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Penny Paige Ward

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THE EFFECTIVENESS OF JOB CARD GROUNDING AND JOB CARD
GROUNDING WITH A TOKEN ECONOMY IN THE MANAGEMENT
OF THE BEHAVIOR OF MALES RESIDING IN A THERAPEUTIC
GROUP HOME

By

Penny Paige Ward

A Dissertation
Submitted to the Faculty of
Mississippi State University
in Partial Fulfillment of the Requirements
for the Degree of Doctor of Philosophy
in Educational Psychology
in the Department of Department of Counseling and Educational Psychology

Mississippi State, Mississippi

August 2009

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By

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By

Penny Paige Ward

Approved:

Carlen Henington
Associate Professor of School Psychology
(Co-Director of Dissertation)

Sandra D. Devlin
Professor of Special Education
(Co-Director of Dissertation)

R. Anthony Doggett
Associate Professor of School Psychology
(Committee Member)

Donna Gainer
Lecturer Educational Psychology
(Committee Member)

April K. Heiselt
Assistant Professor of Counseling
(Committee Member)

Glen Hendren
Graduate Coordinator
Department of Counseling, and
Educational Psychology

Richard Blackburn
Dean of the College of Education

Name: Penny Paige Ward

Date of Degree: August 8, 2009

Institution: Mississippi State University

Major Field: Educational Psychology

Major Professor: Dr. Carlen Henington

Co-Dissertation Director: Dr. Carlen Henington

Co-Dissertation Director: Dr. Sandra Devlin

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Candidate for Degree of Doctor of Philosophy

Time-out, an effective way of controlling undesirable behavior in children, is considered to potentially yield limited effectiveness for individuals over the age of 11 due to their maturation and their parents' ability to physically enforce time-out. A practical alternative to time-out for adolescents is Job Card Grounding. Job Card Grounding possesses the same behavioral components of time-out in that it provides a system through which parents can deliver consistent discipline and the adolescent has control over the frequency and duration of the consequence. This study is unique in that Job Card Grounding has not yet been empirically validated in the published literature, though researchers have believed for quite some time that it would be an effective means of managing behavior. Furthermore, recent publications indicate that Job Card Grounding would be an effective behavior management program for individuals ages 11-18 years

because it has the recommended qualities of successful behavior management plans such as stability, consistency, and opportunities for positive reinforcement. The current study also explored the effectiveness of Job Card Grounding used in conjunction with a token economy. The effect of Job Card Grounding alone and in combination with a token economy to address the behavior of adolescent males who were wards of the state and resided in a therapeutic group home was assessed across two consecutive summers. In Year 1, an ABB+CA design was utilized to assess the effectiveness of the treatments. The second A phase in Year 1 was a natural withdrawal initiated by the adolescents' caregiver. In Year 2, an AB design was utilized. The investigators were invited back in Year 2 to re-implement the treatment due to a return of undesirable behaviors. Job Card Grounding alone and with a token economy was found to be effective behavior management tools for this population across both years. The findings of this study may be useful for individuals who work with children and adolescents who have become too old or intellectually advanced for time-out procedures. Limitations and recommendations for future research are discussed in this paper.

Key words: job card grounding, modified grounding, token economy, adolescents

DEDICATION

I would like to dedicate this paper to my dear, sweet children, Rufus, Nicholas, Elijah, Martha Paige and those yet to be born. Little ones remember: with hard work, perseverance, prayer, and divine guidance all things are possible.

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DEFINITIONS

- Back-up Reinforcer – Items and/or activities that can be purchased by an individual in treatment using secondary or conditioned reinforcers.
- Contingency – A relationship between a response and consequence. In a contingency, the consequence is presented only if the response occurs. Thus, the consequence is contingent upon the response.
- Group Contingency Management Programs – Programs which utilize contingencies to evoke behavioral change. Examples of group contingency management programs include: dependent group contingency, independent group contingency, and interdependent group contingency.
- Dependent Group Contingency – The dependent group contingency allows access to reinforcers only if a selected group member(s) meet prescribed criteria.
- Generalized Reinforcer – A generalized reinforcer can be exchanged for a practically limitless number of items and/or activities. An example of a generalized reinforcer is money.
- Independent Group Contingency – In an independent group contingency each group member's individual behavior affects whether or not that individual meets the criteria and earns the reinforcement.

- Interdependent Group Contingency – An interdependent group contingency requires that the behavior of all group members contribute equally to meeting a set criteria and earning access to a reinforcer.
- Job Card Grounding – A behavior management program in which individuals are required to complete jobs as a consequence of inappropriate behavior. The jobs utilized in job card grounding should be no longer than 10 to 15 minutes in length. The individual remains grounded from reinforcement until the jobs are completed in a satisfactory manner.
- Modified Grounding – Term used to describe job card grounding.
- Primary Reinforcer – Primary reinforcers are inherently reinforcing and include items that we cannot live without such as food, water, and shelter.
- Secondary Reinforcer – Items that are not inherently reinforcing but become reinforcing due to an individual's ability to exchange secondary reinforcers for backup reinforcers. An example of a secondary reinforcer is a token.
- Token Economy – A behavior management program in which individuals earn tokens contingent upon exhibiting appropriate behavior, correct responses, or the absence of inappropriate behavior. The tokens can be any tangible item such as poker chips, slips of paper, or tic marks. Individuals are then allowed to purchase preferred items and/or activities with their tokens from a store set up by the token economy's implementers.
- Ward of the State – An underage individual who has been placed in the foster care system and is in the custody of the state in which he or she lives.

CHAPTER 1

INTRODUCTION

A major concern of parents and practitioners everywhere is how to effectively manage problem behaviors displayed by adolescents. There are a limited number of behavior interventions for use with adolescents in the home setting that have been empirically validated. The reasons for this absence may include a number of factors such as, the hectic, busy nature of the adolescent lifestyle, the willingness of parents to collect data, the time consuming nature of data collection, and ease of access to participants. An intervention that has been utilized by psychiatric treatment facilities as an exit plan for adolescents is Job Card Grounding (JCG; Christopherson, 2006). In addition, many medical and parenting websites incorporate a section or handout dedicated to explaining how to implement JCG or modified grounding procedures (See Christopherson, 2006; “Job Card Grounding as a Method of Discipline,” 2008; “Use of Modified Grounding for more Effective Discipline,” 2009; Zolten & Long, 1997). Most of these websites’ sections are duplications or adaptations of the modified grounding handout created by the Center for Effective Parenting (“Modified Grounding,” n.d.). JCG incorporates many of the same proven principals of time-out. However, time-out, an effective way of controlling undesirable behavior in children, may not yield optimal results when used with individuals over the age of 11 (Eaves, Sheperis, Blanchard, Baylot, & Doggett, 2005). JCG is very similar to time-out in that it “...aids parents in developing a consistent

plan of discipline while placing the control of the frequency and duration of the discipline directly on the adolescent” (Eaves et al., p. 257). Although, JCG has not been empirically validated in the literature, recent publications indicate that JCG would be an effective contingent behavior management program for children and adolescents ages 11-18 years because it has the recommended qualities of successful behavior management plans such as stability, consistency, and opportunities for positive reinforcement (Christophersen & Mortweet, 2003; Eaves et al.).

The current study also evaluated the effectiveness of a token economy in combination with JCG. Token economies have been effective in managing the behavior of individuals across a wide range of ages, disabilities, and settings (Boniecki & Moore, 2003; Bennett, Eisenman, French, Henderson, & Shultz 1989; Chen & Ma, 2007; Dickerson, Tenhula, & Green-Paden, 2005; Eisolowski & Zencius, 1992; Fabiano & Pelham, 2003; Field, Nash, Handwerk, & Friman, 2004; Filcheck, McNeil, Grecro, & Bernard 2004; Foxx, 1998; Gresham & Gresham, 1982; Klimas & McLaughlin, 2007; LePage, 1999; LePage et al., 2003; Lovitt, 1995; Matson & Boisjoli, 2009; Moore, Tingstrom, Doggett, & Carlyon 2001; Novak & Hammond, 1983; Pazaratz, 2003; Reitman, Murphy, Hupp, & Callaghan, 2004; Rice, Quinsey, & Houghton, 1990; Scallon, Vitale, & Eschenauner, 1976; Skinner, Williams, & Neddenriep, 2004; Tarbox, Ghezzi, & Wilson, 2006; Theodore, Bray, & Kehle, 2004; Theodore, Bray, Kehle, & Jenson 2001; Truchlicka, McLaughlin, & Swain, 1998). Because it is a common strategy, a token economy was chosen as a formal reinforcement component to complement the response cost component of JCG.

Adolescent Development

Parents and practitioners alike are often faced with the problem of developing and implementing appropriate behavior plans for children and adolescents ages 11 to 18 years. The developmental phases of adolescence and preadolescence are arguably some of the most challenging and difficult years for parents. Individuals in these developmental stages are unique in that they are still very dependent on their parents but are also trying to disengage and become unique, independent individuals.

