

DIFFERENCES BETWEEN PHYSICAL VS. NON-PHYSICAL REWARDS ON THE
BEHAVIOR OF K-8 STUDENTS WITH EMOTIONAL AND BEHAVIORAL DISORDERS

by

John Trevor Guerra

Liberty University

A Dissertation Presented in Partial Fulfillment

Of the Requirements for the Degree

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ABSTRACT

Students with Emotional and Behavioral Disorders (EBD) face many challenges in the classroom, including the propensity to act-out in class with externalizing behavior such as work avoidance, off-task behavior, refusal to follow rules, and aggression. Past research has focused on the benefits of using reward systems within the classroom, with evidence that those who teach using some form of reward system as a motivator often meet with success. Rewards driven by Token Economies have specifically shown promising results when used with students with disabilities who display challenging behaviors. The purpose of this study was to measure the effects of using physical and non-physical activity rewards on the behavior of students with EBD in the presence of a token economy. A quasi-experimental design with repeated measures was utilized for the study, and a convenience sample of 34 students with EBD from public schools in the Southwest United States was used. The Teacher Child Rating Scale 2.1 (T-CRS) was used to rate the behavior of the participants. Paired sample t-tests were conducted at a 95% confidence level with a Bonferroni correction to measure for significant differences between each of the four behavioral subscales on the T-CRS in order to determine if the four corresponding null hypotheses could be rejected. Results of the study show that there was a significant statistical difference on the behavior of students with EBD on two of the four behavioral subscales, depending on whether they were offered physical activity rewards or non-physical activity rewards. When the results of the study were coupled with the additional analysis, the researcher was able to narrow down which of the reward types proved most effective for increasing pro-social behavior in students with emotional and behavioral disorders.

Keywords: emotional disturbance, behavioral management system, rewards, token-economy

Dedication

To my son Trevi and my wife Peni

Acknowledgments

I want to thank the people that offered me support during this amazing educational journey, including my committee chair, Dr. Jessica Talada, Assistant Professor of Education at Liberty University, along with my committee members, Dr. Lunde, and Dr. Lowman, for all their guidance, support, prayers, and encouragement. I am thankful that our paths have crossed, and I thank each of you for providing me with direction and encouragement throughout this entire process.

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List of Abbreviations

Adolescent spontaneous hypertensive rats (SHRs)

Applied Behavioral Analysis (ABA)

Attention Deficit and Hyperactive Behavior (ADHB)

Attention Deficit Hyperactivity Disorder (ADHD)

Autism Spectrum Disorder (ASD)

Bonus points (BPs)

Differential reinforcement of incompatible (DRI)

Emotional and behavioral disorders (EBD)

Emotional Disturbance (ED)

Functional Analysis (FA)

Individuals with Disabilities Education Act (IDEA)

Individual education plan (IEP)

Other Health Impaired (OHI)

Positive Behavioral Interventions and Supports (PBIS)

Positive Behavioral Supports (PBS)

Social Skills Rating System-Teacher Version (SSRS-T)

Teacher-Child Rating Scale (T-CRS)

CHAPTER ONE: INTRODUCTION

Overview

According to current research on students receiving special education services, the future of those identified as having emotional and behavioral difficulties does not appear promising (Hauth, Matropieri, Scruggs, & Regan, 2013; Lochman et al., 2012; Wagner & Newman, 2012). Answers on how to effectively deal with students with emotional and behavioral difficulties in school have been sought by educators for some time. The following chapter will discuss the background and challenges for those working with students with emotional/behavioral issues and provide the purpose of the current study, which looked at utilizing a token economy with physical and non-physical activity rewards to determine if one type of reward was more effective in influencing the behavior of students with emotional and behavioral disorders.

Background

Compared to other disability categories, students with emotional disturbance and/or other behavioral disorders, herein referred to as students with emotional and behavioral disorders (EBD), are amongst the highest *at-risk* students in a number of key areas, including the following: Students with EBD have the lowest grades amongst students with disabilities, experience the most failed courses, consistently are classified as having significantly lower social skills as reported by their own parents (Shamberger & Friend, 2012), are more likely to be outplaced into a private special needs setting by their local school district, have the highest drop-out rates, and they are more likely to live in households with poor outcome risk factors (Wagner, Kutash, Duchnowski, Epstein, & Sumi, 2005). In addition, the suspension and expulsion rates for students with EBD are four times higher than general education students, as well as disabled

students in other categories, and unfortunately, they experience some of the worst educational outcomes of any student group (Siperstein, Wiley, & Forness, 2011).

Nelson (2012) explained that externalizing behavioral manifestations of students with EBD is typical. In other words, it is common for these students to “act-out” in class. Some of the ways that students with EBD act out includes refusal to complete assigned schoolwork and general inappropriate classroom behavior, which may include verbal and physical aggression directed at staff or peers. They tend to be off-task continuously, avoid getting started on or completing their assignments, and refuse to follow verbal or written directions (Shamberger & Friend, 2012). The result is that students with EBD have a very difficult time getting through the school day in a successful manner, which may be one of the reasons that school districts often feel the need to outplace students with EBD into private special day schools that specifically concentrate on the behavioral needs of students (Wagner et al., 2005).

Another negative aspect of the disruptive behavior displayed by students with EBD is that it causes stress for those that work with these individuals (Bosman, Embregts, & Zijlmans, 2013; Skerbetz & Kostewicz, 2015). Part of the stress may come from the fact that it is common for teachers that work with EBD students to feel that that they never received the initial training preparation necessary to successfully deal with the challenging behaviors presented by students with EBD to begin with (Westling, 2010). Instead, teachers have to simply rely on personal experience, which they gain over time in order to learn how to deal with challenging behaviors that students display in the classroom.

Despite the challenges that teachers and staff have to face when working with students with emotional and behavioral disorders (EBD), there are some very promising techniques that research has shown can be implemented in the classroom to successfully motivate students that

exhibit challenging behaviors. One technique that has been demonstrated to be highly effective includes the use of rewards. In terms of the classroom, research has specifically shown the following: Reward systems do have a significantly positive affect on student behavior (Hirst, Dozier, & Payne, 2016; Hulac & Benson, 2010); when reward systems are used in an appropriate way, student participation is optimized (Nelson, 2010) and engagement in the learning process increases (Klee, Neyman, Brasch, McLaughlin, & Stookey, 2015). If teachers can be trained during in-service and pre-service training in how to introduce and implement reward systems as a classroom management tool to manage challenging behavior, some of the stress associated with the job of teaching students with EBD, especially for inexperienced teachers, may be alleviated.

The recognition of how valuable the use of rewards in the classroom can be stems from operant conditioning theory, which states that behaviors can be changed through the use of reinforcements that have been given after a desired response (Skinner, 1938). Operant conditioning theory was developed by B. F. Skinner after studying the work of Edward Thorndike, who originally conducted research on learning in animals using a puzzle box (Chance, 1999; Mcleod, 2007). Thorndike (1905) proposed the theory known as “the law of effect,” which states that responses that result in a satisfying effect are likely to be repeated. Picking up on this premise, Skinner (1938) stated that reinforced behavior will be repeated and behavior that is not reinforced tends to die out or is extinguished. His operant conditioning theory therefore maintains that learning takes place as a result of the acquisition of new data through conditioning or reinforcement (Staddon & Cerutti, 2003).

B. F. Skinner used the latter premise to develop a set of reinforcement therapies based on the use of operant conditioning to modify behavior. Ayllon and Azrin (1968) utilized the principles of operant conditioning and reinforcement therapy to help develop token economies,

which they used as behavioral modification during the rehabilitation of patients in psychiatric wards. Behavioral modification therapy resulted in a widespread impact on society. By 1971, hundreds of studies based on the theory of operant conditioning supported the notion that rewards can control behavior throughout society (Deci, Ryan, & Koestner, 1999). Years later, Cameron and Pierce (2002) looked back on over 30 years of the practice, including the criticism that rewards negatively impact the intrinsic motivation of individuals, and recognized that the utilization of rewards has been beneficial to society; this includes when it is used in settings such as in business, education, psychology, and interpersonal relationships. Shen and Chun (2011) supported these findings and concluded that whether it consists of money or points in a social competition, offering rewards for performance promotes flexibility in individuals. Research on both reinforcement therapy and token economies have shown that these methods can be effective in changing the behavior of individuals in a group setting, such as in a classroom, and each method has likewise proven effective in increasing on-task behavior during classroom instruction (Hirst et al., 2016).

In terms of special education, behavior modification using rewards has proven effective when it was specifically utilized on students that fall within two of the 13 different special education categories that have been recognized by the Individuals with Disabilities Education Act (IDEA). Positive outcomes have resulted through the use of rewards specifically for children in the disability category of Autism Spectrum Disorder (ASD) (Matson & Boisjoli, 2009). The second special education category in which rewards have proven positive is with students that are considered Other Health Impaired (OHI), specifically those with Attention Deficit Hyperactivity Disorder (ADHD). Azrin, Vinas, & Ehle (2008) were able to show that

physical activity rewards in particular have the potential to positively impact the behavior of students with ADHD.

Further, both past and present research has shown that the distribution of rewards as a reinforcement for desired behaviors can be optimized through the use of a token economy system in both the special education classroom and the general education classroom (Ayllon & Azrin, 1968; Fiske et al., 2015; Maggin, Chafouleas, Goddard, & Johnson, 2011; Matson & Boisjoli, 2009). The token economy system was developed throughout the 1950s and 1960s by researchers who worked off of the concepts of operant conditioning (Dickerson, Tenhula, & Green-Paden, 2005). Ayllon and Azrin (1965, 1968) helped develop the acceptance of using a token economy system by studying the use of such a system on the behavior of individuals on a psychiatric ward who were given tokens when they displayed a desired behavior. The tokens earned could later be exchanged for rewards (e.g., the opportunity to leave the ward for a walk) by the psychiatric patients. As additional research showed that the token economy system was proving effective in psychiatric settings, the use of token economy systems became widespread in adult behavioral therapy throughout the 1970s (Paul & Lentz, 1977). Its popularity declined somewhat during the 1980s and 1990s onward due to a number of criticisms of programs using token economies. However, there was a subsequent resurgence seen in the treatment of children with disabilities using token economies in the years that followed (LeBlanc, 2004; Matson & Boisjoli, 2009; Zlomke & Zlomke, 2003). Today, token economies continue to be used in classrooms on a regular basis, including the special education classroom (Fiske et al., 2015) and typically mimic the procedures set up by Ayllon and Azrin (1968) in which tokens, chips, stars on the classroom board, and other tangible tokens can be earned by an individual and later exchanged for a desired reward.

Despite this resurgence and the potential of using rewards and token economies within the classroom, there is a call for more research on the use of rewards in the general population as well as those in population sub-sets (Slavin, 2009; Tartwijk, Brok, Veldman, & Wubbels, 2009). More specifically, Maggin et al. (2011) stated that more research using proven classroom management methods need to be conducted on students with behavioral issues. The current study utilized a token economy system to encourage desired behaviors in students with EBD.

Problem Statement

Hirst et al. (2016), Klee et al. (2015), and Nelson (2010) demonstrated the positive impact of using rewards in the classroom to improve students' behavior, participation, and motivation. Azrin et al. (2008) and Matson (2009) showed that rewards are effective when used on students that fall into specific special education categories, including Autism Spectrum Disorder (ASD) and Other Health Impairments (OHI). However, research is still necessary on the effects of rewards in the actual classroom (Slavin, 2009) and on other sub-sets of populations (Tartwijk et al., 2009), such as students in the special education category known as Emotional Disturbance (ED), as identified in the Individuals with Disabilities Education Act (IDEA).

Slavin (2009) argued that there have been far too few studies of classroom reward structures in the actual classroom, and instead, it has remained an ideological concept. Tartwijk et al. (2009) suggested that more studies need to be conducted to learn how to effectively manage population sub-sets. The gap in literature that was addressed in this study was identified by Maggin et al. (2011) who stated that more rigorous studies are needed to determine the effects of token rewards as effective management tools for increasing the rates of pro-social behaviors in students with behavioral issues (Maggin et al., 2011). The problem is that there are too few

studies that examine the effects of rewards on the behavior of students with emotional and behavioral disorders (EBD).

Purpose Statement

The purpose of this quasi-experimental repeated measures comparison study was to determine if there was a difference between using a token economy system that utilized physical activity rewards (e.g., earned time spent on the playground and earned access to sporting activities such as basketball, football, or soccer) compared to using a token economy system that utilized non-physical activity rewards (e.g. earned access to a recreation area with board games, earned access to a television, or earned access to a computer lab) on the behavior of students with emotional and behavioral disorders (EBD). The independent variable was the type of reward system (physical activity rewards and non-physical activity rewards). The participants for the study consisted of kindergarten through 8th grade (K-8) students with EBD within a public school district located in a large city in the southwest of the United States.

The dependent variable included the following: Behavioral scores of students, based on four subcategories, which include (1) Task Orientation, (2) Behavioral Control, (3) Student Assertiveness, and (4) Peer Social Skills. According to Perkins and Hightower (2002), task orientation refers to the ability of the student to focus on school related tasks; behavioral control refers to a student's ability to adapt and tolerate limits imposed by the school environment or individual limitations; assertiveness refers to a child's confidence in dealing with peers and interpersonal functioning; peer socialization refers to how well a child interacts with peers, likability, and popularity among peers.

