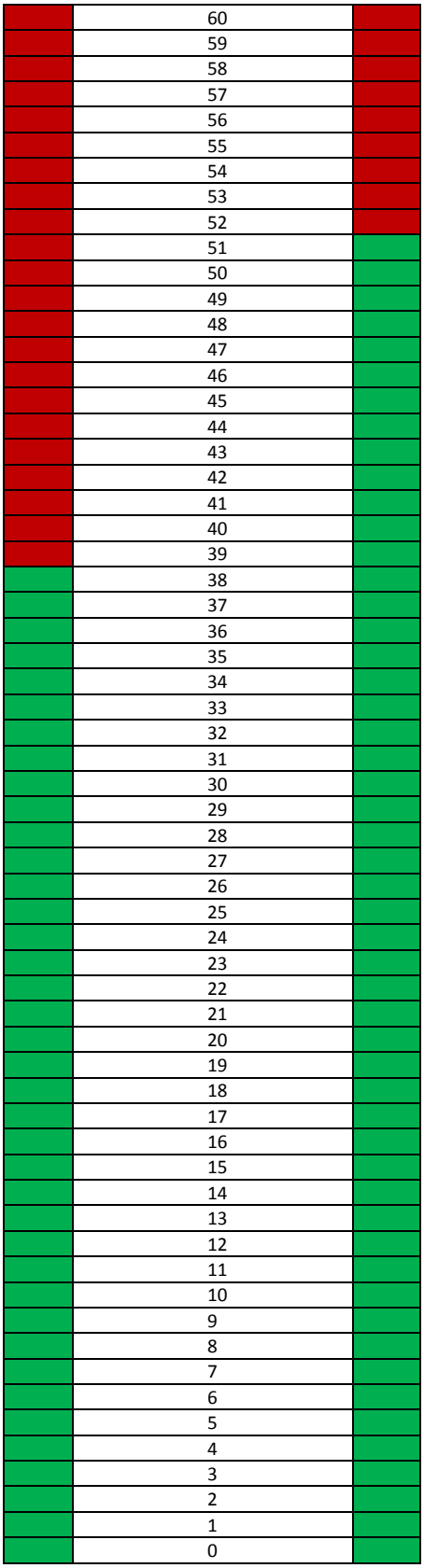
1. Call parent and introduce yourself as your normally would.
2. **I am calling about *student's name* behavior in class. Specifically,** *description of behavior will be written here (e.g., Sarah has some difficulty remembering to raise her hand)* **during instructional time in class.**
3. **I have tried some things in the classroom to help *him/her* improve this, like** *description of the previously attempted but unsuccessful management approaches written here (e.g., providing reminders to follow posted classroom rules or small consequences including losing free time during recess*.) **These approaches haven't worked very well yet, and we are still having some trouble changing the behavior.**
4. **One thing we can try will involve** *student's name* **participating in a research study. A researcher from the University of Pittsburgh is going to conduct a study here that will look at something called a behavior contract or contingency contract. She will write a contract to use between me and** *student's name* **which will describe the behavior, which will be** *description of appropriate, replacement behavior (e.g., raising her hand instead of calling out to give an answer)*. **The contract will also list a goal, and a reward.** *Student's name* **will be able to earn a reward if *he/she* meets the goal set by the contract.**
5. **You will get more information about this study on a form that** *student's name* **will bring home tomorrow. It is completely up to you and** *student's name* **whether or not *he/she* will participate. If you decide to participate, sign the form and send it back to school. If you decide not to participate, you can mark that on the form, too.**
6. **If you want more information, you can call me, talk to Principal Dickens, or talk to the researcher directly. Her name is Kaleena Selfridge and her phone number is (724)301-1540. This information will all be on the consent form.**
7. **If you and** *student's name* **decide not to participate, we can talk more about the behavior when you have a chance.**
8. Answer any questions, thank the parent, and end the phone call.

APPENDIX N

VISUAL AID FOR MTS GOAL PRESENTATION TO PARTICIPANTS

Greg's Baseline Average

New Goal for Contract



APPENDIX O

SOCIAL VALIDITY QUESTIONNAIRE FOR PARTICIPANTS

Social Validity Questionnaire for Students

Directions: Read the following statement to the participating student and ask the following questions and write his or her answers on the corresponding lines.

"I am going to ask you a few questions about the contracts you signed to help you improve *state target behavior from the intervention*. I will not tell your teacher what you have to say, so I want you to be completely honest even if you tell me you don't like something."

1. Did you like using contingency contracts?

_____
_____
_____

2. (Depending on response) Why/Why not?

_____
_____
_____

3. Do you think that the contracts helped you improve *state target behavior from interventions*?

_____
_____
_____

4. Did your classmates notice that you used a contract? *If yes, Follow up:* What did your classmates think of the contracts?

_____
_____
_____

5. Would you like to keep using contracts?

_____
_____
_____

6. What might you like to change about the contracts?

_____
_____
_____

APPENDIX P

SOCIAL VALIDITY QUESTIONNAIRE FOR CLASSROOM TEACHER

Social Validity Questionnaire for the Classroom Teacher

Directions: Please respond to each question by circling the appropriate number or writing your responses on the lines provided. The term **Intervention** refers to contingency contracts in the same way that they were implemented in this study.

For questions 1-4, answer on a scale of 1-4 where:
1 = Not likely at all, 2 = Somewhat likely, 3 = Very likely, and 4 = Definitely.

1.	How likely are you to keep using this intervention **in the same way with the same** students in this study?	1	2	3	4
2.	How likely are you to start using this intervention **in the same way with different** students?	1	2	3	4
3.	How likely are you to use this intervention **with modifications with the same** students in this study?	1	2	3	4
4.	How likely are you to keep using this intervention **with modifications with different** students?	1	2	3	4

For questions 5-9, answer on a scale of 1-4 where:
1 = Not at all, 2 = Not very much, 3 = Somewhat, 4 = Very much.

5.	How much did you like the intervention in this study?	1	2	3	4
6.	How much do you think the intervention helped the participants in this study?	1	2	3	4
7.	How much do you think the intervention could help other students in your classroom right now?	1	2	3	4
8.	How much do you think the intervention helped you manage classroom behaviors?	1	2	3	4
9.	How much do you think other teachers would like this intervention?	1	2	3	4

10. If anything, what would you change about this intervention?

_____
_____
_____
_____
_____
_____

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