As adolescents seek autonomy and begin to develop their own individual identities, conflict can and often does arise between an adolescent and his or her caregiver. Adolescents are also faced with significant biological changes in the structure of their brains and bodies (Steinberg, 2008). These changes can add stress and cause emotional instability. G. Stanley Hall, often credited as being the father of the modern study of adolescence, referred to adolescence as “the turbulent, transitional period in the evolution of the human species from savagery into civilization” (Steinberg, p. 19). Furthermore, G. Stanley Hall wrote that, “adolescence is a new birth,” and “development is less gradual, suggestive of some ancient period of storm and stress” (Steinberg, p. 19). Steinberg and others believe that the “storm and stress” view of adolescence may overdramatize the turbulent nature of adolescence. These experts do not, however, dispute that for many young people adolescence can be a trying and stressful time due to environmental demands, social influences, and biological changes (Steinberg).

The obvious physical changes of puberty mask the not so noticeable but possibly more detrimental biological changes in hormones and the structure of the brain. The hormonal changes which occur at puberty have five main physical manifestations: a rapid

acceleration in growth, the development of primary and secondary sex characteristics, changes in body composition, and changes in the circulatory and respiratory systems (Steinberg, 2008). Puberty has both psychological and social effects on adolescents. For example, there is a direct link between the increase of testosterone during puberty and increases in sex drive and sexual activity in adolescent males. Researchers have also found evidence for puberty-specific increases in sensation seeking with an accompanying increase in engagement in risky behaviors (Dahl & Hariri, 2005). Additionally, the hormonal changes and subsequent physical changes which occur during puberty result in physical changes that affect the way adolescents view themselves, their level of self-esteem, and their behavior. Changes in an adolescent's appearance also impact the way in which he or she is treated by others, including adults. Possibly resulting in a significant change in the way a parent disciplines and interprets the appropriateness of his or her adolescent's behavior (Steinberg, 2008).

The developmental stage of adolescence was once thought to be "an artificial construct, a phenomenon invented in the post-Industrial Revolution years" (Wallis, 2004, p. 149). However, new brain imaging research has shown that an adolescent's brain is still maturing with significant structural changes in white and grey matter occurring during the adolescent years and early adulthood (Blakemore & Cloudhury, 2006). The brain's white matter is located below the cerebral and/or neocortex structure (Day, Chiu, & Hendren, 2006). The white matter consists of oligodendrocytes and a myelin sheath that surround the axons and neurons. The white matter allows the brain to function more efficiently by increasing the speed at which it can transmit information. The top layers of the brain, also known as the cerebral cortex and the neocortex, make up most of the

brain's grey matter. Grey matter is made up of neural cells that are important for "higher information processing, including sensory processing, voluntary muscle movements, thought processing and reasoning" (Day et al., p. 177). There is an increase in grey matter until early or middle adolescence with a sudden increase in grey matter occurring during puberty (Blakemore & Cloudhury). This increase in grey matter reflects the sudden increase in the number of synapses and thus increases the brain's efficiency and speed of processing. After adolescence grey matter decreases by approximately 5% per decade (Day et al.).

The prefrontal cortex and parietal cortex are two areas of the brain that undergo significant change after the onset of puberty. The structural effects of puberty on the frontal lobes in particular have cognitive and behavioral consequences. An adolescent's "executive function," is affected by the structural changes in his or her frontal lobes or Executive function refers to the capacity that allows a person to control and coordinate his or her thoughts and behavior (Blakemore & Cloudhury, 2006).

There are also gender differences in the behavioral effects of brain development during adolescence. Male adolescents "exhibit greater prevalence of addictive behaviors, propensity for substance abuse, and novelty risk-taking, which may relate to deficiencies in the frontal lobe activation" (Day et al., 2006, p.188). This new brain research confirms what parents and teachers of adolescents have known for years that adolescents have a lot of growing up to do and are still in need of guidance and support from their parents and other influential adults. Specifically, adolescents need their parents and teachers to establish rules and consequences for inappropriate behavior so that the adolescent will be able to learn how to behave in an appropriate manner.

Recent magnetic resonance imaging (MRI) studies have lead researchers to believe that the structural changes in the brains of adolescents could account for the emotional outbursts, reckless risk taking, rule breaking, and impassioned pursuit of sex, drugs and rock ‘n’ roll (Wallis, 2004, May 10). Thus, the behavior of adolescents which was once blamed solely on raging hormones may be the result of structural changes in the brain that have typically been known to occur at this time.

The last part of the brain to gain maturity is the prefrontal cortex. The prefrontal cortex is the part of the brain that is responsible for executive functions. These executive functions include “planning, setting priorities, organizing thoughts, suppressing impulses, and weighing the consequences of one’s actions” (Wallis, 2004, p. 151). The slow maturation of the prefrontal cortex could account for many of the seemingly irrational behaviors of adolescents. Sowell, a University of California Los Angeles neurosurgeon, explained that during adolescence, the part of the brain that makes teenagers responsible is not fully developed thus possibly, resulting in an array of irrational behaviors and illogical actions (Wallis).

The biological and structural brain changes that occur during adolescence present a unique problem for practitioners and parents as they seek to develop appropriate and effective discipline procedures for this population. Considering the new brain research and the age specific developmental concerns of adolescence, behavior programs that provide structure, consistency, and choice would provide the best fit as adolescents navigate the hormonal, physical, structural, and emotional changes of adolescence.

The Effects of Foster Care

Researchers have shown that children in stable, consistent, and predictable environments tend to have fewer behavior problems (Christophersen & Mortweet, 2003). Today in the United States, the greatest concern faced by parents and caregivers is conduct problems exhibited by children and adolescents (Field, et al., 2004). Conduct and related problems such as legal adjudication have resulted in a large number of children and adolescents being removed from their homes and placed in the foster care system. Once in the foster care system the most common placement for these children is in residential inpatient setting (Chamberlain, 2003; Field et al., 2004).

Residential inpatient settings are not the optimal place for children or adolescents. There is research to support that, adolescents with anti-social and aggressive behaviors are the most difficult population to treat in a residential inpatient setting and tend to benefit less from residential care than do their non-anti-social counterparts; however, these individuals are most likely to be placed in residential inpatient settings due to their inappropriate behavior (Chamberlain, 2003). Researchers have also discovered that the most effective placements for children in foster care are “programs using highly structured behavioral treatment approaches within environments that approximate natural family lifestyles” (Field et al., 2004, p. 439). Children placed in foster care must deal with a number of issues. For example,

Children must cope with the effects of traumatic events precipitating their entry into foster care, face a temporary or permanent loss of their parent(s), experience additional trauma of being isolated from familiar surroundings (schools, friends, siblings), and adjust to new families and living situations. (Marinkovic & Backovic, 2007, p. 217).

The trauma resulting from being removed from the home and placed in foster care can have a significant effect on a child or adolescent's psychological well being. In fact, researchers have discovered that the rate of psychological problems for individuals in the foster care system is 10% to 20% which is significantly higher than the population at large and also higher than estimates for adolescents from lower socioeconomic backgrounds (Marinkovic & Backovic, 2007). Clausen, Landsverk, Ganger, Chadwick, and Litrownik (1998) studied the mental health of children in the foster care system in California. They evaluated 267 children between the ages of birth and 17 years using the Child Behavior Checklist (CBCL), Piers-Harris Children's Self-Concept Scale (SCS), and the Survey Form of the Vineland Adaptive Behavior Scales (VASBS), as appropriate for the participants' individual ages. The researchers found that 75% to 80% of the school aged children in their sample scored in the problematic range, indicating scores of either clinically significant or borderline clinically significant on one or both of the behavior and/or social competence domains. Almost 2 out of 5 children in their study ages 4 to 16 years scored in the clinical range on the total behavior problems scale. The results of their study indicated that there is a great need for children in foster care to have access to appropriate services including psychological services and to be placed in appropriate environments (Clausen et al., 1998). Should these precautions be taken they could act to mediate the negative effects suffered by children in the foster care system. Most children enter foster care settings in poor health. Many children come from:

...very poor, minority, single-parent families, whose members suffer from high rates of mental illness, substance abuse, homelessness, and chronic physical disability... Additionally, the children often come from the most impoverished urban areas that have the highest rates of crime, violence, and drug abuse (Simms & Halfon, 1994, p. 506-507).

These factors place children entering foster care at a higher risk for developing psychological, emotional, and behavioral problems.

One of the major contributing factors to the ill effects of being placed in the foster care system is the instability of the environment and living conditions in which children and adolescents are placed. It is important that children and adolescents in the foster care system be placed in as stable of an environment as possible to help prevent psychological problems. Farmer, Wagner, Burns, and Richards (2003) found that unstable residential placements are related to higher levels of externalizing behavior. A general definition of a stable placement is a home or facility where children follow predictable routines every day. The adults are temperate and all react predictably to undesirable behaviors. The rules are concrete and apply to every child or adolescent equally. This way, the individuals will have the knowledge that “Y” behavior always results in “X” consequence. Along these lines, parent training for parents of children or adolescents with Oppositional-Defiant Disorder, Conduct Disorder, or with severe behavioral problems require that consequences be given immediately and consistently after the behavior occurs (Fonagy & Kurtz, 2002). Researchers have shown that to reduce externalizing behaviors, children and adolescents need to have immediate discipline and predictable, consistent behavior management programs. Thus, some consistent, stable, form of discipline should be in place in foster care settings. As mentioned previously, “highly structured treatment approaches within environments that approximate natural family lifestyles” are optimal settings for children and adolescents who find themselves in the foster care system (Field et al., 2004, p. 439).