Significance of the Study

Fiske et al. (2015) and Matson and Boisjoli (2009) provided evidence on the efficacy of using a token economy system when working with students with disabilities. Yet, more research is needed specifically on the effects of how token economies can increase the pro-social behaviors of students with behavioral issues (Maggin et al., 2011). Further, Slavin (2009) and Tartwijk et al. (2009) stated that research is still necessary on the effects of rewards in the actual classroom and on sub-sets of populations, such as students with emotional and behavioral disorders.

This study took place in actual classrooms and provides specific data on a population sub-set—those with emotional and behavioral disorders (EBD). Results of this study provide data on the effects of using a token economy system that utilizes physical and non-physical activity rewards on the behavior of students with emotional and behavioral disorders (EBD) using the following behavioral subscales: Task Orientation, Behavior Control, Assertiveness, and Peer Social Skills. Using the four behavioral subcategories and the two reward types, the researcher determined that the collected data from the study may yield up to eight (8) possible outcomes: The non-physical (indoor) rewards may possibly prove effective for increasing the rates of pro-social behaviors in students with emotional and behavioral disorders up to four times, once for each of the four behavioral subcategories; the physical (outdoor) rewards may also possibly prove effective for increasing the rates of pro-social behaviors in students with emotional and behavioral disorders up to four times, once for each of the four behavioral subcategories.

Research Questions

The research questions for this study are:

RQ1: Is there a difference between the *mean task orientation scores* of students with emotional and behavioral disorders who are subjected to physical activity rewards and that of students with emotional and behavioral disorders that are subjected to non-physical activity rewards?

RQ2: Is there a difference between the *mean behavioral control scores* of students with emotional and behavioral disorders who are subjected to physical activity rewards and that of students with emotional and behavioral disorders that are subjected to non-physical activity rewards?

RQ3: Is there a difference between the *mean assertiveness scores* of students with emotional and behavioral disorders who are subjected to physical activity rewards and that of students with emotional and behavioral disorders that are subjected to non-physical activity rewards?

RQ4: Is there a difference between the *mean peer socialization scores* of students with emotional and behavioral disorders who are subjected to physical activity rewards and that of students with emotional and behavioral disorders that are subjected to non-physical activity rewards?

Definitions

1. *Emotional and Behavioral Disorders* – Emotional/behavioral disorders (EBD), also referred to as emotional/behavioral disabilities, is a broad term defined by the Individuals with Disabilities Education Act, IDEA, under “emotional disturbance” as a condition

exhibiting one or more specific emotional and/or behavioral difficulties over a long period of time and to a marked degree, which adversely affects educational performance.

2. *Emotional Disturbance* – According to the Individuals with Disabilities Education Act (2004) Emotional Disturbance is a special education category defined in the following manner: Emotional Disturbance means a condition exhibiting one or more of the following characteristics over a long period of time and to a marked degree that adversely affects a child's educational performance: (a) An inability to learn that cannot be explained by intellectual, sensory, or health factors, (b) An inability to build or maintain satisfactory interpersonal relationships with peers and teachers, (c) Inappropriate types of behavior or feelings under normal circumstances, (d) A general pervasive mood of unhappiness or depression, and (e) A tendency to develop physical symptoms or fears associated with personal or school problems.
3. *Token Economy* – The token economy involves the distribution of tokens as immediate reinforcers for performance of specified target behaviors (Ayllon & Azrin, 1968).
4. *Target Behaviors* – Target behaviors typically include adaptive behaviors, such as self-care or work skills (Dickerson, Tenhula, & Green-Paden., 2005).
5. *Task Orientation* – Task orientation is the ability to focus on school related tasks (Perkins & Hightower, 2002).
6. *Behavioral Control* – Behavioral control is the ability to adapt and tolerate limits imposed by the school environment or individual limitations (Perkins & Hightower, 2002).
7. *Assertiveness* – Assertiveness is defined as a child's confidence in dealing with peers and interpersonal functioning (Perkins & Hightower, 2002).

8. *Peer Socialization* – Peer socialization is how well a child interacts with peers, likability, and popularity among peers (Perkins & Hightower, 2002).

CHAPTER TWO: LITERATURE REVIEW

Overview

According to Maggin et al. (2011), there is a need for more rigorous studies to determine the effects of token rewards as effective management tools for increasing the rates of pro-social behaviors in students with behavioral issues. Slavin (2009) and Tartwijk et al. (2009) stated that research is still necessary on the effects of rewards in the actual classroom and on sub-sets of populations. A review of studies that have focused on the effect of token reward systems on students with EBD, which were likewise conducted in the actual classroom, showed that the literature is unclear on whether or not token rewards result in an increase in pro-social behavior when used with students with EBD. Chapter Two has been organized in the following manner: (a) Theoretical Framework, (b) Related Literature, and (c) Summary. This section will provide context on the current study as well as present the gap in literature that exists on the topic.

Theoretical Framework

Operant Conditioning

One of the basic premises behind the use of rewards in education stems from operant conditioning theory, which reasons that behaviors can be changed through the use of reinforcements (e.g. rewards) that have been given after a desired response. The primary theorist of the operant conditioning theory was B. F. Skinner, who was in turn influenced by the work of Edward Thorndike (Mcleod, 2007). Skinner coined the phrase operant conditioning in 1937 while working on operant behavior, which he defined as behavior that is controlled by consequences (Staddon & Cerutti, 2003). Writing on the topic of operant conditioning and the views of B. F. Skinner, Mcleod (2007) explained that there are three assumptions held to be true as part of the operant conditioning system: (1) Learning is manifested by a change in behavior

and that environment shapes behavior, (2) The principles of contiguity exist; contiguity is defined by how close in time two events are in order for a bond to be formed, and (3) Reinforcement plays a part within the system of operant conditioning, which involves any means of increasing the likelihood that an event will be repeated. B. F. Skinner maintains that the latter two concepts are thought of as being central for explaining the learning process. Ultimately, in this behaviorist learning theory, it is understood that learning takes place as a result of the acquisition of new data through conditioning.

Skinner (1953) originally theorized that a stimulus results in the increased frequency of a response when it is withdrawn, which is different from aversive stimuli, such as punishment, that results in reduced responses. Further principles of Skinner (1953) can be summed up with the following three ideas/notions: (1) Behavior that is positively reinforced will reoccur; when it is intermittently reinforced it is particularly effective, (2) Information should be presented in small amounts so that responses can be reinforced ("shaping"), and (3) Reinforcements will generalize across similar stimuli (stimulus generalization), producing secondary conditioning.

Staddon and Cerutti (2003) explained that operant behavior is simply behavior that is controlled by its consequences and operant conditioning is the study of reversible behavior maintained by reinforcement schedules. The term reinforcement schedule refers to any procedure that delivers some form of reinforcer (e.g. rewards given after a desired behavior is exhibited) according to a well-established rule. Niv (2009) stated that the ability to select actions that influence the environment to an individual's own benefit is the mark of intelligent beings, and Skinner's theories of instrumental conditioning, which involve learning to select actions that will increase the probability of rewarding events and decrease the probability of aversive events is used in studies that involve the most fundamental form of rational decision-making. Skinner

(1950, 1953) presented the notion that behavior that does not subsequently receive a reinforcing stimulus (i.e. reward) is in jeopardy of becoming extinct. Today, behavioral learning theorists continue to believe in the importance of using rewards as they research educational issues based on the idea of using operant conditioning as a means to stimulate learning and achievement in the classroom (Cameron & Pierce, 1994).

From its outset, operant conditioning was used in behavioral modification therapy to address issues such as delinquent behavior. Burchard and Tyler (1964) utilized a series of operant conditioning techniques on a subject that was identified as having a history of delinquent behavior that included destruction of property, cruelty to animals and other children, stealing, and starting fires. The operant conditioning techniques that were utilized included time-out from reinforcement and differential reinforcement (i.e. removing rewards and attention given to the subject at inappropriate times while giving token rewards for acceptable behavior). The research conclusion was that the five months in which the use of operant conditioning techniques were utilized was more effective in modifying and controlling the subject's behavior than the four years of conventional psychotherapy that had been used on the subject previously.

In a study involving a participant with a disability, operant conditioning techniques through the use of differential reinforcement was used to decrease inappropriate verbalizations of a child with autism spectrum disorder. Thomson, McLaughlin, and Derby (2011) used a multiple baseline probe design to measure the effectiveness of utilizing differential reinforcement using a token economy. The researchers studied a nine-year old subject in three different school settings. The subject regularly engaged in inappropriate verbalizations, or talking-out at inappropriate times throughout the school day without being called upon by a teacher. During the study, the subject was given a ticket (token-economy) and verbal praise for

not talking out, which she could turn in for rewards after obtaining five of them. The study revealed that the participant's inappropriate verbalizations significantly decreased in all three school settings after employing differential reinforcement through the use of a token economy system.

Modifying Behavior

Behavior modification based on operant conditioning techniques has been utilized in order to treat other disorders such as ADHD. Sellakumar (2016) utilized behavior modification therapy which combined “mindful meditation” and physical exercise to modify the behavior and performance of a target population of 7-10 year old students identified as displaying attention deficit and hyperactive behavior (ADHB) that lead to poor academic performance. The mindful meditation required students to sit with their eyes closed while breathing in and out for 10 seconds at a time; they were required to repeat this procedure 10 times. The physical exercise procedures included stretching and running for specified amounts of time and/or repetitions. Results of the study showed that the attention deficit and hyperactive behavior (ADHB) decreased significantly and academic performance increased significantly in participants after 20 days of employing the behavior modifications described above.

Skinner's theories on operant conditioning have also been greatly recognized as having value in terms of behavioral management within the general education system. Shortly after it had proven successful in behavioral therapy, the use of operant conditioning was utilized in the classroom. In fact, it was used specifically on children with autism in order to extinguish tantrum behavior and to get them to mimic words in the 1960s (Martin, England, Kaprowy, Kilgour, & Pilek, 1968). Misbehavior in the classroom was likewise significantly reduced in the general classroom through the use of operant conditioning methodology, according to a number

of studies that took place around the same time. One study focused on using operant conditioning methods to reduce incidents in the general classroom in which blurting out, talking to neighbors, and students getting out of their seat without permission was a recognized problem (Blackwood, 1970). McAllister, Stachowiak, Baer, and Conderman (1969) conducted a study that showed that by implementing operant conditioning in a high school English class, target behaviors could be reduced. This study utilized teacher praise and disapproval and, according to the researchers, demonstrated the importance of teacher-supplied social contingencies at the secondary level. The most effective method of eliminating self-injurious behavior in individuals was found using methods based on operant conditioning methods (Bachman, 1972; Frankel, Moss, Schofield, & Simmons, 1976).

Altman and Linton (1971) stated that there are a variety of reasons that the use of operant conditioning and behavioral engineering were ideal methods to use in the classroom, including the fact that the classroom is traditionally the place where social and academic behavior is modified. In addition, it was recognized by the 1970s that “delinquents...and conduct problem children” (Altman & Linton, 1971, p. 281), or children with a history of behavioral problems, do not typically respond well to traditional social reinforcement, and it was concluded that rewards in the form of token reinforcers for this and other student populations appeared promising as an untapped resource for behavior control in the classroom. By 1971, hundreds of studies based on the theory of operant conditioning supported the notion that rewards can control behavior throughout society (Deci et al., 1999). Years later, Cameron and Pierce (2002) looked back on over 30 years of the practice of using rewards in the classroom, including its criticism, and recognized its positive use throughout society, including the benefits of rewards in business, education, psychology, interpersonal relationships, and other settings. Shen and Chun (2011)

supported these findings and concluded that whether it consists of money or points in a social competition, offering rewards for performance promotes flexibility in individuals.

Along with this early recognition of how promising its use could be, instruction manuals on how to specifically implement operant conditioning in the classroom were published to instruct and train teachers on the promising results that were being achieved through its use (Ackerman, 1972). Following its inception, the use and study of operant conditioning in and out of the classroom has continued throughout the decades, and during that time, it has been used to concentrate on the extinction and shaping of a variety of behaviors. Amongst a great many number of other focuses, operant conditioning has been used to study the behavior of introverts and extroverts (Gupta & Shukla, 1989), activity levels (Schulman, Stevens, Suran, Kupst, & Naughton, 1978), attending behavior (Vicente, 1981), classroom participation (Hodge & Nelson, 1991), and severe maladaptive behavior (Ducharme & Van Houten, 1994).

Applied Behavioral Analysis

As noted above, the effectiveness of using operant conditioning methods in the classroom has widely been considered and studied. Yet, it is important to realize that operant conditioning, with its roots in the laboratory, did eventually give rise to new research strategies that would become even more widely used in the education system (Baer, Wolf, & Risley, 1968); this began as operant conditioners eventually left the laboratory and merged into community institutions, including the classroom setting. This phenomenon took place in the 1950s (Baer et al., 1968). The merge involved operant conditioners becoming behavioral engineers as they made systematic applications of the principles of operant conditioning to problem behaviors within society (Altman & Linton, 1971). The latter gave rise to a new research strategy known as “applied analysis of behavior” or what is commonly referred to as the scientific practice known

as applied behavioral analysis, also known as behavioral analysis, or behavioral engineering (Pierce & Chaney, 2013). Baer, Wolf, and Risley (1987) and Bear et al. (1968) pointed out that the major difference between applied behavioral analysis and operant conditioning is the focus of each practice, with operant conditioning taking a broad look at all variables that affect the behavior under study, while applied behavioral analysis concentrates more on variables that can be specifically used to improve the behavior being studied. Baer et al. (1987) defined applied behavioral analysis (ABA) as a discipline that involved applying systematic principles of behavioral science, including the use of methods used in operant conditioning. The major focus of ABA, which has helped to define it as a practice, has been its attention to “socially important behaviors” (Baer et al., 1987, p. 313), such as its effectiveness to help those with recognized disabilities.