Developing Interventions for Use with Adolescents in the Home Setting

The adolescent years and the years leading up to adolescence mark a time of physical changes, structural brain changes, psychological changes, increased activity, and increased responsibility for both adolescents and their parents. Increases in outside activities of adolescents; possible increases in parental responsibilities in their careers; parental midlife crises; and a decrease in time spent as a family unit provide a unique situation for parents and/or practitioners interested in developing and implementing behavior change programs for adolescents in the home.

Not only are the problems associated with the developmental phase of adolescence concerning, but also the implementation problems of monitoring interventions, treatment integrity, and treatment acceptability are troublesome. The reason for these problems include the hectic, busy nature of the adolescent lifestyle, the willingness of parents to collect data, the time consuming nature of data collection, and the ease of access to participants. Due to these issues there are a limited number of behavioral interventions for use with adolescents in the home setting that have been empirically validated and thus, there is a need for more interventions specifically for this population that are effective in home settings.

Statement of Purpose

The purpose of this study was to explore the effectiveness of JCG alone and in combination with a token economy with a population of adolescent males who are wards of the state and reside in a residential group home setting. The effectiveness of JCG alone and JCG in combination with a token economy will be explored.

Research Questions

The primary purpose of this study was to examine the effectiveness of JCG alone and a treatment package which included JCG and token economy with adolescent males in a group home setting.

The current study included the following research questions:

Research Question 1: Will there be a difference in the number of rules broken by the adolescents in the JCG phase when compared to the baseline phase?

Research Question 2: Will there be a difference in the number of rules broken by the adolescents in the JCG plus token economy phase when compared to the baseline phase?

Research Question 3: Will there be a difference in the number of rules broken by the adolescents in the JCG phase when compared to the JCG plus token economy phase?

CHAPTER 2

REVIEW OF THE LITERATURE

The use of contingency management has been proven to provide the structure in which stable, consistent, and predictable environments can be created and maintained. Researchers have shown that children/adolescents in environments that are stable, consistent, and predictable have fewer behavior problems (Christopherson & Mortweet, 2003). Contingency management has been used to produce desirable environments in schools, residential homes, and institutional settings. Contingency management involves a stimulus being removed or added contingent upon the performance of the target behavior (Miltenberger, 2001). The stimulus can be contingent upon a desirable behavior, such as raising a hand to answer a question, or an undesirable behavior, such as calling out. The stimulus could be positive or negative, as well as punishing or rewarding. Contingency management, when done correctly, allows the adolescent to know what he or she is supposed to do, and provides an immediate consequence or reward upon performance of the target behavior.

Group Contingency Management

There are many types of contingency management programs such as JCG, token economy, response cost, behavioral contracts, and self-management procedures. However, they all fall under three broad types of group contingencies, including, interdependent, dependent, and independent (Alberto & Troutman, 2006).

The interdependent group contingency requires that the behavior of all members contribute equally to meeting a set criteria and earning access to a reinforcer (Alberto & Troutman, 2006). An example of an interdependent group contingency is Barrish, Saunders, and Wolf's (1969) "Good Behavior Game." In the Good Behavior Game, the class is divided into two groups. The behavior of the group as a whole results in either group reinforcement or withholding of reinforcement for the whole group. This behavior contingency results in the consequence for the behavior of individual group members being shared with the whole group (Barrish et al., 1969).

The dependent group contingency allows access to reinforcers only if one or two targeted group members meet the criteria (Alberto & Troutman, 2006). Gresham (1983) used a dependant group contingency to decrease the destructive behavior of an eight year old boy with mental retardation. The class earned a party on Friday if the child had not engaged in destructive behavior at home during the previous week. In this example, the plan used was a dependant contingency because one child's behavior resulted in reinforcement or the lack of reinforcement for the entire group (Gresham, 1983).

In an independent group contingency, each group member's individual behavior affects whether or not that individual meets the criteria and earns the reinforcement (Alberto & Troutman, 2006). An example of an independent group contingency would be a token economy. In a token economy, the individual's behavior determines whether he or she earns tokens that can then be traded for back-up reinforcers. In independent group contingencies, all group members have the same target behaviors, the same criteria for accessing reinforcement, and the same reinforcer (Heering & Wilder, 2006). All three of these group contingencies have been shown through research to be effective means of

controlling behavior (Gresham & Gresham, 1982; Skinner et al., 2004; Theodore et al., 2001).

Group contingencies have proven to be effective for altering both academic deficiencies and behavioral concerns. Gresham and Gresham (1982) found interdependent and dependent group contingencies most effective for reducing problem behaviors in a classroom with children diagnosed with educable mental retardation. Popkin and Skinner (2003) increased academic performance in a classroom of children with emotional disturbance using interdependent group contingencies and randomly selected criteria components. In a similar study Theodore et al. (2001) used an ABAB design, randomization of group contingencies, and reinforcers to reduce problematic classroom behavior with five adolescents with serious emotional disturbance. Three years later, Theodore et al. (2004) replicated their earlier study and found very similar results with a very similar population of adolescents with emotional disorders. In 2003, Fabiano and Pelham used an independent contingency with rewards, immediate positive reinforcement, and feedback to reduce problematic behaviors in a child with Attention Deficit Hyperactivity Disorder (ADHD). Additionally, an independent group contingency, a token economy was used school-wide to decrease problem behaviors in a school for children with emotional disorders (McQuillan & Dupaul, 1996).

Using a single contingency to modify the behavior of a group of individuals has several advantages. First using a single contingency for the group saves time, separate records need not be kept on all the individual's different contingencies nor do all the individuals' contingencies need to be remembered and maintained (Gresham & Gresham, 1982). Secondly, group contingencies are relatively more efficient than individual

contingencies for groups of individuals. Finally, group contingency plans have been shown to be more effective in modifying the behavior of a group of individuals than collections of individual contingency plans (Gresham & Gresham, 1982).

As successful as group contingencies can be, they can also create additional behavioral problems and require forethought and caution, especially when using interdependent and dependent contingencies. In these contingencies, the entire group's reward is contingent upon either one or two students' behavior or upon every student's individual behavior grouped together (Alberto & Troutman, 2006). If the target children do not remain anonymous or the teacher singles out specific students who did not contribute to the criteria, those children could be ostracized by their peers (Popkin & Skinner, 2003; Skinner et al., 2004). To prevent students from being ostracized, target students in dependent and interdependent group contingencies should remain anonymous, during the implementation of a group contingency; the children should never know which student(s) did not contribute their part for meeting the criteria.

Job Card Grounding

A search of the literature yielded three articles and one parenting book related to JCG or modified grounding. Patterson and Forgatch (2005), in their book *Parents and Adolescents Living Together Part 1: The Basics*, provide parents with a primer for interacting with and disciplining their adolescent. Patterson and Forgatch, offer a work chore discipline procedure as an effective punishment contingency to be used with adolescents. A work chore is issued to an adolescent contingent on his or her noncompliance to parental requests. According to Patterson and Forgatch, if the adolescent refuses to complete the work chore then his or her parents should remove a

privilege which the adolescent can earn back contingent upon his or her successful completion of the work chore. Eaves et al. (2005) provided an easy to access “how to” article for practitioners on the topics of time out and job card grounding. The other two articles used chores as a response cost for inappropriate behavior.

Scallion, Vitale, and Eschenauer (1976) implemented a behavior plan at St. John’s School for Boys in Rockaway Beach, New York that incorporated a token economy, time out procedure, and job component. In their intervention, when an adolescent “lost control” and damaged or destroyed the facility’s property he had the option of doing chores to “work off” the cost of the item or he could pay the institution back for the damaged or destroyed item through time spent sitting on his bed. The researchers’ program resulted in a calmer more controlled atmosphere. Additionally, the program was still in use four years after its implementation. The continued use of the program further demonstrated its effectiveness (Scallion et al.).

Holnhorst and Roberts (1992) used a response cost procedure in a residential treatment facility which required the adolescents to complete “brief work chores” when they engaged in “rude talk.” The treatment facility in this study was a transitional care facility for run-away and emotionally disturbed adolescents. The “brief work chore” procedure was added to the facilities on-going level system in which adolescents earned privileges for good behavior. “Negative evaluations” of other people was the target behavior. Anytime an adolescent made a negative evaluation of another person, he or she was assigned a work chore. The adolescent was not able to gain access to any privileges until the work chore was completed. The work chores were designed to take no more than 5 to 10 minutes of sustained effort to complete. A multiple baseline experimental design

was used to assess the effects of the intervention on three participants. Holnhorst and Roberts found that the brief work chore intervention effectively decreased the number of rude talk incidences for these participants. Additionally, it was noted that when the brief work chore intervention was in place that the facility's group mean number of incidents of rude talk approached zero (Holnhorst & Roberts). This study lends evidence to support a chore being effectively utilized a response cost.