In its early stages, applied behavioral analysis (ABA) tended to use intervention strategies to simply address the problem behavior itself (i.e. the problem’s “form”) based on the practice of reinforcing appropriate behavior and punishing inappropriate behavior (Lewis, Mitchell, Harvey, Green, & McKenzie, 2015). During the 1970s and 1980s, the focus of applied behavioral analysis then switched from focusing on the “form” of the problem behavior to focusing on the “function” of the problem behavior, or in other words, what purpose was the problem behavior serving the individual (Lewis et al., 2015). Carr and Durand (1985), and other researchers throughout the 1970s and 1980s, put applied behavioral analysis into practice and showed that by focusing on the function, or reason that problem behavior was being reinforced in individuals, appropriate replacement behaviors could be developed. During their experiment, Carr and Durand (1985) developed an assessment method (i.e. the functional behavioral assessments) for identifying situations in which problem behaviors such as aggression, tantrums,

and self-injury were likely to occur in participants with developmental disabilities. Their findings showed that these problem behaviors were likely to occur in the participants when they were experiencing difficult tasks and receiving little attention from adults.

In a subsequent experiment Carr and Durand (1985) altered the environment of the participants by removing the triggers of the problem behavior while teaching them appropriate verbal methods to receive attention and/or assistance from adults. As the researchers explained, they simply used differential reinforcement of functional communication to produce replicable suppression of behavioral problems. In other words, they replaced problem behaviors with appropriate behaviors that served the same function—getting wanted attention from adults.

Functional Behavioral Assessments

Lewis et al. (2015) pointed out that early studies on functional behavioral studies gave validity to three possible explanations concerning the function (i.e. purpose) of problem behavior, which include the following: An individual exhibits problem behavior to (1) access reinforcing stimuli, (2) avoid aversive stimuli, and (3) to access sensory reinforcing stimuli. The latter is the foundation of functional behavioral assessments (FBAs), also known as functional analysis (FA). Throughout the 1980s and early 1990s FBAs concentrated on youth with significant disabilities within clinical settings (Nelson, Roberts, Mathur, & Rutherford, 1999). However, with its proven effectiveness being backed by continued research, by the mid-1990s the use of FBAs had widely expanded into other fields. Pierce and Chaney (2013) stated that while it has perhaps become best known for its implementation with the treatment of autism, ABA has also been effectively utilized in a wide range of areas, including job safety, addiction, sport training, and also in the educational field.

FBA's would eventually become mandatory as part of the reinstatement of the Individuals with Disabilities Education Act Amendments of 1997 for students with behavioral problems in order to create a proactive behavioral plan for the student with behavioral issues (Yell, 1997). To this day, with the latest reauthorization of IDEA (2004), FBA's continue to be required in order to develop a subsequent behavioral intervention plan for students with behavioral issues that lead to long term suspensions from their home schools or who are placed in an interim alternative setting for 45 days (Lewis et al., 2015), such as in cases in which students with emotional disturbance are outplaced into a private special education day school or program.

Positive Behavioral Interventions and Supports

Both applied behavioral analysis (ABA) and functional behavioral assessments (FBA's), each having origins in operant conditioning, served as springboards to yet another applied science known as positive behavioral supports (PBS)—also known as positive behavioral interventions and supports (PBIS). Horner & Sugai (2015) explained that PBIS involves a multi-tiered framework involving a set of intervention practices—including rewards—establishing the social-cultural and intensive individual supports that are needed for all students at a school to realize academic and social success. PBIS has become widely popular, with over 21,000 schools in the United States adopting this approach (Horner & Sugai, 2015). PBIS has likewise had a large impact on special education while also maintaining a particular focus on individuals with behavioral issues (Carr et al., 2002). While studying the participation of students with disabilities in school-wide positive behavioral interventions and supports (PBIS), Schuster et al. (2016) found that the highest involvement was found in the participation of earning rewards such as a school-wide raffles or school stores.

One concept that Carr et al. (2002) recognized as shared by all three of the above practices, that of applied behavioral analysis, functional analysis, and positive behavioral support, is their support of intervention planning to change behavior in a desired direction and the practice of utilizing reinforcement contingencies (i.e. rewards) to accomplish such measures. One way in which the latter has been put into practice is with the implementation of token economies as one of the accepted methods of PBS (Horner & Sugai, 2015).

Summary

Skinner was without a doubt one of the most predominant figures in the development of behavioral therapy (Labrador, 2004), and it has been characterized as being more effective in general compared to other forms of therapy, including psychoanalysis (Sundberg & Michael, 2001). This may be the reason why Schlinger (2008) reported that over 50 years later, Skinner's theories are still being practiced. Admittedly borrowing a phrase from Mark Twain, Schlinger death of Behaviorism were greatly exaggerated" (p. 329). In fact, behaviorists have established their own division to this day in the American Psychological Association, and they are widely represented through a number of reputable associations and current journals (Schlinger, 2008). The fact that behaviorist and behavioral therapy, applied behavioral analysis, and functional behavioral assessments, each which have been traced back to the work of Skinner, have all become so widely supported shows the impact of Skinner's work with Operant Conditioning and his subsequent role in the development of behavioral therapy in general. The current study serves to advance the research on Operant Conditioning Techniques and other established behavioral practices that implement the use of rewards in a context that to date has not been thoroughly looked at, which is the effectiveness of using various types of rewards on students with emotional and behavioral disorders (EBD).

Related Literature

Emotional Disturbance Defined

Emotional disturbance is a specific special education category recognized under the Individuals with Disabilities Education Act (2004); it goes back more than 60 years to the 1950s and is used to classify students with emotional and behavioral disorders (EBD) who may qualify for special education services. The term emotional disturbance is largely based on the work of Eli Bower. Bower studied 207 children that had been identified as emotionally disturbed (Merrel & Walker, 2004). The definition of individuals that are now identified as being emotionally disturbed is not without its controversy, and according to Merrel and Walker (2004), it is one definition that has been riddled with confusion and controversy, mainly due to the fact that even though students with EBD were guaranteed an inclusive education as part of the Individuals with Disabilities Education Act Amendments of 1997, these same students have since fared worse than any other class of students with disabilities.

What may be more alarming is the idea that research has shown that a significant amount of students that would otherwise qualify for disability services under the category of emotionally disturbed go undiagnosed (Hanchon & Allen, 2013; Olympia et al., 2004). Recent data gathered by the United States Department of Education (2011) indicated that approximately 400,000 students receive special education services under the category of emotional disturbance; on a national level the above number represents 0.56% of students across the United States—much less than 1% of the total student population. The latter percentage significantly underrepresents the number of students who should qualify for special education services under the emotional disturbance category, and it has been noted that as many as 80% of students that should otherwise be protected under the emotional disturbance category as established by United States

federal law are simply not being identified (Olympia et al., 2004). This may all be attributed to the fact that the federal definition of students with emotional disturbance is much too narrow.

Hanchon and Allen (2013) explained that Bower's definition from 1950, which developed after an analysis of teacher-reported data on the group of 207 students, was later adopted by Congress and codified into the Education of All Handicap Children Act of 1975. The Act guaranteed access to public education for all children with disabilities, included students recognized as having emotional disturbance and included the following definition:

Seriously Emotionally Disturbed: exhibiting behavior disorders over a long period of time which adversely affect educational performance. These include an inability to learn that cannot be explained by intellectual, sensory, or health factors; an inability to build or maintain satisfactory interpersonal relationships with peers and teachers; inappropriate types of behaviors or feelings under normal circumstances; a general pervasive mood of unhappiness or depression; and/or a tendency to develop physical symptoms or fears associated with personal or school problems. (Public Law 94-142, p. 42478-42479)

The Individuals with Disabilities Education Improvement Act of 2004 followed as an update to Public Law 94-142, and it borrowed the definition of emotional disturbance from Bower's original definition, which recognized children with emotional disturbance as exhibiting, to a marked degree and over a long period of time, one of the following conditions: (1) An inability to learn, which cannot be explained by intellectual, sensory, or health factors, (2) An inability to build or maintain satisfactory interpersonal relationships with peers and teachers, (3) Inappropriate types of behavior or feelings under normal circumstances, (4) A general, pervasive mood of unhappiness or depression, and (5) A tendency to develop physical symptoms, pains, or fears, associated with personal or school problems. The term includes

schizophrenia. The term does not apply to children who are socially maladjusted, unless it is determined that they have an emotional disturbance (IDEA, 2004).

Qualifying for Special Services

In order for a child to qualify for special education support services under an emotional or behavioral disorder (EBD), the aforementioned symptoms of emotional disturbance must be present and adversely affect his/her educational performance. In addition, to qualify for special education, not only must a child have an emotional disturbance or behavioral disorder, but the disorder must also (1) be exhibited over a long period of time, (2) be considered "severe" by those evaluating it, and (3) adversely affect the student's educational performance (Wagner, 1995).

Assessment and identification of a student with emotional disturbance begins when a student exhibits behaviors that suggest the possibility of an emotional or behavioral disorder, which is recognized by his or her teacher or other school staff member, who in turn refers the student to undergo a student assessment process that falls under the auspices of special education (Wagner, 1995). It is then the responsibility of a Multidisciplinary Evaluation Team (MET) to determine if the student qualifies for special education services under the category of emotional disturbance. An important member of the MET is a qualified school psychologist. Heathfield and Clark (2004) pointed out that the school psychologist who is responsible for helping to determine whether or not a child has emotional disturbance must have more than a simple and terse understanding of the symptoms. S/he must also be adequately trained in psychopathology to understand the features of intricate disorders such as emotional disturbance and be familiar with diagnostic methods, such as those found in the Diagnostic and Statistical Manual of Mental Disorders (4th Edition) or DSM-IV (American Psychiatric Association, 2000).

Hanchon and Allen (2013) recommended that a school psychologist utilize a comprehensive approach to assessing a student with ED and also explains that among the many responsibilities that a school psychologist is charged with, perhaps none has created more of a sense of confusion and uncertainty than identifying and determining eligibility for students within the special education category known as emotional disturbance. Perhaps the confusion that surrounds identifying students with emotional disturbance can in some way also be linked to the poor outcomes that other professionals who work with this group of students have reported experiencing.

Outcomes of Students with Emotional Disturbance

Students classified as qualifying for special education services under the category of emotional disturbance are, after all, amongst the highest “at-risk” students in the following key areas: Lowest grades amongst students with disabilities; most failed courses; consistently and significantly lower social skills, as reported by their own parents; more likely to change schools, often due to district replacement; highest drop-out rate; and more likely—compared to other students with disabilities and students in the general population, to live in households with poor outcome risk factors (Wagner et al., 2005). Further, the suspension and expulsion rates for students with emotional disturbance are four times higher than general education students as well as disabled students in other categories, and unfortunately, they experience some of the worst educational outcomes of any student group (Siperstein et al., 2011). After high school, they continue to trail the general population in positive transition outcomes, which includes a significantly lower rate of employment and a significantly higher rate of criminal justice system involvement in comparison to the general population (Wagner & Newman, 2012).

Moral Judgment of Children with EBD

While studying the moral judgment of students with emotional and behavioral disorders (EBD), Hardman (2014) used the following definition of the term, which is based on Colby and Kohlberg's (1987) definition of what moral judgment means:

A moral judgment is an imperative derived from some rule or principle that is (a) a judgment of value, not fact; (b) a social judgment involving people; (c) prescriptive or normative, and (d) about rights and responsibilities as opposed to liking and preference. (Hardman, 2014, p. 144)

The following six moral orientations, grouped into three levels, have been associated with the above definition:

(a) the *preconventional* level which is egocentric in intent and includes the *punishment–obedience* and *personal reward* orientations, (b) the *conventional level* which is cooperative in intent and includes the *good boy/nice girl* and *law and order* orientations, and (c) the *postconventional* level which is principled in orientation and includes the *social contract* and *universal ethical principle* orientations. (Hardman, 2014, p. 144)

Hardman (2014) pointed out that children with emotional and behavioral disorders (EBD) have a tendency to develop an egocentric instead of a cooperative orientation, while cooperation dominates most children's moral judgment by age nine. Hardman (2014) also noted that egocentrism continues into adulthood and that it has been linked with anti-social behavior. In an attempt to further explore the moral judgment of children with EBD and how feelings affect their judgment, Hardman (2014) conducted a study to answer the following questions (a) Are the reasoning patterns voiced in the moral judgments of third- through fifth-grade children with and without emotional and behavioral disorders similar or different with respect to moral orientation,

and (b) How do feelings of anger, fear, and sadness affect the children's thought processes? Case studies on six children with emotional/behavioral disorders and six children without EBD (identified as typical children) were conducted during the study. The study involved conducting interviews with the participants after presenting them with moral dilemmas that presented a conflict in values.

The results of the study revealed that all of the participants understood the basic elements of character, setting, and plot before interpreting the moral elements of each story. However, the study also revealed that the typical children more frequently considered the consequences of their actions with five out of the six typical participants reasoning from a punishment-obedience orientation. In addition, all of the participants with EBD reasoned from a personal reward orientation. A personal reward orientation is different from a punishment-obedience orientation in that reward orientation is used to justify issue choices (Hardman, 2014). The author stated that students with EBD may utilize egocentrism as a self-defense mechanism of sorts in response to a "harsh and uncaring" environment. Hardman (2014) also recommended that the education of students with EBD should include established best practices of crafting a benevolent learning environment through the use of positive behavioral interventions and supports (PBIS). If the latter is used, the author stated that teachers may do more than simply change the behaviors of students with EBD and instead possibly change the outlook of these students from that of school being a harsh and uncaring environment to one of safety, in which they can build caring relationships with peers, authority, and society at large (Hardman, 2014).

Working with Students with EBD

The above goal of changing the behaviors and outlook of those with EBD is not without its challenges. From the perspective of school staff, part of the challenge of working with

students with EBD stems from the fact that they tend to be continuously off task, avoid starting or completing their assigned work, and neglect following verbal and written directions or rules (Shamberger & Friend, 2012). As a result of their behaviors, these students have difficulty making it through their day-to-day classroom routines with success. This often leads to students with EBD being placed in self-contained programs, away from the general population. Skerbetz and Kostewicz (2015) pointed out that while the Education for All Handicapped Children Act Amendments of 1975 established that students with disabilities should be moved to the least restricted environment in school (i.e. provided with an inclusive education with the general population), not all students with disabilities participate in inclusion equally. Approximately 18% of students with EBD obtain their education outside of their home schools after being outplaced compared to 5% of all students with disabilities, and less than half of students with EBD spend 75% or more of their school day in inclusive settings. Wagner (1995) explained that students with serious emotional disturbance have been dubbed as “mad, bad, sad, and can’t add,” and as a result, they have a particularly difficult time finding success, both in school and in adult life.

Recently, and as a result of the high amount of cognitive and achievement deficits in students with EBD, there has been significant scrutiny over whether or not the self-contained classroom concentrates too much on behaviors and not enough on academics. In the meantime, the achievement gap, or difference in academic achievement—typically persists for students in these programs, with self-contained students performing much lower academically compared to the general population (Lochman et al., 2012). Hibel, Farkas, and Morgan (2010) stated that research has shown that students placed in special education are more likely to experience an achievement gap prior to their placement, and as Lochman et al. (2012) added, this is one of the

main reasons why students, such as those with behavioral problems, are put into school based prevention programs away from the general population. The hope is that as the child's social-cognitive, emotional coping, and self-regulation skills are improved, there will likewise be an improvement in the student's academic and school connectedness. However, it has been shown that students with EBD miss out on concepts being taught in the general classroom, and they typically fall further behind their classmates in their academic progress, with research showing that over time students with EBD show little progress in either academic or social functioning (Hauth, 2013).

Academics and Transition

Taking note of the lack of academic progress that students with emotional disturbance experience, along with the fact that few studies have concentrated on the progress of students with emotional disturbance in general, Siperstein et al. (2011) followed the academic and behavioral progress of 35 students with emotional disturbance from low-income schools and 26 students with emotional disturbance from high-income schools over the period of one year. Measures of academic achievement of the students consisted of two math subsets (calculation and applied problems), and two reading subsets (letter-word identification and passage comprehension) as measured by the Woodcock Johnson III assessment. Teachers completed rating scales on the students using Social Skills Rating System-Teacher Version (SSRS-T) in order to measure behavioral progress. Siperstein et al. (2011) stated that the results of the one year study on the progress of the students with emotional disturbance were discouraging, showing no significant progress in either the low-income or high-income subgroups, while also pointing out that the results of their study lines up with past research.

The latter data may partly explain why students with emotional disturbance struggle with positive transition outcomes as they move from high school and into adulthood. After studying the high school completion rates, using nationally representative interviews and survey data, on the post-secondary education enrollment, employment, independent living, and criminal justice system involvement on two cohorts of young adults (youth ages 18-21 and young adults 21-25) who had been identified as being emotionally disturbed while in school, Wagner and Newman (2012) concluded that these groups trail the general population in positive outcomes. Compared to the general population, these young adults with emotional disturbance had a much lower rate of enrollment in post-secondary education, significantly lower employment rates, and an arrest rate that was significantly higher. The conclusion of the study led the authors to suggest that what is needed for this population are greater targeted investments in identifying effective interventions for these youth at a much earlier age, which should be a priority for schools in serving students with emotional disturbance (Wagner & Newman, 2012).

Positive Supports and Rewards

Garwood and Vernon-Feagans (2017) examined how classroom management quality effects students during their first four years of school and found that when teachers resort to punitive and negative classroom management methods (e.g. removing students from the classroom because of disruptive behavior), the learning experiences for these students is diminished. However, when teachers provided high-quality classroom environments consisting of positive emotional and organizational supports, children with or at risk for emotional and behavioral disorders (EBD) are able to make improvements in their on-task behaviors and classroom engagement, thereby doing better academically. Other studies have shown similar promise in terms of providing a positive classroom environment. Fairbanks, Sugai, Guardino,

and Lathrop (2007) studied the effects of receiving position points during class for engaging in positive behaviors, such as showing respect for others or using problem solving skills, with students identified for being at-risk for emotional and behavioral problems. The points were recorded on a daily report card that was sent home and the result of the study show that the positive report cards resulted in a significant reduction in problem behaviors in the participants. Reinke et al. (2014) also studied students with behavioral difficulties in the presence of a positive classroom environment and found that when the frequency of behavior specific praise for these students from the teacher was increased there was a significant decrease in disruptive behaviors and a significant positive increase in on-task behaviors for these students. The above finding show that the use of rewards—identified as a positive behavioral intervention and support—may have similar positive effects on students that have been identified as having EBD.

The use of reward systems has proven effective in increasing targeted behaviors and extinguishing negative behaviors in other special education categories (Azrin, Ehle, & Beumont, 2007; Azrin et al., 2008). However, it should also be mentioned that studies have shown that despite benefits of using reward systems, there are some drawbacks with implementing them in the classroom. Research has shown that rewards could lead to children feeling manipulated and possibly could diminish their drive for achievement. The latter concepts were exemplified by Shiller & O’Flynn (2008) who examined the issues surrounding the use of rewards in the early childhood classroom. Shiller & O’Flynn (2008) found that rewards could lead to children feeling controlled and undermine their intrinsic motivation. However, it must be noted that Shiller & O’Flynn (2008) also found that researchers likewise discovered that rewards do not have detrimental impact on motivation and that rewards do not weaken interest when offered in a permissive rather than a controlling context.

A close look at the current practices taking place in classrooms today, in terms of reward systems that stem from operant conditioning and other practices that stem from the use of its techniques, can provide educators with a better understanding of how important the use of rewards can be. Studying the current use of rewards in the classroom can also provide educators with a better understanding that there exist a variety of methods that can be utilized with students in terms of operant conditioning. For instance, the research of Hoffmann, Hutchinson, and Reiss (2009) revealed that there is indeed a variety of prevalence, types, characteristics, definitions, and approval of rewards in the modern classroom. Some of the recent studies that have shown the effectiveness of reward systems based on operant conditioning techniques and behavioral management, which have been used in the general education classroom include studies that have effectively used rewards for students at that graduate level (Akashi, 2012), to successfully motivate students in high school (Klee et al., 2015), and at the primary level. Fiske et al. (2015) used token rewards while working with school aged children with autism and concluded that the tokens were positively reinforcing for the participants in the study.

According to the research of Hulac and Benson (2010), the use of contingency (reward) systems allows the classroom teacher the ability to effectively teach targeted behaviors. Their research on contingencies show that rewards exist in one of the three following forms: dependent, independent, and interdependent. In a dependent contingency system, the consequences for the group are determined by the performance of select individuals (e.g. rewarding the entire class if one student, or group of students, performs well). In an independent system, the consequences are not determined by the actions of others but instead are affected by the actions of the individual himself/herself (e.g. If an individual performs well s/he is rewarded regardless of the behavior and consequences thereof of his/her classmates). In an interdependent

system, the consequences are determined by everyone in the class (e.g. If one person does not perform well than the entire class misses out on the reward). Hulac and Benson (2010) further asserted that if the teacher employs the use of one of these three reward systems in the general classroom, coupled with positive peer attention—individual student behavior can be improved, as can the entire classroom environment, due to the fact that group contingency systems help students understand the reciprocal nature of relationships.

In their research, Wheatley, West, Charlton, and Sanders (2009) pointed out how a differential reinforcement of incompatible (DRI) behavior procedure was used to decrease inappropriate behaviors and increase appropriate behaviors in an elementary school lunchroom. Their study examined the effectiveness of this simple behavior management system, which implements the use of rewards as part of operant conditioning system. The intervention consisted of the following three steps: (1) Teaching specific appropriate behaviors, (2) Providing opportunities for students to practice skills, and (3) Implementing a praise note system to reward students for behaving appropriately; which involved giving students who were demonstrating targeted behavior at school with a signed slip of paper with the words “safe, kind, and responsible” printed on them. Students could then turn their praise notes in for a school-wide daily reward drawing. The data from this study showed significant decreases for each of three target behaviors. The average amount of litter left in the lunchroom decreased by 96%, the average number of instances of sitting inappropriately decreased by 64%, and the average number of instances of running in the lunchroom decreased by 75%. This focus on a specific targeted population within an elementary school clearly demonstrates the efficacy of using reward systems within a group setting.

Chylinski (2010) discussed a study on how an unconditioned stimulus in the form of "participation money" served to keep track of students' comments during class discussions and extrinsically to reinforce their class participation behaviors. The authors used a longitudinal experiment to investigate the effect of a money stimulus on several education outcomes. Similar to the later findings of Akashi (2012), this study showed that reward stimulus increased the number of comments during weekly class discussions, as perceived by both instructors and students.

Both Akashi (2012) and Chylinski (2010) were able to gain an understanding on the effect of rewards upon the classroom's climate and culture after introducing a token economy as an incentive during classroom discussions. There were a number of hypotheses proposed during these types of studies, including the idea that extrinsic reinforcements could change student participation behavior during class discussions. Chylinski (2010) discovered that learning outcomes, including student experience and understanding of class material and the social atmosphere in the classroom, can change with the use of reward systems. The students that participated in the reward groups of Chylinski's (2010) study viewed the receipt of rewards as a motivating factor and stated that it caused them to participate more often. They also rated their teachers higher, which may be attributable to the findings during the study that showed an increase in student self-perceived understanding of classroom concepts. In terms of educational effect, the results of these studies reveal that rewards have a positive effect on the classroom directly and indirectly, thereby improving the entire culture and climate of the school in general.

Nelson (2010) conducted research on reward systems and their effect on the modern classroom while asking if demographical background could affect participation in class when the awarding of bonus points (BPs) are used as an incentive to participate. For this study, cards were

used as bonus point tokens; on one side the cards read “bonus points” and contained a stamped signature of the instructor. The other side of the card had a space for the names and course numbers of the students. Students earned bonus point cards, with the possibility of one per day, by asking pertinent questions. The bonus cards were then turned back in to the instructor for extra credit earned while in the course, up to 3.8% total. Due to the fact that past research had shown that class participation was affected by demographic factors (e.g. sex, age, non-traditional student, GPA), Nelson (2010) believed that demographics would likewise be a significant factor in determining classroom participation in his own study. However, Nelson (2010) found that demographical data did not play a significant factor in his study and suggested that future studies could delve further into the idea that while demographic factors have proven to be a determinant in terms of classroom participation, the introduction of a token economy appears to increase classroom participation regardless of demographical data of the participants; “Thus, the use of BPs may have changed the classroom situation enough to remove these relationships” (Nelson, 2010, p. 59).

Hansen (2002) pointed out that research has shown that the school environment affects the school’s inhabitants and points out that during his own study of an inner city school it was evident that reward systems positively contributed to the school environment as well as the students within this underprivileged population. Students that come from underprivileged populations may not see things, especially the prospect of opportunity, in the same light as their more affluent counterparts (Cerini, 2007). When reporting on the proper approach to take with such students and the outlook of inner-city youth, Cerini (2007) asked the pertinent question of how to motivate students in areas where less than half of the residents possess a high school diploma, language is a barrier, and money is difficult to come by. Perhaps the answer to the

above question can be best be offered through the use and application of the proven operant conditioning reward method, in which rewards can likewise be used as a positive stimulus within a specified population to convincingly demonstrate that compensation in the form of rewards is within grasp and is not as difficult to attain as it is perceived to be.

Rewards on Specific Subsets

Tartwijk et al. (2009) stated that more studies need to be conducted to learn how to effectively manage population sub-sets, such as those from low socio-economic backgrounds or from specific special education categories for that matter. However, because only a small amount of the current research has looked at the effects of reward systems strictly in sub-categories to date, it is difficult to ascertain the true usefulness of utilizing rewards within sub-groups of the population, and the actual effectiveness of rewards systems within such populations may not yet be fully understood. Perhaps the reward system could be much more valuable if efforts to intensify such a system were stepped up within the public education system. Such efforts might reveal more definitive conclusions in regards to the benefit of extrinsic reward systems and/or increase in academic performance within subgroups. Further research on the issue could likewise focus on a specific group's response to operant conditioning and the impact of extrinsic rewards upon a specific student population in comparison to the effects of reward systems in other student populations (e.g. affluent populations, special needs populations, English learner populations, low socio-economic populations). This type of data may be valuable when developing educational programs for each of these groups.