At the present time, although there are very few empirically validated studies which use JCG or modified grounding procedures, recent publications indicate JCG would be an effective contingent behavior management program for children and adolescents aged 11-18 years as it has the recommended qualities for successful behavioral interventions and behavioral management plans, such as stability, consistency, and opportunities for positive reinforcement (Christophersen & Mortweet, 2003; Eaves et al., 2005; Patterson & Forgatch, 2005). JCG is expected to be particularly successful for the current sample of adolescents with emotional and behavioral problems, who have not had predictable environments for most of their lives due to their extended stay in the foster care system. Researchers discovered that,

Many [children in foster care] have not experienced a nurturing, stable environment during their early development. As a result, children and adolescents in foster care have a higher prevalence of physical, developmental, and behavioral health problems than any other group of children (Marx, Benoit, & Kamradt, 2003, p. 332).

Although these adolescents cannot change the instability of their former environments, their current environments can be controlled to assure that they are more consistent and stable in an effort to reduce many problematic behaviors and negative psychological effects.

The focus of behavior management techniques is to teach children and adolescents how to self-manage their behavior. This is why cognitive-behavioral methods are used with adolescents for externalizing behavior. The behavioral component of JCG uses contingency management and provides clear rules, expectations, rewards, and consequences. The cognitive component teaches the antecedent-behavior-consequence chain so that in the future the adolescent will learn to (a) recognize when they are about to engage in an inappropriate behavior, (b) consider the consequences, and (c) choose either to engage or not engage in the behavior (Larson, Calamari, West, & Frevort, 1998; Sayger, Szykula, & Laylander, 1991). JCG uses these cognitive-behavioral approaches and teaches the adolescent the basic principles of cause and effect and creates an environment in which the adolescent can learn to be independent (Eaves et al., 2005, p. 257). JCG should be considered an effective behavior management system for adolescents because it employs these necessary cognitive-behavioral components.

JCG has other advantages that parenting books and experts state help improve behavior management programs. Christophersen and Mortweet (2003) and Eaves et al. (2005) all agree that JCG reduces the escape/avoidance component of discipline. Adolescents will often use arguing or discussion of a “fair” punishment as a way to escape or avoid impending negative consequences. Yet, in JCG the parent and adolescent decide on the rules, consequences, and create job cards long before the behavior occurs, leaving the adolescent with no room to argue about consequences or expected behavior, as the adolescent played an integral part in developing the consequences. According to Patterson and Forgatch (2005) by late adolescence, adolescents need to be given the opportunity to provide increasingly more input into the development of rules due to the

greater amount of time they spend without adult supervision. The immediacy of JCG also prevents the parent from reacting with an emotional response and/or using physical punishment when an undesirable behavior occurs.

Another advantage of JCG is that it places the power of choice in the adolescent's hands. Researchers and parenting experts agree that giving adolescents power over the length of their punishment can teach them responsibility for their actions as is often found in the "real world" (Christophersen & Mortweet, 2003; Eaves et al., 2005). For example, during JCG the adolescent breaks a rule and pulls a job card. He or she is grounded until the job is done to the parent's satisfaction. The job is only to last approximately 15 minutes and the adolescent is grounded until it is completed (Christophersen & Mortweet; Eaves et al.). This leaves the power in the hands of the adolescent to decide if he or she wants to refuse to complete the job and thus become grounded or reduce the length of the grounding phase by promptly completing the job. Additionally, the adolescent has the choice of procrastinating completion of the job resulting in becoming grounded for an extended period of time. This aspect of JCG allows adolescents to better understand how their behavior produces consequences and how they can control those consequences.

JCG also provides opportunities for positive reinforcement, an essential component of any discipline system (Christophersen & Mortweet, 2003; Eaves et al., 2005). After the adolescent completes his or her job, his or her parent must approve the quality of the work. If the work is completed satisfactorily his or her parent should immediately, enthusiastically, and sincerely tell the adolescent what a thorough job they did and how proud they are that the adolescent chose to finish the job quickly.

Overall, although there is limited literature exploring the effectiveness of JCG it possesses the basic behavioral components necessary to evoke behavioral change. It also provides caregivers with a time and cost efficient means of disciplining adolescents. JCG provides a structure in which adolescents can learn to accept the consequences of their inappropriate behavior, decrease the number of negative interactions regarding the “fairness” of punishments between adolescents and their caregiver(s), and provides opportunities for caregivers to deliver positive reinforcement to adolescents in their care.

Token Economy

Most contingency management programs add a positive reinforcement component of some type. This could be a formal reinforcement, as seen in token economy, or it could be the informal acknowledgment that an adolescent is behaving in an appropriate manner through positive social attention or praise. Researchers have shown both formal and informal positive reinforcement to be very effective in reducing problematic behaviors (Fabiano & Pelham, 2003; Gresham & Gresham, 1982; Skinner et al., 2004; Theodore et al., 2004; Theodore et al., 2001). Pazaratz (2003) found that adding a formal positive reinforcement component to the existing behavioral management program at a residential placement for adolescents reduced problem behaviors and helped residents develop self-control, motivation, self-acceptance, and aided in the learning of competencies.

Researchers have found the token economy to be a “tried and true” method of evoking behavioral change and creating a more structured environment in which to facilitate treatment (LePage et al., 2003). Chen and Ma (2007) investigated the effectiveness of token economies on treating disruptive behaviors using two statistical procedures, percentage of non-overlapping data and percentage of data points exceeding

the median. They found that token economy systems were effective in eliminating disruptive behavior (Chen & Ma).

Matson and Boisjoli (2009) called the token economy “one of the most important technologies of behavior modifiers and applied behavior analysis over the last 40 years” (p. 240). They also wrote that token economies were procedures that are “useful in that they help provide a structured therapeutic environment, and mimic other naturally occurring reinforcement systems such as the use of money” (Matson & Boisjoli, p. 240). Operant principles of learning are utilized in the token economy in that the performance of good behavior is reinforced by secondary reinforcer(s) in the form of tokens. Most psychiatric inpatient facilities that serve children or adults integrate either token economy in its entirety or components of token economy. A token economy “is central to these programs and, indeed, is a treatment component in most group programs for problematic youth” (Field et al., 2004, p. 439). Even in level systems which require individuals to maintain certain behaviors for various lengths of time in order to earn privileges, the component of trading good behavior for a desired reward is present. Token economies have been used in various settings from the classroom, psychiatric facilities, to the penal system and across a wide range of ages from preschool aged children to adults (Boniecki & Moore, 2003; Field et al., 2004; Filcheck et al., 2004; Foxx, 1998; LePage, 1999; LePage et al., 2003; Lovitt, 1995; Moore et al., 2001; Novak & Hammond, 1983; Reitman et al., 2004; Rice et al., 1990; Scallion, Vitale, & Eschenauer, 1976; Truchlicka et al., 1998). In addition, token economies have been used as behavior change programs for individuals with a variety of disabilities and disorders (Bennett et al., 1989; Dickerson

et al., 2005; Eisolowski & Zencius, 1992; Klimas & McLaughlin, 2007; Matson & Boisjoli, 2009; Tarbox et al., 2006).

Token Economy and Psychiatric Institutions

Rice et al. (1990) studied the effectiveness of a token economy on adult patients confined to a maximum security psychiatric hospital. The program used in this study was a combination of a token economy and a level system. The study was conducted in one of the four units of the maximum security Oak Ridge Division of Mental Health Centre at Penrtanguishene, Ontario, Canada. The facility had four units which differed in the level of security and level of privileges. On all units a token economy was used as a means to control the behavior of the inmates. The units ran token economies which were identical with the exception of the distribution of tokens on unit four. On unit four, tokens were exchanged daily for privileges rather than weekly. Certain behaviors such as, physical assaults resulted in an immediate reduction of level, loss of all privileges, and confinement to the patient's bedroom. Rice et al. found that there was a statistically significant increase in the amount of points or tokens that were earned by the participants in weeks 7 through 12 than were earned in the first 2 weeks of the study. This indicated that the token economy was an effective way in which to control the behavior of inmates during their incarceration (Rice et al.).

LePage et al. (2003) conducted a study that examined the long-term effect of using a token economy system to manage the behavior of patients in an acute psychiatric unit. According to LePage et al. "token economies are an effective way of changing various behaviors including acquiring new skills, reducing undesired behaviors, reducing aggression, increasing treatment compliance, and improving psychiatric unit

management” (LePage et al., p. 179). LePage et al. compared the effectiveness of a unit based token economy by collecting 12 months of baseline data and comparing it to the following 2 years of data collected while the unit was using a token economy. In LePage et al.’s study, tokens were referred to as credits due to the negative association with the term token at the time of the study. The token economy utilized in this study allowed residents to spend their credits daily in the unit store, which was open for an hour each day. Patients could also save their credits to be used at a later date. This plan also incorporated a response cost component which resulted in the loss of some or all credits, suspending the patient’s ability to spend credits for a 24 hour period, and in severe cases confinement of the patient. Severe problem behavior included such acts as masturbating in public areas, severe foul language, smoking in bedrooms, and aggressive behavior. An AB design was used to assess the effectiveness of the token economy. The A phase consisted of baseline data collection which was collected 12 months prior to the implementation of the token economy and the B phase or intervention phase included the 24 months after implementation of the token economy. Following implementation of the token economy there was a significant reduction in injuries from assaults for both staff members and patients (LePage et al.).

LePage (1999) evaluated the effectiveness of a token economy for young adults aged 18 to 20 years who were involuntarily committed to a psychiatric facility. Patients in this study were able to earn tokens for engaging in therapeutic activities, groups, assessments, and individually targeted behaviors. Additionally, patients could earn tokens for good hygiene, keeping their rooms clean, and getting out of bed on time in the morning. The patients were able to save up their tokens and “purchase” privileges and

tangible reinforcers from the unit store. LePage targeted reducing negative incidents which was defined as staff or patient injuries that were not accidents, elopement, and psychiatric emergencies that required the administration of medication. Through a one-way analysis of covariance LePage was able to demonstrate that there were significantly less negative incidents when the token economy was in place than there were prior to its implementation.

The previous studies evaluated the effectiveness of token economies in adult psychiatric facilities. Studies have also been conducted with children in psychiatric facilities. For example, Moore et al. (2001) restructured a token economy in a psychiatric facility for children and evaluated the effectiveness of the program. The psychiatrist believed that the token economy that was in place prior to the restructuring was ineffective due to the high number of patients being placed in seclusion. The researchers determined through interviews with children and staff and narrative observations of child behavior that the current token economy had two major problems. The target behaviors were not adequately defined and the back-up reinforcers were not provided until the next day, thus leaving too much time between the good behavior and the reinforcement.

In phase one of the restructuring three target behaviors were concretely defined and taught to the children through modeling, role playing, and feedback sessions. The three target behaviors were (a) following directions, defined as making eye contact with a speaker and initiating a response within five to seven seconds following a request, (b) be nice, which was defined as remaining at least two feet away from other children, and (c) be where you are supposed to be, defined as not leaving your seat without permission and when outside staying within five feet of the group. Upon evaluation of the changes in

phase one the researchers found that there had been modest improvements in the children's behavior but additional modifications would be necessary. During phase two of this study, the researchers continued the changes made in phase one and added changes to the schedule of reinforcement. Before the program was restructured the children received their reward for the previous day's behavior in the morning of the following day. The reinforcement schedule was revised to provide the children with 16 blocks of time in which they could earn reinforcement which were delivered in the following time block. Upon implementation of phase two there was a significant decrease in the number of trips to seclusion dropping from a daily mean of 9.8 in phase one to a daily mean of .2 in phase two. This study demonstrated the effectiveness of a token economy in a psychiatric facility for children as well as the importance of clearly defined target behaviors and a rich, age appropriate reinforcement schedule (Moore et al., 2001).

Foxx (1998) evaluated the effectiveness of a token economy in a behavioral inpatient program for adolescents. Residents of the inpatient program were 12 to 18 years old and had been placed in this facility due to extreme aggression and/or highly disruptive behavior in other less restrictive facilities. A comprehensive token economy was developed for this facility where individualized target behaviors and reinforcers were developed for all clients. "Conduct points" were also awarded to clients for not engaging in inappropriate behavior during specific intervals. Additionally, a client's council was developed. In the client's council, the residents of the facility through a parliamentary process discussed the unit's problems, the cost of back-up reinforcers, negative and positive consequences for behavior, and suggested new back-up reinforcers. Through the implementation of this token economy there were significant reductions in emergency

mechanical restraints, use of psychotropic medications, and episodes of window breaking (Foxy, 1998).

Most applicable to the current study is work by Field et al. (2004). Field et al. evaluated the effectiveness of a token economy with youth placed in a family-style residential care facility through a treatment-withdrawal experimental design. Their study explored the effectiveness of a modified version of the token economy which was already in place in the participant's family-style foster care facility. The researchers modified the fixed interval schedule of the exchange of points for privileges for three adolescents. The modifications made to the token economy included splitting the amount of points one could earn daily in half, adding an additional set exchange for points session, and reducing the point cost of privileges. This study demonstrated support for the use of a modified token economy with adolescents who were non-responsive to the home's behavior plan. The implementation of the modified token economy led to an increase in appropriate behavior (Field et al.).

In summary, the previously discussed studies demonstrated the effectiveness of token economy systems in prisons and inpatient psychiatric facilities for children, adolescents, and adults. The token economy has been an indispensable tool for managing the behavior of individuals placed in these restrictive facilities. The effective use of token economies is not limited to inpatient facilities. Token economies have also been shown to be effective at managing a variety of behaviors in the classroom setting.

Token Economy in the Classroom

Not all children or adolescents are able to function in the regular education classroom with only the traditional reinforcements of grades and teacher attention to

motivate their behavior (Reitman et al., 2004). Token economies have been utilized in various forms in the classroom. Reitman et al. noted that for children who do not respond appropriately to typical classroom environments, token economies appear to be highly effective for improving social behavior and academic achievement. Further, Lovitt (1995) asserted that tangible rewards can be effective in increasing persistence of effort.

Tangible rewards have been shown to be particularly effective for students with special needs (Lovitt). Intangible rewards such as access to activities have also been shown to be very effective in motivating children and adolescents (Mastropieri & Scruggs, 2004).

The effectiveness of token economies can be traced to the token economy's facilitation of more pro social behaviors which leads to more engaged time and thus more exposure to instruction. This additional engaged time could then lead to a greater retention of material presented, thus increasing academic achievement and the child or adolescent's overall educational experience. Additionally, token economies have been applied and been found to be empirically valid in preschool, elementary, junior high school, high school, and even at the undergraduate level in the collegiate setting (Boniecki & Moore, 2003; Filcheck et al., 2004; Lovitt, 1995; Mastropieri & Scruggs, 2004; Novak & Hammond, 1983; Reitman et al., 2004; Scallon et al., 1976; Truchlicka et al., 1998).

Reitman et al. (2004) conducted a study to determine if a token economy would be an effective behavior modification tool in a Head Start classroom. In this study, direct observation in addition to teacher ratings were used to assess the effectiveness of a token economy in a preschool setting. The token economy reduced the disruptive behaviors of the children. This was evidenced by an increase in disruptive behaviors when the token

economy was removed. Though the token economy was effective according to direct observations collected by the researchers, the teacher's ratings of the children's behavior did not reflect improvement. This is a common problem for teachers especially when changes in a child's behavior are gradual or the teacher's opinion of a child is particularly strong. This problem can be combated by showing the teacher weekly graphs and/or progress reports to show evidence of the effectiveness of the intervention. This sharing of data can result in increased treatment integrity and treatment acceptability (Reitman et al.).

Filcheck et al. (2004) conducted a study in which they implemented a level system in a preschool classroom. They used an ABACC' treatment comparison design to evaluate the effectiveness of a token economy – level system and Child Directed Interaction (CDI) and teacher delivered Parent-Directed Interaction (PDI) phases of Parent-Child Interaction Therapy (PCIT). They found that the level system, CDI, and PDI decreased inappropriate behavior (Filcheck et al., 2004). Although PDI and CDI showed a greater decrease of inappropriate behavior during the study (mean frequencies of inappropriate behavior per child per minute; baseline $m = .45$, level system $m = .29$, CDI $m = .12$, PDI $m = .06$) during the follow-up visit the teacher chose to use the level system to manage her class's behavior. The mean frequency of inappropriate behavior per child per minute during the follow-up phase was .05 which dropped below both the CDI and PDI experimental phases. There was also a significant difference in the amount of time it took to train and implement, the level system phase and the PCIT phases. The PCIT phases took 11 hours and 30 minutes of training; whereas, the level system only required 4 hours and 30 minutes including all consultation and feedback time (Filcheck et

al., 2004). The shorter implementation time of level systems makes it more appealing for teachers who are often strapped for time.

Novak and Hammond (1983) investigated a token economy that utilized self-reinforcement. The participants in their study were 28 students in a fourth grade class. They used an ABA design and employed a between-subjects repeated measures design to test the effectiveness of a token economy and self-administration. In the B phase, all students participated in a token economy. In addition to the token economy the students were assigned to one of three experimental conditions; token system alone, self-administration of reinforcement, descriptions of natural consequences, or a combination of self-administration of reinforcement and descriptions of natural consequences. The second A phase indicates a withdrawal phase. All groups increased their correct problem completion during treatment; however, it is important to note that the combination of self-administration of reinforcement and descriptions of natural consequences treatment gains remained stable after the tokens were withdrawn. In addition to adding evidence to support the effectiveness of token economies, the researchers discovered that if children are taught the rules, how reinforcement is earned, and the type of natural contingencies available in the classroom, the effectiveness of token economies can be retained after the tokens themselves are no longer in use (Novak & Hammond, 1983).