Palcic, Jurbergs, and Kelley (2009) provided a promising report on the topic of rewards in sub-populations after examining a subgroup of students that consisted of African American elementary students with ADHD that came from families with low socio-economic backgrounds.

This study compared the effectiveness of positive reinforced consequences for increasing academic performance and appropriate classroom behavior in this sub-population, and the results of the study indicated that positive reinforced interventions (rewards) were effective in improving this group's on-task behavior and classwork productivity. This particular study indicated that reward systems work specifically for a population of students within a population (i.e. low income, African American students with ADHD) and likewise showed the potential of using rewards in other sub-populations or special needs categories, such as those with emotional disturbance (ED). Palcic et al. (2009) touched upon a *pertinent phenomenon*, and the fact that the students in their study also fell into a minority population with ADHD, led them to the conclusion that this phenomenon likely requires further research.

As mentioned above, the focus of using rewards in general populations has proven effective, and the small amount of studies that have been conducted on students that fall within sub-populations have had similar results. A limited number of other studies have shown similar results when using rewards, consisting of both physical activity and non-physical activity types, within special education categories, including autism spectrum disorder (ASD) and attention deficit hyperactivity disorder (ADHD). Witzel & Mercer (2003) compared research practices surrounding the use of rewards in special needs populations and found that reward systems allow educators the opportunity to view the use of extrinsic rewards in the context of special needs learners to build motivation. Focusing on students with autism spectrum disorder who have also demonstrated physical aggression at school, Matson (2009) demonstrated that inappropriate behavior in this population can be prevented through the use of a token economy that reinforces appropriate behavior. Research conducted by Shogren, Lang, Machalicek, Rispoli, & O'Reilly (2011) indicated the effectiveness of teaching and utilizing student self-management techniques

specifically for students with ASD. The results of Shogren et al. (2011) supported past research, which has shown that teaching self-management strategies to students with ASD can lead to positive outcomes in terms of their peer interaction, classroom behavior, and academic performance. Shogren's study strongly supported the idea of specifically using self-management rewards for students with ASD:

E.g. actively involving students in the process of managing their own behavior, reducing their dependence on teacher prompts or external interventions; promoting the inclusion of students by permitting teachers to spend more time on instructional tasks rather than on classroom or behavior management; and assisting student in generalizing what they learn. (Shogren et al., 2011, p. 88)

Akin to Shogren, the research of Anderson, McLaughlin, Derby, & Williams (2012) showed the effectiveness of teaching and utilizing contingency/reward systems for students with identified disabilities. Their research provides an excellent discussion on positive outcomes associated with implementing contingency (reward) systems for students with specific learning disabilities and/or the tendency to engage in inappropriate verbalizations.

The research of Hawkins et al. (2011) particularly showed the effectiveness of utilizing behavioral contracts while coupling them with a reward system when working with students with ASD. Further, their research provides an excellent discussion on positive outcomes associated with implementing reward based behavioral contracts specifically for children diagnosed with ASD and who also have a history of demonstrating physical aggression towards others. Hawkins et al. (2011) recognized the fact that a sounder research design could be used to demonstrate the overall effectiveness of using a behavioral contract for students with ASD, and it is important to continue the search for effective classroom reward systems, which may in turn permanently

change the climate of the classroom for the better by providing it with formulaic, yet highly effective, solutions.

Mattison and Blader (2013) studied 196 students identified as having emotionally and/or behavioral disorders in order to address what they recognize as a growing concern over the limited academic progress of students with EBD. The study focused on academic achievement and performance and found that the major determinant of whether or not a student with emotional or behavioral disorders (EBD) was successful in terms of academic success was whether or not the student also displayed attention deficit hyperactivity disorder symptoms, which led to inattentiveness (ADHD-I), a point that has many implications considering the high comorbidity, or dual occurrence, of both ADHD and EBD in children (Dietz & Montague, 2006; Kaplan, Dewey, Crawford, & Wilson, 2001). Mattison and Blader (2013) stated that it is important for educators that work with students that have emotional and/or behavioral disorders (EBD) to determine if a student also has ADHD-I, because these same students are highly likely to benefit from combined academic and contingency management (e.g. rewards systems) interventions. The conclusion reached during Mattison and Blader's (2013) study was that perhaps too much time is spent on behavioral management with students that have EBD and not enough time is spent on academic interventions, especially for those in the most restrictive programs such as self-contained programs.

There are additional concerns associated with the treatment ADHD, one of the most common childhood psychological disorders, affecting 3-7% of children (American Psychological Association, 2000), including concerns that the typical use of psycho-stimulants such as methylphenidate to treat ADHD and other disorders can have long-term negative side effects (Swanson et al., 2007). Perhaps this is why past research on ADHD has widely focused on the

effects of treating this disorder with pharmacotherapy through the use of stimulant medication, which is used on 85% of children diagnosed with ADHD (Chronis, Jones, & Raggi, 2006). However, because of the concerns associated with the wide use of treating ADHD with drugs, there is currently substantial interest in researching alternative or complimentary treatment methods for ADHD and other mental disorders in general, with physical exercise being considered as a viable intervention (Robinson, Hopkins, & Bucci, 2011). Physical exercise has already been shown to be an effective treatment of stress, depression, cognitive function, and in the context of ADHD to effect dopamine and norepinephrine levels (Robinson et al., 2011), which are each associated with motor control, reward, motivation, attention regulation, working memory, and behavioral inhibition (Wigal, Emmerson, Gehricke, & Galasseti, 2013).

Amongst the completed studies on using rewards with special needs populations identified as having ADHD is evidence that educators can achieve optimal success when managing behavior when using specific rewards based on physical exercise. For instance, the research of Azrin et al. (2007) revealed that the solution for managing the behavior of students with ADHD may be to provide a contingency based physical activity reward system, whereas the allowance of physical activity becomes the incentive for students to maintain proper behavior in the classroom. Their research showed that using contingency based system that included rigorous exercise was a positive reinforcer for these students: "Such an application could be therapeutically beneficial as an addition to or substitute for the usual reinforcers used in contingency management with ADHD children" (Azrin et al., 2007, p. 569). In a follow-up study, Azrin et al. (2008) showed the potential of effectively using reward systems for middle school students with ADHD. After completing the study, which involved a qualitative multi-phase design, Azrin et al. (2008) suggested that additional research, using similar methods to his

own design, should be completed in order to learn effective methods of managing the behavior of students that specifically have ADHD.

Robinson et al. (2011) looked at the effects of physical exercise on ADHD in the laboratory to determine whether or not it could significantly impact hyperactivity and attention oriented behavior. In this study, the researchers examined the effect of exercising (using voluntary wheel running) on adolescent spontaneous hypertensive rats (SHRs), a commonly used animal model of attention/deficit hyperactivity disorder (Robinson et al., 2011), which display symptoms of hyperactivity, inattention, impulsivity, and working memory deficits—or simply put, rats with ADHD. The researchers reported that exercise during adolescence can benefit attention capabilities, including the reduction of distractibility; according to the researchers, these findings line-up well with several other recent studies on the effect of exercise on both laboratory animals and humans, and support the notion that physical exercise may be a useful therapeutic intervention for both cognitive and behavioural symptoms associated with attention deficit hyperactivity disorder (ADHD).

Silva et al. (2015) examined the effects of physical exercise on the attention of children. Their study involved a set of 28 participants with ADHD and a set of 28 participants without ADHD whose attention was measured via the use of a computer game. Half of the participants, 14 from each set of participants, engaged in robust physical activity for five minutes, and after a short five minute rest, completed timed tasks as part of a computer game. The other half of the participants refrained from the physical activity and were only required to complete the timed tasks on the computer. The results of the study showed that there was significant differences in the performance of each group, with the ADHD group that engaged in vigorous physical activity before completing the timed tasks on the computer performing significantly better than the group

that did not engage in physical activity. The researchers concluded that the study supports previous research, which shows that intense exercise can improve the attention of children with ADHD, provide greater impulse control for these individuals, and may help their school performance (Silva et al., 2015). The researchers also noted that the effects of the physical exercise appear almost immediately.

Wei, Yu, and Shaver (2014) pointed out that there is a large range of data showing the association of ADHD occurring simultaneously with emotional disturbance, with a comorbidity rate of the two ranging from 16% to 56% in seven individual studies conducted from 1998 to 2006. Kaplan et al. (2001) stated that the increased documentation of the high rate of comorbidity between these disorders had called into question whether each of the disorders (ADHD and EBD) is a distinct clinical entity independent of the other. Dietz and Montague (2006) examined the comorbidity rate of attention deficit hyperactivity disorder (ADHD) and emotional and behavioral disorders (EBD), while considering that research has shown that more often than not, these disorders and their symptoms overlap one another, and they were able to conclude that continued research on the topic is important because of the high comorbidity rates of the two disorders along with the many implications for the treatment and diagnosis of the two together. These implications extend to the current study and include the possibility that it may be possible to use physical activity rewards with students identified as having ED in similar ways to how they have been used with children with ADHD. These types of rewards can possibly serve as an additional or substitutive classroom management technique to reinforce positive behavior, and perhaps increase academic performance as suggested by Mattison and Blader (2013), in students with emotional and behavioral disorders (EBD); current research has not looked at utilizing physical exercise with student with EBD in this manner.

Summary

Current research shows the strong implications of using rewards in the classroom. As illustrated above, when specified rewards based on operant conditioning are used within general populations, underprivileged populations, and identified special needs populations, the results can be profound. In addition, in regards to providing alternative treatment methods for attention deficit hyperactivity disorder (ADHD), which research has shown as a disorder having a significant comorbidity rate with emotional and behavioral disorders (EBD), promise has been shown in studies that specifically utilize physical activity, as a reward and/or reinforcement, to improve the attention, behavior, and overall school performance for those with ADHD.

A gap in literature was found when no study focused specifically on using rewards, physical activity rewards or otherwise, within the classroom on students identified as having emotionally and behavioral disorders (EBD). Hence, a need exists to fill the research gap identified by Slavin (2009), Tartwijk et al. (2009), and Maggin et al. (2011). Slavin (2009) argued that there have been far too few studies of classroom reward structures in the actual classroom and instead it has remained an ideological concept. After looking specifically at minority populations, Tartwijk et al. (2009) took the idea of using rewards one step further by suggesting that more studies need to be conducted to learn how to effectively manage population sub-sets, such as those with EBD. Maggin et al. (2011) specifically called for more research on the effects of rewards on the behaviors of students with behavioral issues. Based on the information outlined in this section, populations with EBD may be likely candidates for responding positively to the use of contingency reward systems, including the use of physical exercise rewards, as a method to change the behavioral performance of this population.

CHAPTER THREE: METHODS

Overview

The following chapter will discuss the details of the current study in terms of its overall design, research questions, hypotheses, participants, setting, and instrumentation. Finally, the procedures that the researcher undertook to complete the study will be outlined and discussed.

Design

This study utilized a quasi-experimental design with repeated measures, also known as a within-subjects design. According to Gall, Gall, and Borg (2007), this design is appropriate when each research participant has been assigned to more than one treatment condition. The study involved teachers reporting on their observation of students categorized as having emotional and behavioral disorders (EBD) under different experimental conditions; each group received different types of physical activity rewards and non-physical activity rewards during six cycles of reward periods. Each of the cycles lasted three days for a total of 18 days/class periods of observation. The independent variable for this study was type of reward, which includes the following: (1) physical rewards and (2) non-physical rewards. Physical rewards consisted of earned time spent on the playground and earned access to sporting activities (e.g. basketball, football, or soccer). Non-physical rewards consisted of earned access to a recreation area with board games, earned access to a television, or earned access to a computer lab. The dependent variable included the following: Behavioral scores of students, based on four subcategories, which include (1) task orientation, (2) behavioral control, (3) student assertiveness, and (4) peer social skills. According to Perkins and Hightower (2002), task orientation refers to the ability of the student to focus on school related tasks; behavioral control refers to a student's ability to adapt and tolerate limits imposed by the school environment or individual limitations;

assertiveness refers to a child's confidence in dealing with peers and interpersonal functioning; and peer socialization refers to how well a child interacts with peers, likability, and popularity among peers.

Research Questions

RQ1: Is there a difference between the *mean task orientation scores* of students with emotional and behavioral disorders who are subjected to physical activity rewards and that of students with emotional and behavioral disorders that are subjected to non-physical activity rewards?

RQ2: Is there a difference between the *mean behavioral control scores* of students with emotional and behavioral disorders who are subjected to physical activity rewards and that of students with emotional and behavioral disorders that are subjected to non-physical activity rewards?

RQ3: Is there a difference between the *mean assertiveness scores* of students with emotional and behavioral disorders who are subjected to physical activity rewards and that of students with emotional and behavioral disorders that are subjected to non-physical activity rewards?

RQ4: Is there a difference between the *mean peer socialization scores* of students with emotional and behavioral disorders who are subjected to physical activity rewards and that of students with emotional and behavioral disorders that are subjected to non-physical activity rewards?

Hypotheses

The null hypotheses for this study are:

H₀1: There is no statistically significant difference between the *mean task orientation score* of students with emotional and behavioral disorders who are subjected to physical rewards and students with emotional and behavioral disorders that are subjected to non-physical rewards, as shown by the Teacher-Child Rating Scale 2.1.