Truchlicka et al. (1998) investigated the use of a token economy and response cost procedure. The token economy and response cost interventions were utilized to increase the accuracy of spelling performance for three middle school special education students. All three participants were placed in a self-contained classroom for children with emotional behavioral disorders. The students could earn tokens for correct academic

performance, being on task, assignment completion, and appropriate hall behavior. Points were lost through the response cost segment of this intervention for the following behaviors: wasting time, incomplete assignments, playing with objects, not following directions, swearing, cheating, talk-outs, fighting, coming to class late, and failing to bring academic materials to class (Truchlicka et al., 1998). Spelling was chosen as a time to evaluate the token economy/response cost system. The implementation of this intervention resulted in a greater percent accuracy on spelling exams as compared to the baseline phase for all participants (Truchlicka et al., 1998).

Scallon et al. (1976) created a behavior system for St. John's Residence and School for Boys in Rockaway Beach, New York. The residents of this school were preadolescent and adolescent males with severe learning and behavioral problems. An interdisciplinary team developed a behavior system for use in the school that incorporated a token economy and time out in seclusion for overaggressive behavior. The school day was divided into 30 minute segments. A form with boxes which represented the 30 minute segments was developed. A resident received a check in the box which represented the 30 minute segment for which he was well behaved and/or completed his work. A boy earned his weekly allowance by earning at least 12 of the possible 14 checks per day. Each day he earned one fifth of his allowance. In addition to the weekly reinforcement of earned allowance, each boy received candy daily if he earned at least 12 checks in that day. Weekly field trips to the movies and other community events were also provided to boys who earned at least 50 out of 60 checks in a given week. The system was slightly changed three weeks after implementation to add a response cost component. If a child was sleeping in class or disruptive, he was required to make-up his

lost instruction time by sitting on his bed; and if the student did not display inappropriate behavior the following day, he was allowed to do a chore and earn back his lost money. Additionally, if a boy destroyed the school's property while acting out he was required to pay for the destroyed item through extra chores. The researchers felt that the program, though flawed was effective due to its longevity. The program had been in place in the school for four years at the time this article was published (Scallon et al., 1976).

Boniecki and Moore (2003) investigated the effectiveness of a token economy implemented in an undergraduate introductory to psychology course in which 63 students were enrolled. The instructor gave out tokens in class for participation that could be traded in for extra credit. The results of this study revealed that the amount of directed and non-directed participation increased and that students responded faster to their teacher's questions when the token economy was in place. This was evidenced by a return to baseline levels on all factors assessed following removal of the token economy (Boniecki & Moore, 2003).

In summary, the previous studies demonstrated the effectiveness of token economies in classroom settings. Token economies have been found to be an effective behavior management tool across a wide range of ages from preschool to college aged individuals in classroom settings. Token economies have also been shown to be effective in managing the behavior of individuals from diverse populations.

Use of Token Economies with Diverse Populations

Token economies have been used in a variety of settings as well as with diverse populations to intervene with a number of psychological, developmental, and behavioral issues. Klimas and McLaughlin (2007) explored the effectiveness of a token economy for

a young child with a severe behavior disorder who was placed in a self-contained classroom. The purpose of this study was to increase assignment completion and decrease the inappropriate behaviors of a six-year-old special education student. The researchers used an ABC single subject design to test the effectiveness of two token economy systems, a three token system and a five token system. When the three token system was in place each time the participant completed an assignment, she was allowed to put a poker chip on a Velcro token board. After she earned three tokens she was given access to a preferred activity for five minutes. The procedure was the same during the five token condition, with the exception of the number of poker chips the participant was required to earn prior to receiving her reward. In the five token condition the participant was required to earn five tokens to earn her five minute break. Overall, both the three and five token conditions resulted in a decrease in the average amount of time it took the participant to complete her assignments and the number of inappropriate behaviors she exhibited. Additionally, the researchers evaluated the generalization of their intervention into the regular education classroom. They found that when the token economy was moved to the regular education classroom that the participant's appropriate behavior and high level of work completion continued (Klimas & McLaughlin, 2007).

Eisolowski and Zencius (1992) explored the effectiveness of a token economy with an adolescent with traumatic brain injury. They used a reversal ABAC design to evaluate the effectiveness of their token economy. They discovered that the token economy was effective in maintaining the adolescent's aggression to zero episodes for four weeks as well as increasing his attendance to therapy sessions and classes, waking up on time, and pro-social behaviors (Eislowski & Zeniucs, 1992).

Dickerson et al. (2005) reviewed the literature regarding the use of token economies with individuals who were hospitalized and suffering from schizophrenia. They reviewed 13 controlled studies. Through their review they determined that there is substantial research evidence to support the use of token economy social learning programs for patients with schizophrenia (Dickerson et al., 2005).

Token economies have also been used effectively with individuals who have been diagnosed with autism, developmental delays, or mental retardation. Tarbox et al. (2006) investigated the effectiveness of token reinforcement on the eye contact of a young child with autism. In this study, the researchers used a reversal design to evaluate the effectiveness of their token economy. During therapy sessions, the child had a board with Velcro to which Velcro stars could be attached. The child earned a star for making eye contact and attending to the therapist for at least three of the five seconds following a non-verbal prompt to do so. Through the use of this token economy the eye contact and attending behavior of the child was increased (Tarbox et al., 2006). Matson and Boisjoli (2009), reviewed the literature on the use of a token economy for children with intellectual disabilities and autism. In their review they noted that there has been a decline in the number of publications on the use of token economies since the 1980s. In spite of the decline in published materials on the topic, the authors stressed that the effectiveness and therapeutic value of the token economy should not be disregarded. They found the token economy to be versatile in its use in multiple settings, with various populations, and limitless individualized target behaviors. According to Matson and Boisjoli (2009) the token economy has “proven to be a robust and adaptable method for

treating a range of skills and major needs areas of children with developmental disabilities” (p. 244).

Token economies have also been used to increase appropriate behavior and decrease inappropriate behavior in individuals with low cognitive functioning. Bennett et al. (1989) used a single-subject multiple baseline design across subjects to investigate the effectiveness of a token economy with three females between the ages of 24 and 26 with Down’s Syndrome. The dependent variable in their study was exercise behavior. During the intervention or token economy phase tokens were dispersed to the participants for pedaling a stationary bicycle. The participants were awarded tokens based on a set number of revolutions of the bicycle’s wheels. At the conclusion of the study, it was determined that the token economy had effectively increased the amount of time the participants spent exercising on the stationary bicycle (Bennett et al., 1989).

Summary

The token economy has been tested and found to be an effective behavior management tool for individuals across a wide age span with studies showing its effectiveness being completed with participants from age five into adulthood. Token economies have also been shown to be effective in a variety of settings including prisons, inpatient psychiatric facilities, and classrooms. Furthermore, token economies have been shown to be effective with a diverse group of individuals including individuals with developmental disabilities, schizophrenia, emotional disturbance, learning disabilities, and mental retardation.

Justification

The previously discussed studies demonstrate the effectiveness and versatility of token economies. The token economy is an empirically supported operant behavior modification approach to group treatment that can be especially effective when implemented within structured family-style residential care (Field et al., 2004). In fact, after over three decades of research the token economy still remains a tried and true behavior management tool and is a treatment component in most group programs for disruptive and problematic youth (Field et al., 2004). The benefits of token economies include that they are highly structured which leads to consistent reinforcement of target behaviors; “tokens are generalized conditioned reinforcers and as such may function as reinforcers regardless of any specific establishing operation that may exist for the client at any time” (Tarbox et al., 2006, p. 156). Tokens are also not expensive, easy to dispense, and easy for recipients to accumulate. Truchicka et al. (1998) found that adding a response cost component to a token economy increases the effectiveness of the behavior management plan. Although JCG has not been empirically vetted in the literature, it has the basic behavioral components of an effective behavior management system. JCG used in conjunction with a token economy should provide appropriate and necessary positive reinforcement and response cost to effect behavior change. Additionally, JCG alone and in combination with a token economy should lend structure and stability to the environment. This outcome is particularly important because the adolescents in the current study were all wards of the state and, as such, were placed in the foster care system. This instability of their home environment and primary caretaker places them at a greater risk for socio-emotional, behavioral, and psychological problems

(Marinkovic & Backovic, 2007; Simms & Halfon, 1994). Placement in a facility with a structured, consistent behavior modification system should add stability to their environment and possibly decrease their risk of developing psychological, emotional, and behavioral disorders. The current study will further add to the literature on the use of token economy with yet another population, adolescent males who are wards of the state and reside in a residential group home facility. The current study will also explore the use of JCG in a residential group home setting. This exploration will greatly contribute to the limited knowledge-base on JCG. Additionally, a package intervention (i.e., JCG with a token economy) will be explored. This will add to the limited literature available on the development and effectiveness of interventions designed for use in a home setting.