H₀2: There is no statistically significant difference between the *mean behavioral control score* of students with emotional and behavioral disorders who are subjected to physical rewards and students with emotional and behavioral disorders that are subjected to non-physical rewards, as shown by the Teacher-Child Rating Scale 2.1.

H₀3: There is no statistically significant difference between the *mean assertiveness score* of students with emotional and behavioral disorders who are subjected to physical rewards and students with emotional and behavioral disorders that are subjected to non-physical rewards, as shown by the Teacher-Child Rating Scale 2.1.

H₀4: There is no statistically significant difference between the *mean peer socialization score* of students with emotional and behavioral disorders who are subjected to physical rewards and students with emotional and behavioral disorders that are subjected to non-physical rewards, as shown by the Teacher-Child Rating Scale 2.1.

Participants and Setting

The participants for the study were drawn from a convenience sample of special education students from two schools in an urban school district located in a large city in the Southwest United States. The participants chosen to be a part of the study from each of the schools consisted of elementary students that were identified as having emotional and behavioral disorders (EBD), because they had either qualified specifically under the special education category of “emotional disturbance” and/or having behavioral difficulties that required

specifically written IEP goals intended to monitor and address the behavioral progress of the student.

Some of the students that participated in the study had a history of exhibiting extreme behaviors and were therefore being considered for a change of placement from their home school to a special district program that focuses on their behavior, along with their academic progress. These students were being considered for a “change of placement” in compliance with the Individuals with Disabilities Education Act (IDEA), and the individual education plan (IEP) process, which was followed by the personnel at their home school. This type of change of placement is sometimes required after the IEP team members have met and determined that because of a student’s high need for behavioral services, which are not available at their home school, the student should be temporarily outplaced into a special education program that can better serve his or her individual educational and behavioral special needs. The student’s IEP team typically includes the student, parent, general education teacher, special education teacher, and a school district administrator; other members of the team may include a school psychologist, therapists, or other members deemed necessary to participate as part of the IEP team.

For this study, 34 students were observed, which exceeds the required minimum for a medium effect size. According to Gall et al. (2007), 32 participants is the required minimum for a medium effect size with statistical power of .7 at the .05 alpha level. The sample consisted of students in grades ranging from kindergarten to eighth grade. Eight students were specifically receiving special education services because they had been directly identified as receiving special education services under the category of a student with an emotional disturbance. The remaining 26 participants were not specifically identified as having emotional disturbance but

were identified as students with significant behavioral difficulties due to the fact that they were receiving special education services that included behavioral goals as part of their individual education program (IEP); some of these same students were identified as having oppositional defiant disorder or ADHD and qualified for services under the category of other health impairment.

The treatment groups (physical and non-physical rewards groups) consisted of 28 males and six (6) females from the elementary and middle school classrooms selected for the study. The average age of the treatment groups was nine years and seven months old. 18% (six students) of the participants were White non-Hispanic, 29% (10 students) were Hispanic, and 53% (18 students) were Black.

Instrumentation

Students were rated using the Teacher-Child Rating Scale (T-CRS) 2.1 (Perkins & Hightower, 2002). The T-CRS 2.1 is available to reproduce for research purposes at no charge by its developer, The Children's Institute, and is a revision of T-CRS 1.0 (Hightower et al., 1986). The T-CRS 2.1 is used to measure children's behavior in the classroom context. Each version of the T-CRS has been used in numerous studies (McCabe & Marshall, 2006; Spomer & Cowen, 2001; Wyman et al., 2010). The scale was standardized on a nationally representative sample and consists of four subscales. Perkins and Hightower (2002) reported a Cronbach's Alpha coefficient of .93 ($\alpha = .93$) for the T-CRS 2.1, with four positive questions and four negative questions (eight questions for each subscale) loaded across the following subscales: task orientation ($\alpha = .92$), which is the ability of the student to focus on school related tasks; behavior control ($\alpha = .93$), which is a student's ability to adapt and tolerate limits imposed by the school environment or individual limitations; assertiveness ($\alpha = .86$), which is a child's

confidence in dealing with peers and interpersonal functioning; and peer-social skills ($\alpha = .92$), which is how well a child interacts with peers, his/her likability, and his/her popularity among peers.

Teachers rate each item according to how much he or she agrees that the item describes the child on a Likert-type, five-point scale, ranging from 1 = strongly disagree to 5 = strongly agree. The combined possible score on the T-CRS 2.1 ranges from 32 to 160 points. A score of 32 is the lowest possible score, meaning that the rater strongly disagrees that the items on the scale describe the child. A score of 160 is the highest possible score, meaning that the rater strongly agrees that the items on the scale describe the student. The approximate time to complete the rating for each child using the T-CRS 2.1 is five to 10 minutes.

Procedures

IRB approval was obtained before the experiment was conducted (see Appendix A). During IRB approval, an explanation of the study and a request to conduct the experiment at each site was emailed to potential school directors/principals. After IRB approval and site approval was obtained, a parent consent form was given to teachers, who would be serving as research assistants (see Appendix B), in order to distribute to students that qualified as possible participants for the study. The researcher visited each classroom teacher that would serve as research assistants a week after the email was sent out to collect the signed approval letters from the teachers. Student assent forms were distributed and collected at the school site after parental consent was obtained. The assignment of what specific type of reward that each teacher started their individual group of students with (i.e. physical activity reward or non-physical activity reward) was randomly assigned before the study during a training session conducted by the researcher; this training session lasted approximately 30-45 minutes. The researcher conducted

the training session using a training manual that explained how to implement the token economy, the difference between the reward types, recording of data for the study, and the amount of time that needed to be dedicated to observing students throughout the study (see Appendix C for training agenda). Physical rewards consisted of earned time spent on the playground and earned access to sporting activities (e.g. basketball, football, or soccer). Non-physical rewards consisted of earned access to a recreation area with board games, earned access to a television, or earned access to a computer lab.

The researcher made daily site visits to check on the progress of participants in the study and to answer any questions regarding the study. Before implementation of the token economy teachers completed a baseline Teacher-Child Rating Scale (T-CRS 2.1). Once the token economy system began, students received rewards every third day, with teachers completing the T-CRS 2.1 after each reward cycle. At the end of the each reward cycle, each completed T-CRS 2.1 was collected from the teachers by the researcher.

Data Analysis

Using the data collected from the T-CRS 2.1, related sample *t* tests were conducted at a 95% confidence level to measure for significant differences between each of the posttest means in order to determine if the four null hypotheses could be rejected. To avoid a Type I error, Warner (2013) stated that a Bonferroni correction needed to be made. The alpha level for each null hypotheses was set at 0.0125. Data screening was conducted to check for missing data. A box and whisker plot was used on each of the groups to check for extreme outliers. Levene's Test of Equality of Error Variances was used to test for the assumption of equal variance. Kolmogorov-Smirnov was used to test for assumption of normality.

CHAPTER FOUR: FINDINGS

Overview

The following chapter will outline the data analysis that was conducted in an attempt to answer the research questions and to determine if the null hypotheses could be rejected. Several tables and figures are provided for the reader. Each alternative hypothesis is likewise discussed in detail including each assumption test, individual analysis, alpha level, and effects size that was calculated for each corresponding hypothesis.

Research Questions

RQ1: Is there a difference between the *mean task orientation score* of students with emotional and behavioral disorders who are subjected to physical rewards and that of students with emotional and behavioral disorders that are subjected to non-physical rewards?

RQ2: Is there a difference between the *mean behavioral control score* of students with emotional and behavioral disorders who are subjected to physical rewards and that of students with emotional and behavioral disorders that are subjected to non-physical rewards?

RQ3: Is there a difference between the *mean assertiveness score* of students with emotional and behavioral disorders who are subjected to physical rewards and that of students with emotional and behavioral disorders that are subjected to non-physical rewards?

RQ4: Is there a difference between the *mean peer socialization score* of students with emotional and behavioral disorders who are subjected to physical rewards and that of students with emotional and behavioral disorders that are subjected to non-physical rewards?

Null Hypotheses

The null hypotheses for this study are:

H₀1: There is no statistically significant difference between the *mean task orientation score* of students with emotional and behavioral disorders who are subjected to physical rewards and students with emotional and behavioral disorders that are subjected to non-physical rewards, as shown by the Teacher-Child Rating Scale 2.1.

H₀2: There is no statistically significant difference between the *mean behavioral control score* of students with emotional and behavioral disorders who are subjected to physical rewards and students with emotional and behavioral disorders that are subjected to non-physical rewards, as shown by the Teacher-Child Rating Scale 2.1.

H₀3: There is no statistically significant difference between the *mean assertiveness score* of students with emotional and behavioral disorders who are subjected to physical rewards and students with emotional and behavioral disorders that are subjected to non-physical rewards, as shown by the Teacher-Child Rating Scale 2.1.

H₀4: There is no statistically significant difference between the *mean peer socialization score* of students with emotional and behavioral disorders who are subjected to physical rewards and students with emotional and behavioral disorders that are subjected to non-physical rewards, as shown by the Teacher-Child Rating Scale 2.1.

Descriptive Statistics

Table 1 below shows the range of scores, means, and standard deviations obtained for the pre-treatment phase (Baseline T-CRS scores). Tables 2 and 3 show the range of scores, means, and standard deviations for the post-treatment phase (Task Orientation Score, Behavioral Control Score, Assertiveness Score, and Peer Socialization Score), which includes data for both the non-physical (Indoor) and non-physical activity (Outdoor) reward periods.

Table 1

Descriptive Statistics for Pre-Test Scores

Variable	<i>N</i>	Range	<i>M</i>	<i>SD</i>
Baseline Task Orientation Score	34	18	18.79	5.375
Baseline Behavioral Control Score	34	18	21.26	5.701
Baseline Assertiveness Score	34	14	25.68	4.591
Baseline Peer Social Skills Score	34	20	23.65	5.624

Table 2

Descriptive Statistics for Post-Treatment Scores (Non-Physical Activity/Indoor Reward Cycles)

Variable	<i>N</i>	Range	<i>M</i>	<i>SD</i>
Indoor Mean Task Orientation	34	18.33	20.98	5.74
Indoor Mean Behavioral Control	34	18.33	22.54	5.422
Indoor Mean Assertiveness	34	14	25.78	4.516
Indoor Mean Peer Social Skills	34	19	24.23	5.33

Table 3

Descriptive Statistics for Post-Treatment Scores (Physical Activity/Outdoor Reward Cycles)

Variable	<i>N</i>	Range	<i>M</i>	<i>SD</i>
Outdoor Mean Task Orientation	34	17.67	20.28	5.325
Outdoor Mean Behavioral	34	17.67	22.25	5.376

Control

Outdoor Mean Assertiveness	34	17.67	20.28	5.325
Outdoor Mean Peer Social Skills	34	17.67	22.25	5.376

Results

Data Screening

Data screening was conducted by the researcher to check for missing data, outliers, and inconsistencies among the baseline and treatment variables in accordance with the procedure recommended by Warner (2013, pp. 132-137, 270-271). Box plots were used to detect outliers for each variable (Warner, 2013, pp. 153-157) (see Figures 1 and 2 for box plots).

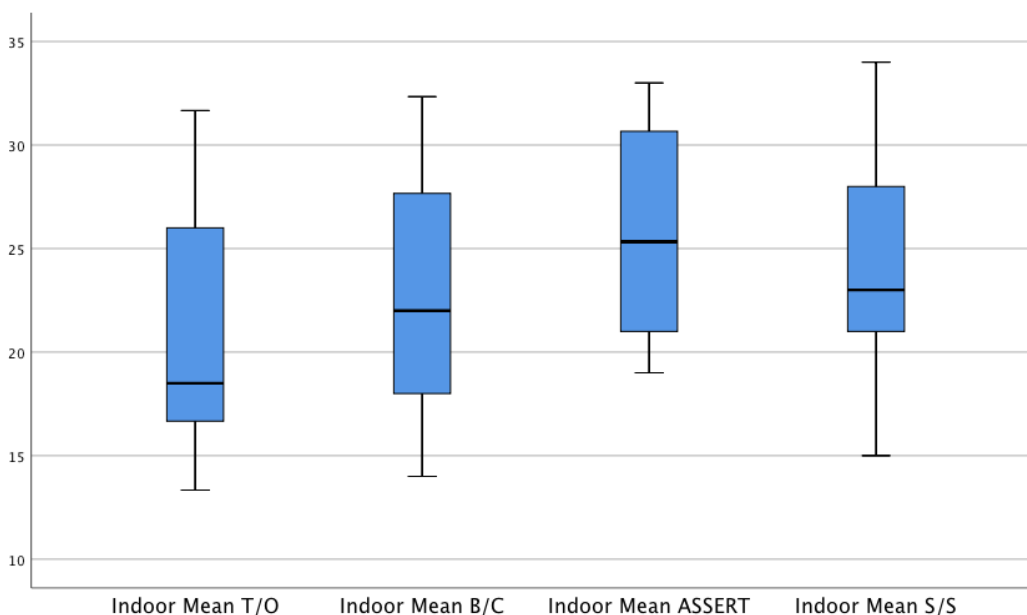


Figure 1. Box plots for mean scores during non-physical (indoor) activities.