CHAPTER 3

METHODOLOGY

Description of Participants

The participants were 5 adolescent males between the ages of 14 and 18 years. All of the adolescents were wards of the state and had histories of multiple placements in foster homes, residential inpatient facilities, outpatient psychiatric facilities, and inpatient psychiatric hospitals. All of the adolescents had also been involved in the juvenile justice system. Their law-breaking violations included truancy, shoplifting, theft, breaking and entering, assault, and grand theft auto. Their diagnoses included:

Attention/Deficit/Hyperactivity Disorder (ADHD), Oppositional-Defiant Disorder (ODD), Conduct Disorder, Major Depressive Disorder, Adjustment Disorder with Mixed Disturbance of Emotions and Conduct, Mild Mental Retardation, Emotional Disturbance and Specific Learning Disabilities in the areas of reading comprehension, reading fluency, mathematics calculation, mathematics reasoning. Four of the adolescents were African American and one was Caucasian. All of the adolescents in this study were from families of low socio-economic status. Four of the adolescents were eligible for special education services and had individualized education plans (IEP). Two of the adolescents had resided in the home for two or more years, two for approximately one year, and one entered the home during baseline in Year 1. Problem behaviors in the home included; failure to keep bedrooms clean, curfew breaking, and externalizing behaviors such as,

fighting, verbal aggression, defiance, and oppositional behavior (See Table 3.1 for demographic information). Pseudonyms were used for all participants and treatment implementers in this study. The following sections provide descriptions of the participants.

Table 3.1 Demographic Information

Participant	Age	Grade	Ethnicity	Diagnoses
Jay	16	12	African American	Emotional Disturbance
Kent	14	7	African American	Major Depressive Disorder; ADHD; Adjustment Disorder with Mixed Disturbance of Emotions and Conduct; History of abandonment by family, anti-social personality traits, and out of home placement
Jamie	15	8	African American	Specific Learning Disability - Reading; Oppositional Defiant Disorder; Conduct Disorder
Joe	14	8	African American	ADHD; Oppositional Defiant Disorder; Impulse Control Disorder

Note: Curt was diagnosed with Mild Mental Retardation, but upon reassessment in the Summer of 2005 his diagnosis was changed to Specific Learning Disability in Basic Reading, Mathematics Calculation and Mathematics Reasoning.

Jay

Jay a 16-year-old African-American, male, was entering the twelfth grade in Year 1. His intelligence quotient (IQ) was assessed using the Kaufman Assessment Battery for Children 2nd Edition (KABC-II) and was determined to be 84 (See Table 3.2; Kaufman &

Kaufman, 2004). His academic achievement was assessed using the Wechsler Individual Achievement Test 2nd Edition (WIAT-II; Wechsler, 2001). His achievement standard scores (SS) were Word Reading SS = 81, Reading Comprehension SS = 79, Pseudoword Decoding SS = 80, Reading Composite SS = 77, Numerical Operations SS = 96, Math Reasoning SS = 81, and Mathematics Composite SS = 87, Spelling SS = 78, Written Expression SS = 88, Written Language Composite SS = 81, Listening Comprehension SS = 83, Oral Expression SS = 116, and Oral Language Composite SS = 99 (See Table 3.3). At the time of the study although Jay had an educational diagnosis of Emotional Disturbance he was not actively receiving special education services. He was on a monitoring IEP.

Table 3.2 Jay’s Composite Scores from the KABC-II

Scale Indices	Standard Score	Confidence Interval	Percentile Rank
Sequential Processing	80	73-89	9
Simultaneous Processing	97	89-105	42
Learning Ability	84	79-91	14
Planning Ability	88	79-99	21
Mental Processing Index	84	79-89	14

Table 3.3 Jay's Composite Scores from the WIAT-II

Composites	Standard Score	Confidence Interval	Percentile Rank
Reading	75	71-79	5
Mathematics	86	82-90	18
Written Language	81	75-87	10
Oral Language	96	87-105	39
Total Composite	80	76-84	9

Jay entered the foster care system when he was seven years old. He was placed in foster care by court order because his mother could not adequately care for him. His father does not reside in the United States and he had no relatives who were willing to care for him. At the time of the study, Jay had resided in the home for five years. There was a brief time in that five year period when he was placed in a psychiatric hospital and treated for psychological problems related to his emotional disturbance. In addition, he had in the past taken psychotropic medication to control his emotional state but at the time of the study he was not taking any medication.

Curt

Curt a 17-year-old Caucasian male, was entering the twelfth grade in Year 1. He was receiving special education services for Mild Mental Retardation at the time the study began in Year 1. Curt's high level of adaptive functioning and other factors lead the housemother and researchers to believe that Curt's diagnosis of Mild Mental Retardation may have been a misdiagnosis. His first assessment and diagnosis of Mild Mental

Retardation occurred when he was in the first grade at the age of seven. After that time he was placed in the severe and profound classroom where he remained for much of his educational career. He was reassessed during Year 1 and his diagnosis was changed to Specific Learning Disability – Basic Reading, Mathematics Calculation, and Mathematics Reasoning to reflect the results of his most recent assessment. It is believed that Curt’s inability to read is due, in large part, to his placement in a self-contained severe and profound classroom for most of his educational career. In addition, his IEP goals were inappropriate for his ability level and age. For example, one of the goals on his IEP for his eleventh grade year was “will learn to color in the lines.” Prior to the administration of standardized assessments in Year 1, Curt’s reading fluency was assessed through curriculum-based measurement. Three first grade reading probes were administered. Curt’s median score on the reading probes was 22 words correct per minute with 10 errors. His IQ was assessed using the KABC-II and was determined to be 81 (See Table 3.4; Kaufman & Kaufman, 2004). His academic achievement was assessed using the WIAT-II (Wechsler, 2001). His achievement scores were Word Reading SS = 40, Reading Comprehension SS = 40, Pseudoword Decoding SS = 53, Reading Composite SS = 40, Numerical Operations SS = 66, Math Reasoning SS = 40, Mathematics Composite SS = 45, Spelling SS = 40, Written Expression SS = 46, Written Language Composite SS = 40, Listening Comprehension SS = 81, Oral Expression SS = 95, and Oral Language Composite SS = 85 (See Table 3.5). Curt was diagnosed with ADHD – Inattentive Type and was also taking 100 mg of Topamax and 5 mg of Abilify everyday throughout the study.

Table 3.4 Curt's Composite Scores from the KABC-II

Scale Indices	Standard Score	Confidence Interval	Percentile Rank
Sequential Processing	83	76-92	13
Simultaneous Processing	103	95-111	58
Learning Ability	84	79-91	14
Planning Ability	72	64-84	3
Mental Processing Index	81	76-86	10

Table 3.5 Curt's Composite Scores from the WIAT-II

Composites	Standard Score	Confidence Interval	Percentile Rank
Reading	40	36-44	<0.1
Mathematics	45	39-51	<0.1
Written Language	40	32-48	<0.1
Oral Language	85	75-95	16
Total Composite	45	41-49	<0.1

Curt was voluntarily placed in foster care by his biological mother. Curt's mother had a pattern of placing him in foster care and then bringing him home, only to place him back into foster care. Curt's biological mother lived in the same city as the residential group home in which he resided. Throughout the study there were incidents where his mother told Curt that he would be allowed to come home. At the termination of this study he had not returned home. Curt's biological sisters lived with their mother. Prior to coming to live in the residential group home Curt had lived in many foster homes. His

foster parents just prior to his coming to live in the residential group home had seriously discussed adopting Curt, but the adoption plans fell through when they discovered that Curt had stolen one of his neighbor's dogs. Curt moved into the residential group home during the second week of the intervention during Year 1. Curt's law violations included theft and breaking and entering.

Kent

Kent a 14 year-old African American, male was entering the seventh grade in Year 1. He was receiving special education services under the eligibility category of Other Health Impaired – ADHD. In addition to ADHD, he also was diagnosed with Adjustment Disorder with Mixed Disturbance of Emotions and Conduct, Major Depressive Disorder; and it was noted that he had a history of antisocial personality traits, history of abandonment by his family, and out of home placement. He was prescribed 3 mg of Risperdal per day. Prior to the administration of any standardized assessments, Kent's reading fluency was assessed through curriculum-based measurement using third grade reading probes. Three probes were administered. His median score on the probes was 95 words correct per minute with 0 errors. His IQ was assessed using the KABC-II and was determined to be 83 (See Table 3.6; Kaufman & Kaufman, 2004). His academic achievement was assessed using the WIAT-II (Wechsler, 2001). His achievement scores were Word Reading SS = 79, Reading Comprehension SS = 40, Pseudoword Decoding SS = 91, Reading Composite SS = 66, Numerical Operations SS = 92, Math Reasoning SS = 83, Mathematics Composite SS = 86, Spelling SS = 87, Written Expression SS = 73, Written Language Composite SS = 79, Listening Comprehension SS = 82, Oral Expression SS = 112, and Oral Language Composite SS = 95 (See Table 3.7).

Table 3.6 Kent's Composite Scores from the KABC-II

Scale Indices	Standard Score	Confidence Interval	Percentile Rank
Sequential Processing	71	64-80	3
Simultaneous Processing	89	82-98	23
Learning Ability	94	88-100	34
Planning Ability	90	81-101	25
Mental Processing Index	83	78-88	13

Table 3.7 Kent's Composite Scores from the WIAT-II

Composites	Standard Score	Confidence Interval	Percentile Rank
Reading	66	62-70	1
Mathematics	86	82-90	18
Written Language	79	73-85	8
Oral Language	95	87-103	37
Total Composite	77	73-81	6

Kent had been in several foster care placements and had spent time in both inpatient and outpatient psychiatric facilities. He became a ward of the state due to his father's abandonment of the family and his mother's neglect and drug abuse. Kent's siblings were taken in by relatives; but due to his behavior problems his family members could not care for him, which resulted in his placement in the foster care system. Kent had a history of law breaking behaviors which included among other things grand theft

auto. He also had a history of substance abuse. On several occasions marijuana was discovered when searches of his person and room were conducted.