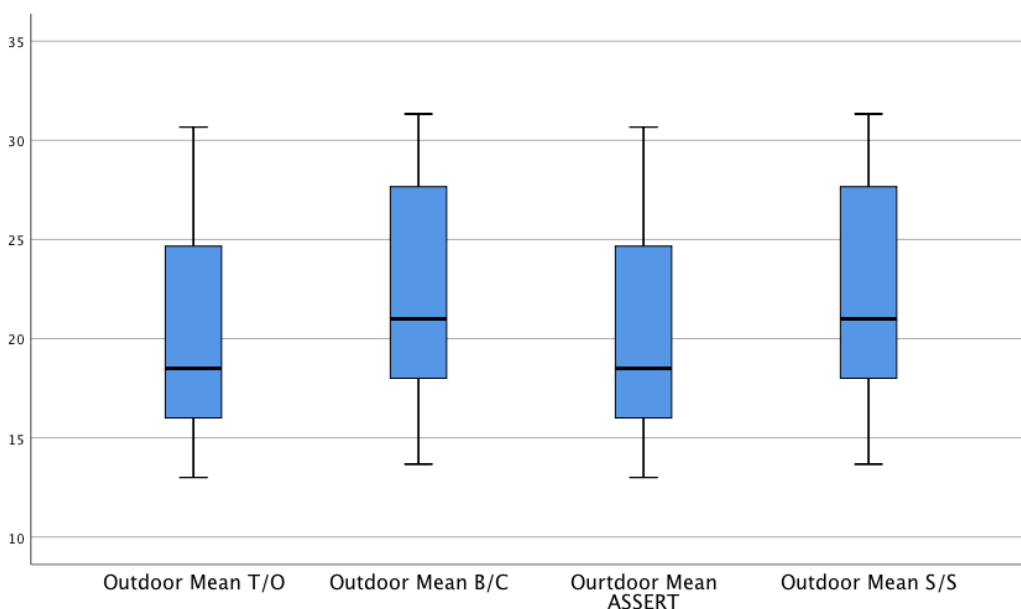


Figure 2. Box plots for mean scores during physical (outdoor) activities.

Assumption Tests

Paired sample *t*-test were used to test the four null hypotheses. Paired *t*-tests required that four assumptions were met: quantitative, independence, equal variance, and normal distribution (Warner, 2013, pp. 185-186). For the assumption of quantitative scores, mean scores for each variable were numerical and continuous. For the assumption of independence, the scores for the criterion variables were independent for each case. Levene's Test for Equality of Variance showed that the assumption of equal variance could be assumed for each behavioral subcategory, including task orientation, $p = .598$; behavioral control, $p = .954$; assertiveness, $p = .234$; and peer socialization, $p = .807$.

The assumption of normality was examined using Kolmogorov-Smirnov's normality test (Warner, 2013, p. 153), and was found tenable at the .05 alpha level for the following variables: *Mean behavioral control scores* during indoor reward activity cycles ($p = .2$), and *mean assertiveness scores* during indoor reward cycles ($p = .191$). However, the assumption for

normality was not found tenable at the .05 alpha level for each of the following variables: *Mean task orientation scores* during indoor reward activity cycles ($p = .004$) as well as during outdoor reward activities ($p = .004$), *mean peer socialization scores* during indoor reward activity cycles ($p = .038$), as well as during outdoor reward cycles ($p = .036$); *mean behavioral control scores* during indoor reward activity cycles ($p = .036$), and *mean assertiveness scores* during outdoor reward activity cycles ($p = .004$). Therefore, a series of histograms were run, and after a graphical inspection was completed by the researcher, the assumption of normal distribution was found tenable, and it was determined that analysis could continue using sample *t*-tests to check for differences between the mean of each variable.

Statistical Analysis

Paired sample *t*-tests were used to test the four null hypotheses at the .05 alpha level (see table 4 below). However, to help protect against a Type I error across the four correlations, a Bonferroni correction was used ($PCalpha = E\alpha/k$ or $PCalpha = .05/4 = .0125$), and the alpha level was adjusted to .0125 (Warner, 2013, pp. 98-99).

Table 4

Paired Samples Test/ Paired Means

	<i>M</i>	<i>SD</i>	<i>T</i>	<i>Sig. (2 tailed)</i>
<hr/>				
Indoor/Outdoor Mean Task				
Orientation	.696	1.18	3.44	.002
<hr/>				
Indoor/Outdoor Mean Behavioral				
Control	.284	1.09	1.52	.139
Indoor/Outdoor Mean	5.5	7.04	4.55	.000

Assertiveness

Indoor/Outdoor Mean Peer Social

Skills	1.97	4.67	2.46	.019
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Null Hypothesis One

A paired-samples *t*-test was used to analyze the first null hypothesis that examined the difference between the *mean task orientation* scores of K-8 students' with emotional and behavioral disorders that were subjected to non-physical activity rewards (indoor activities as a reward) and students with emotional and behavioral disorders that were subjected to physical activity rewards (outdoor activities as a reward). The researcher found that there was a statistical significant difference, $t(33) = 3.435$, $p = .002$, in *mean task orientation scores* of participants during each of the two treatment phases. The effect size, $d = .059$, was medium based on Cohen's effect-size index (Warner, 2013, p. 208). These results indicate that task orientation was greater during non-physical activity rewards ($M = 20.9804$, $SD = 5.7401$) when compared to physical activity reward periods ($M = 20.2483$, $SD = 5.3252$); due to these results, the researcher rejected the null hypothesis that no difference exists between the *mean task orientation scores* of participants that were subjected to each of the two treatments.

Null Hypothesis Two

A paired-samples *t*-test was used to analyze the second null hypothesis that looked at the difference between the *mean behavioral control scores* of K-8 students' with emotional and behavioral disorders that were subjected to non-physical activity rewards (indoor) and students with emotional and behavioral disorders that were subjected to physical activity rewards (outdoor activities). The researcher found that there was not a statistical significant difference,

$t(33) = 1.518, p = .139$, in *mean behavioral control scores* of participants during each of the two treatment phases (physical vs. non-physical activity reward cycles). The effect size, $d = .26$, was small based on Cohen's effect-size index (Warner, 2013, p. 208). These results indicate that participants maintained the same behavioral control during both non-physical activity rewards ($M = 22.5392, SD = 5.42225$) and physical activity reward periods ($M = 22.2549, SD = 5.37613$); due to these results, the researcher failed to reject the null hypothesis that no difference exists between the *mean behavioral control scores* of participants that were subjected to each of the two treatments.

Null Hypothesis Three

A paired-samples t -test was used to analyze the third null hypothesis that looked at the difference between the mean *assertiveness* scores of K-8 students' with emotional and behavioral disorders that were subjected to non-physical activity rewards (indoor) and students with emotional and behavioral disorders that were subjected to physical activity rewards (outdoor). The researcher found that there was a significant difference, $t(33) = 4.554, p = .000$, in *mean assertiveness scores* of participants during each of the two treatment phases (physical vs. non-physical activity reward cycles). The effect size, $d = .781$, was medium based on Cohen's effect-size index (Warner, 2013, p. 208). These results indicated that participant assertiveness was greater during non-physical activity rewards ($M = 25.7843, SD = 4.51625$) when compared to physical activity reward periods ($M = 20.2843, SD = 5.32520$); due to these results, the researcher rejected the null hypothesis that no difference exists between the *mean assertiveness scores* when participants were subjected to each of the two treatments.

Null Hypothesis Four

A paired-samples *t*-test was used to analyze the fourth null hypothesis that looked at the difference between the *mean peer socialization* scores of K-8 students' with emotional and behavioral disorders that were subjected to non-physical activity rewards (indoor) and students with emotional and behavioral disorders that were subjected to physical activity rewards (outdoor). There was not a statistical significant difference, $t(33) = 2.459$, $p = .019$, in *mean peer socialization scores* during each of the two treatment phases (physical vs. non-physical activity reward cycles). The effect size, $d = .422$, was small based on Cohen's effect-size index (Warner, 2013, p. 208). These results indicate that peer socialization remained the same for participants during non-physical activity rewards ($M = 24.2255$, $SD = 5.3300$) and physical activity reward periods ($M = 22.2549$, $SD = 5.37613$); due to these results, the researcher failed to reject the null hypothesis that no difference exists between the *mean peer socialization scores* of participants who were subjected to each of the two treatments.

CHAPTER FIVE: CONCLUSIONS

Overview

The purpose of this quasi-experimental repeated-measures comparison study was to determine if there was a difference between using a token economy system that utilized physical activity rewards (e.g., earned time spent on the playground and earned access to sporting activities such as basketball, football, or soccer) compared to using a token economy system that utilized non-physical activity rewards (e.g. earned access to a recreation area with board games, earned access to a television, or earned access to a computer lab) on the behavior of students with emotional and behavioral disorders (EBD). The following chapter will provide a brief overview and summary of the findings of the study along with the conclusions that the researcher was able to reach after completing the data analysis of the study. Implications of the study will be provided along with limitations and recommendations for future research.

Discussion

The Teacher-Child Rating Scale (T-CRS) 2.1 (Perkins & Hightower, 2002), a revision of T-CRS 1.0 (Hightower et al., 1986) was utilized as the instrumentation for this study in order to answer the following research questions:

RQ1: Is there a difference between the *mean task orientation score* of students with emotional and behavioral disorders who are subjected to physical rewards and that of students with emotional and behavioral disorders that are subjected to non-physical rewards?

RQ2: Is there a difference between the *mean behavioral control score* of students with emotional and behavioral disorders who are subjected to physical rewards and that of students with emotional and behavioral disorders that are subjected to non-physical rewards?

RQ3: Is there a difference between the *mean assertiveness score* of students with emotional and behavioral disorders who are subjected to physical rewards and that of students with emotional and behavioral disorders that are subjected to non-physical rewards?

RQ4: Is there a difference between the *mean peer socialization score* of students with emotional and behavioral disorders who are subjected to physical rewards and that of students with emotional and behavioral disorders that are subjected to non-physical rewards?

Related sample *t*-tests were conducted at a 95% confidence level to measure for significant differences between each of the posttest means in order to determine if the four null hypotheses could be rejected.

The independent variable in this study was the type of reward system (physical activity rewards and non-physical activity rewards). The dependent variable included the following: Behavioral scores of students, based on four subcategories, (1) Task Orientation, (2) Behavioral Control, (3) Student Assertiveness, and (4) Peer Social Skills. According to Perkins and Hightower (2002), task orientation refers to the ability of the student to focus on school related tasks; behavioral control refers to a student's ability to adapt and tolerate limits imposed by the school environment or individual limitations; assertiveness refers to a child's confidence in dealing with peers and interpersonal functioning; peer socialization refers to how well a child interacts with peers, likability, and popularity among peers.

Null Hypothesis One

Analysis of null hypothesis one revealed that there was a statistically significant difference found between the *mean task orientation score* of students with emotional and behavioral disorders who were subjected to physical rewards and students with emotional and behavioral disorders that were subjected to non-physical rewards. Additional analysis also

showed that *task orientation* scores increased during each reward cycle and there was a statistically significant relationship with a strong positive correlation as well as a large effect size when comparing *mean task orientation scores* for both non-physical activity reward cycles and physical activity reward cycles to the baseline *mean task orientation scores*.

This increase in task orientation scores based on the token economy tied to attainable rewards aligns with the findings of Garwood and Vernon-Feagans (2017) who established that when teachers resort to classroom management methods that are punitive and negative, such as removing students from the classroom because of disruptive behavior, the learning experiences for these students is diminished. On the other hand, when teachers provided positive classroom environments, children with or at-risk for emotional difficulties were able to make improvements in their on-task behaviors, thereby doing better academically. Reinke et al. (2014) also studied students with behavioral difficulties in the presence of a positive classroom environment, and similar to the results of the current study, found a significant positive increase in on-task behaviors through the use of rewards.

Null Hypothesis Two

Analysis of null hypothesis two revealed that there was not a statistically significant difference found between the *mean behavioral control score* of students with emotional and behavioral disorders who were subjected to physical rewards and students with emotional and behavioral disorders that were subjected to non-physical rewards. However, additional analysis did show that there was an increase in behavioral control scores during each reward cycle compared to baseline scores, and a statistically significant relationship with a strong positive correlation as well as a large effect size was found when comparing *mean behavioral control*

scores for both non-physical activity reward cycles and physical activity reward cycles to the baseline *mean behavioral control scores*.

The positive effect on behavioral control through the use of a token economy system was also found by Fairbanks et al. (2007), who studied the effects of utilizing a token economy with students identified for being at-risk for emotional and behavioral problems. The researchers found that using a token economy to reward students resulted in a significant reduction in problem behaviors in the participants. Shen and Chun (2011) also realized the importance of using rewards to influence behavior, and similarly concluded that whether it consists of money or points in a social competition, offering rewards for performance has a significant effect.

Null Hypothesis Three

Analysis of null hypothesis three revealed there was a statistically significant difference found between the *mean assertiveness score* of students with emotional and behavioral disorders who were subjected to physical rewards and students with emotional and behavioral disorders that were subjected to non-physical rewards. Additional analysis also revealed that during the indoor reward cycle assertiveness scores increased, and that there was a statistically significant relationship with a strong positive correlation as well as a large effect size when comparing *mean assertiveness scores* for non-physical activity reward cycles (indoor rewards) compared to the baseline *mean assertiveness scores*.

Behavioral assertiveness refers to a child's confidence in dealing with peers and interpersonal functioning. Hardman (2014) addressed the possibility of changing a child's outlook through positive rewards while pointing out that children with emotional and behavioral disorders have a tendency to develop an egocentric orientation, a quality that has been linked with antisocial behavior and can continue into adulthood. Hardman (2014) stated that students

with emotional difficulties may utilize egocentrism as a self-defense mechanism in response to a harsh environment and recommends that the education of students with emotional disabilities should include established best practices of crafting a benevolent learning environment through the use of positive behavioral interventions and supports (PBIS), similar to those used in the current study. If the latter is used, teachers may do more than simply change the behaviors of students with emotional difficulties and instead possibly change the outlook of these students from that of school being a harsh environment to one of safety, in which they can build caring relationships with peers, authority, and society at large (Hardman, 2014).

Null Hypothesis Four

Analysis of null hypothesis four showed that there was not a statistically significant difference found between the *mean peer socialization score* of students with emotional and behavioral disorders who were subjected to physical rewards and students with emotional and behavioral disorders that were subjected to non-physical rewards. Additional data analysis did reveal that the mean peer socialization scores increased during each of the reward periods, and for both non-physical activity reward cycles and physical activity reward cycles, there was a statistically significant relationship with a strong positive correlation as well as a large effect size when comparing *mean peer socialization scores* to the baseline *mean peer socialization scores*.

The above results align with the research conducted by Shogren et al. (2010) on the effectiveness of utilizing student self-management rewards specifically for students with autism spectrum disorder (ASD). The findings of Shogren et al. (2010), similar to the current study, show that the use of rewards, coupled with self-management strategies, can lead to positive outcomes in terms of peer interaction. Chylinski (2010) also discovered that the social atmosphere in the classroom can change with the use of reward systems. The students that

participated in Chylinski's (2010) study viewed the use of rewards as a motivating factor and the results of the study also reveal that rewards, directly and indirectly, improve the culture and climate of the school through increased peer interaction within the classroom.

Conclusions

At the onset of this study, the researcher asked whether or not there was a difference in reward types, physical activity rewards vs. non-physical activity rewards, on the behavior of students with emotional and behavioral disorders (EBD); behavior was analyzed using four subscales. An analysis of the data revealed that on two of the four subscales, task orientation and assertiveness, there was a significant statistical difference on the behavior of students with EBD, depending on whether they were offered physical activity rewards or non-physical activity rewards. These findings add to a large body of previous research that supports the notion that behavior can be altered through the use of reward systems, and that different types of rewards may benefit the different types of special education populations, such as those with ADHD (Robinson et al., 2011; Silva et al., 2015) or ASD (Shogren et al., 2010). The current research likewise shows that there is a significant difference between physical exercise rewards vs. non-physical exercise on the behavioral assertiveness and task orientation of those with EBD.

However, analysis of two of the four behavioral subcategories, behavioral control and peer socialization, revealed that there was not a significant statistical difference between the behavioral scores in each of these areas for students with EBD when they were offered different types of rewards (non-physical vs. physical activities). These findings do not necessarily contradict previous research, but instead add to the notion that reward systems are complex in nature (Hoffmann et al., 2009). The current research has likewise shown that because there was no significant statistical difference in two out of four measurable subcategories of behavior that,

at least in terms of individuals with EBD, not all types of rewards are equally effective, and reward-systems and reward types in particular may have different powers of influence within the classroom.

Implications

According to Maggin et al. (2011) more knowledge was needed to determine the effects of token rewards as effective management tools for increasing the rates of pro-social behaviors in students with behavioral issues (Maggin et al., 2011). The researcher utilized a token economy during the current study, which offered two reward types, including physical activity rewards and non-physical activity rewards to determine if there was a difference in the effect of either reward on the behavior of students with EBD. Using the four behavioral subcategories and the two reward types, the researcher determined that the collected data from the study may yield up to eight (8) possible outcomes: The non-physical (indoor) rewards may possibly prove effective for increasing the rates of pro-social behaviors in students with emotional and behavioral disorders up to four times, once for each of the four behavioral subcategories; the physical (outdoor) rewards may also possibly prove effective for increasing the rates of pro-social behaviors in students with emotional and behavioral disorders up to four times, once for each of the four behavioral subcategories. When the results of the study were coupled with the additional analysis, the researcher was able to narrow down, from the aforementioned possible outcomes, which reward types proved most effective for increasing pro-social behavior in students with emotional and behavioral disorders.

A total of three out of the eight possible outcomes proved effective as a result of meeting both of the following criteria: (1) Rewards that showed an increase in pro-social behavior of the participants (i.e. there was a statistically significant increase, with a strong positive correlation,

in mean behavioral score for the reward type when compared to baseline scores), and (2) There was a significant statistical difference identified between the mean behavioral scores when one type of reward was compared to another in the same behavioral subcategory (i.e. comparing mean scores for each subcategory, including task orientation, behavioral control, assertiveness, and peer socialization scores during physical activity reward periods vs. non-physical activity reward periods).

By using the above criteria, the researcher determined that, according to the data, the types of rewards most effective for increasing the rates of pro-social behaviors in students with emotional and behavioral disorders (EBD) include the following: (1) Non-physical activity rewards (indoor activities) proved to be effective when used as rewards to improve *task orientation* in students with EBD, (2) Physical activity rewards (outdoor activities) proved to be effective when used as rewards to improve *task orientation* in students with EBD, and (3) Non-physical activity rewards (indoor activities) proved to be effective when used as rewards to improve *behavioral assertiveness* in students with EBD.

Limitations

Several known limitations existed with this study. The size of the study ($N = 34$) was a limitation. The study's sample was also a limitation; only elementary school students from a large urban area in the Southwest of the United States were invited to participate in the study. Additionally, the study only invited students from a public education system/school-district who were identified as receiving special education services. High school aged students, students from the general education population, and students from private schools or charter schools were not included in the study. Lastly, the time of school year in which the study was conducted, right before an extended school break, may have been a limitation since the students' behaviors at this

time of the school year may not be representative of typical student behavior throughout other time periods of the regular school year.

Recommendations for Future Research

Recommendations for further research include conducting a follow-up study that would include a different and more diverse sample. This study only measured if there is a difference between behavioral scores of students with emotional and behavioral disorders in the presence of a token economy with two broad types of rewards. It is recommended that a study be conducted that would measure which type of specific indoor and/or specific outdoor rewards prove to be the most effective for increasing pro-social behavior (e.g., computer games vs. board games as an indoor reward, soccer vs. basketball as an outdoor reward, etc...). This study only looked at how physical and non-physical activity rewards effect students in special education programs that also have emotional and behavioral disorders (EBD). It is recommended that a future study be conducted on how physical and non-physical activity rewards effect students with other types of disabilities. It is also recommended that a future study be conducted on how physical and non-physical activity rewards effect the behavior of students in the general population.

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Appendix A

IRB Approval

LIBERTY UNIVERSITY
INSTITUTIONAL REVIEW BOARD

March 28, 2018

XXX XXXXXX

IRB Approval 3151.032818: Differences Between Physical vs. Non-Physical Activity Rewards on the Behavior of Kindergarten-8th Grade Students with Behavioral Difficulties or Emotional Disturbance

Dear XXXX XXXXXX,

We are pleased to inform you that your study has been approved by the Liberty University IRB. This approval is extended to you for one year from the date provided above with your protocol number. If data collection proceeds past one year, or if you make changes in the methodology as it pertains to human subjects, you must submit an appropriate update form to the IRB. The forms for these cases were attached to your approval email.

Thank you for your cooperation with the IRB, and we wish you well with your research project.

Sincerely,

XXX XXXXXX, MA, CIP *Administrative Chair of Institutional Research* **The Graduate School**

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Appendix B

Parental Consent Letter

The Liberty University Institutional Review Board has approved this document for use from 3/28/2018 to 3/27/2019

Protocol # 3151.032818

PARENT/GUARDIAN CONSENT FORM

Differences Between Physical vs. Non-Physical Activity Rewards on the Behavior of Kindergarten-8th Grade Students with Behavioral Difficulties or Emotional Disturbance

XXXX XXXXXX

Liberty University

School of Education

Your child is invited to be in a research study of how rewards affect the behavior of students with ED/Behavioral difficulties. He or she was selected as a possible participant because he or she qualifies for special services under the category of a K-8 student with ED or with behavioral difficulties. Please read this form and ask any questions you may have before agreeing to allow him or her to be in the study.

XXXX XXXXXX, a doctoral candidate in the School of Education at Liberty University, is conducting this study.

Background Information: The purpose of this study is to determine the effect of physical and non-physical activity rewards on the behavior of students with ED.

Procedures: If you agree to allow your child to be in this study, I would ask him or her to do the following things:

1. Over an 18-day period, student-participants will be given tokens by teachers for meeting target

behaviors during class time.

2. Student-participants can turn in their earned tokens every third day of the study in exchange for a pre-determined reward activity (physical activity reward or non-physical activity reward).

Note: Students will be randomly assigned to one of two groups receiving either physical activity rewards over a nine (9) day period or non-physical activity rewards over a nine (9) day period.

Risks and Benefits of being in the Study: The risks involved in this study are minimal, which means they are equal to the risks you would encounter in everyday life.

There is a possibility that participants may receive direct benefits in the form of improved behavior in the classroom as a result of using reward activity motivators.

Compensation: There will be no compensation provided for students who participate in this study.

Confidentiality: The records of this study will be kept private. In any sort of report I might publish, I will not include any information that will make it possible to identify a subject. Research records will be stored securely, and only the researcher will have access to the records. The Liberty University

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Data will be stored on a password locked computer and may be used in future presentations. After three years, all electronic records will be deleted.

Voluntary Nature of the Study: Participation in this study is voluntary. Your decision whether or not to allow your child to participate will not affect your current or future relations with Liberty University or your child's school. If you decide to allow your child to participate, he or she is free to not answer any question or withdraw at any time without affecting those relationships.

How to Withdraw from the Study: If your child chooses to withdraw from the study, please contact

the researcher at the email address/phone number included in the next paragraph. Should your child choose to withdraw, data collected will be destroyed immediately and will not be included in this study.

Contacts and Questions: The researcher conducting this study is John Trevor Guerra. You may ask any questions you have now. If you have questions later, **you are encouraged** to contact him at (XXX) XXX-XXXX or XXXX@liberty.edu. You may also contact the researcher's faculty advisor, Dr. XXXXX at XXXX@liberty.edu.

If you have any questions or concerns regarding this study and would like to talk to someone other than the researcher, **you are encouraged** to contact the Institutional Review Board, 1971 University Blvd, Green Hall 1887, Lynchburg, VA 24515 or email at irb@liberty.edu.

Please notify the researcher if you would like a copy of this information for your records.

Statement of Consent: I have read and understood the above information. I have asked questions and have received answers. I consent to allow my child to participate in the study.

Signature of Parent Date

Signature of Investigator Date

Appendix C

Child Assent Letter

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ASSENT OF CHILD TO PARTICIPATE IN A RESEARCH STUDY

(Teachers can read and explain the form to the children as needed to obtain their assent.)

What is the name of the study and who is doing the study?

Name: Differences Between Physical vs. Non-Physical Activity Rewards on the Behavior of Kindergarten-8th Grade Students with Behavioral Difficulties or Emotional Disturbance

Researcher: John Trevor Guerra

Why are we doing this study?

We are interested in studying how different types of rewards affect students who have had behavioral problems in the past.

Why are we asking you to be in this study?

You are being asked to be in this study because you are receiving special education services that focus on improving your behavior.

If you agree, what will happen?

If you are in this study, you will receive tokens from the teacher for following classroom rules.

Tokens can later be exchanged for a reward activity.

Do you have to be in this study?

No, you do not have to be in this study. If you want to be in this study, then tell the researcher. If you don't want to, it's OK to say no. The researcher will not be angry. You can say yes now and change your mind later. It's up to you.

Do you have any questions?

You can ask questions any time. You can ask now. You can ask later. You can talk to the researcher.

If you do not understand something, please ask the researcher to explain it to you again.

Signing your name below means that you want to be in the study.

Signature of Child Date

Contacts: You may contact the researcher conducting this study at XXXX@liberty.edu. You may also contact the researcher's faculty advisor, Dr. XXXX XXXX@liberty.edu.

Liberty University Institutional Review Board,

1971 University Blvd, Green Hall 1887, Lynchburg, VA 24515 or email at irb@liberty.edu.

Appendix D

Training Agenda

Time	Topic	Presenter
2:45- 2:55 pm	Introduction -Purpose of the Study (Background & Research Questions)	XXXXXX XXXXXXXX
2:55- 3:05 pm	Instrumentation/Documentation Procedures -Filling out Teacher-Child Rating Scale 2.1 -Collection of Documentation Every Three Days	XXXXXX XXXXXXXX
3:05- 3:10 pm	Differences Between Reward Types (Physical Activity vs. Non-physical Activity Rewards)	XXXXXX XXXXXXXX /Participating coach
3:10- 3:25 pm	Procedures -Dates/Time of Study -Roles of participants -Distributing Tokens Based on Desired Behaviors -Turning in tokens/collection of tokens every third day -Delivery of rewards (Procedures for students leaving and returning to class during reward period) -Compensation after Completion of Study	XXXXXX XXXXXXXX

3:25- 3:30 pm	Questions?????	
3:30 pm	End of Training Thank You for Participating!!!	