Jamie

Jamie a 15-year-old African American male was entering the eighth grade in Year 1. He was receiving special education services under the eligibility category of Specific Learning Disability – Reading. His reading disability was not specified in his IEP, therefore it is unknown if his initial Specific Learning Disability in reading was in the area of reading comprehension or basic reading skills. He also had a diagnosis of ODD, which was assigned to him by a psychiatrist while he was placed in an inpatient psychiatric facility. Jaime’s IQ was assessed using the KABC-II (Kaufman & Kaufman, 2004). His IQ score according to this measure was 87 (See Table 3.8). His academic achievement was assessed using the WIAT-II (See Table 3.9; Wechsler, 2001). His achievement scores were Word Reading SS = 92, Reading Comprehension SS = 89, Pseudoword Decoding SS = 86, Reading Composite SS = 86, Numerical Operations SS = 95, Math Reasoning SS = 102, Mathematics Composite SS = 97, Spelling SS = 77, Written Expression SS = 96, Written Language Composite SS = 85, Listening Comprehension SS = 101, and Oral Expression SS = 108, Oral Language Composite SS = 104. According to the scores obtained when Jamie was reassessed, there was no support for a diagnosis of Specific Learning Disability in reading as was determined by the school.

Table 3.8 Jamie's Composite Scores from the KABC-II

Scale Indices	Standard Score	Confidence Interval	Percentile Rank
Sequential Processing	80	73-89	9
Simultaneous Processing	86	79-95	18
Learning Ability	89	83-95	23
Planning Ability	105	95-115	63
Mental Processing Index	87	82-92	19

Table 3.9 Jamie's Composite Scores from the WIAT-II

Composites	Standard Score	Confidence Interval	Percentile Rank
Reading	86	83-89	18
Mathematics	97	92-102	42
Written Language	85	79-91	16
Oral Language	104	96-112	61
Total Composite	89	86-92	23

Jamie became a ward of the state when his behavior became too severe for his grandmother to manage. Jamie has been placed in several foster care settings as well as spent time in both inpatient and outpatient psychiatric facilities. Jamie was involved in law violating behaviors which included petty theft, theft, and shoplifting.

Joe

Joe was a 14-year-old African-American male who was entering the eighth grade in Year 1. He was receiving special education services under the eligibility category of Other Health Impaired – ADHD. In addition to this diagnosis he was also diagnosed with ODD and Impulse Control Disorder by a psychiatrist in an inpatient psychiatric facility. In addition, it was noted that he had anger issues. At the time of the study, he was prescribed 1½ mg of Risperdal and 1200 mg of Triletal per day. Prior to administering standardized assessments Joe’s reading fluency was assessed through curriculum based measurement. Three third grade reading probes were administered. His median score on these probes was 129 words correct per minute with 3 errors. His IQ was assessed using the KABC-II (Kaufman & Kaufman, 2004). His IQ score was determined to be 88 (See Table 3.10). His academic achievement was assessed using the WIAT-II (See Table 3.11; Wechsler, 2001). His achievement scores were Reading Composite SS = 79, Word Reading SS = 87, Reading Comprehension SS = 68, Psuedoword Decoding SS = 89, Mathematics Composite SS = 76, Numerical Operations SS = 80, Math Reasoning SS = 76, Written Language Composite 82, Spelling SS = 77, Written Expression = 90, Listening Comprehension SS = 83, Oral Expression SS = 95, and Oral Language Composite 87. Standardized assessment indicated that Joe was also eligible for special education services under the eligibility category of Specific Learning Disability – Reading Comprehension due to the 20 point discrepancy between his IQ score of 88 and his Reading Comprehension score of 68.

Table 3.10 Joe's Composite Scores from the KABC-II

Scale Indices	Standard Score	Confidence Interval	Percentile Rank
Sequential Processing	94	86-102	34
Simultaneous Processing	100	92-108	50
Learning Ability	84	79-91	14
Planning Ability	85	76-96	16
Mental Processing Index	88	83-93	21

Table 3.11 Joe's Composite Scores from the WIAT-II

Composites	Standard Score	Confidence Interval	Percentile Rank
Reading	79	76-82	8
Mathematics	76	71-81	5
Written Language	82	76-88	12
Oral Language	87	79-95	19
Total Composite	77	74-80	6

Joe became a ward of the state after his mother passed away. He was five when his mother passed away. His father does not reside in the United States of America and there were no relatives who were willing to assume responsibility for his care. Joe has lived in a several foster care homes as well as spent time in both inpatient and outpatient psychiatric facilities. Joe's law breaking behavior includes shoplifting and fleeing the scene of a crime.

Housemothers

The housemother, Ms. Jones, was the treatment implementer for Year 1. Ms. Jones is an African-American female in her mid-30s who holds a bachelor's degree in Business Technology, and had been the housemother for three years. During Year 2, Ms. Jones's mother, Ms. Smith was the treatment implementer. Ms. Smith is the Chief Executive Officer of the home and had been working with the adolescent participants for five years. Ms. Smith is an African American woman in her 50s. Ms. Jones decided to leave the group home to pursue a job at a local university and, as a result, Ms. Smith took her place as housemother.

Description of Setting

The study took place in a residential group home located in a rural area of the Southeastern United States. The home was a one-story, four bedroom house. During the summer of 2005, Year 1, the housemother, Ms. Jones, her husband, and her five-year-old son lived in the home and slept in a separate bedroom area. In the summer of 2006, Year 2, Ms. Smith, Chief Executive Officer of the home and housemother, occupied the separate bedroom.

Two adolescents were assigned per room. Their rooms were located on the opposite end of the house from the housemother's quarters. The home was different from those found in the current literature in which similar studies were conducted in that the home had fewer adolescents and was a non-institutional facility. The home was a home-like facility both in appearance and procedures.

Independent Variables

The independent variables in this study are the interventions JCG and JCG with a token economy. In single subject research design, independent variables are the “environmental change” variables that one introduced into the environment or the intervention (Dattilo, Gast, Loy, & Malley, 2000). The following paragraphs will describe the independent variables, JCG and token economy separately. In the second phase of this study, JCG and token economy were utilized as a package intervention; however, all of the components of each intervention were maintained. This resulted in the two interventions being implemented simultaneously and in their entirety during the B+C phase.

JCG is an intervention that seeks to change the behavior of an adolescent through cognitive-behavioral techniques. When JCG was used and a rule was violated, the adolescent was required to draw a job card at random and remain grounded from all activities except school until the job was completed to the specifications listed on the card. Each job card should have taken 10 to 15 minutes to complete. The behavioral component of JCG uses contingency management and provides clear rules, expectations, rewards, and consequences. The cognitive component teaches adolescents to analyze the antecedent-behavior-consequence chain so that in the future the adolescent will learn to recognize that they are about to engage in an inappropriate behavior, consider the consequences, and then choose either to engage or not engage in the behavior (Larson, Calamari et al., 1998; Sayger et al., 1991).

Token Economy is operated through conditioning an individual to work to obtain reinforcement for appropriate or improved behavior (Maag, 2004). For example, a token

may be stickers, tic marks, play money, slips of paper, poker chips, or any number of tangible items which can be exchanged for backup reinforcers. None of the items utilized as tokens are inherently reinforcing. In fact, if a child was offered slips of paper for appropriate behavior, the slips of paper most likely would not decrease his or her problematic behavior unless the child found slips of paper particularly reinforcing. In a token economy the tokens, slips of paper, or whatever may be used are later exchanged for more reinforcing items such as, preferred activities, food, or a tangible item such a toy or stickers.

Primary reinforcers are tangible items or activities that are inherently desirable (Maag, 2004). The most basic primary reinforcers include items that we cannot live without such as, food, water, and shelter. The tokens used in token economies are secondary reinforcers because they are not inherently reinforcing but are reinforcing due to the individual's ability to exchange the tokens for backup reinforcers. Backup reinforcers are items and/or activities that can be purchased using the secondary or conditioned reinforcers, tokens. For example, a child probably would not find a page with tic marks inherently reinforcing however if the tic marks can be exchanged for preferred backup reinforcers then the tic marks become reinforcing and thus they also become conditioned or secondary reinforcers.

The most powerful backup reinforcer is a generalized conditioned reinforcer. A generalized conditioned reinforcer can be exchanged for "a virtually limitless number of items or activities" (Maag, 2004, p. 239). A real world example of a generalized backup reinforcer is money as it can be used to purchase an almost limitless array of items and activities. Maag pointed out that if money could only be exchanged for socks then people

would probably not work nearly as hard to obtain vast amounts of money. The best case scenario for a token economy would be to have the tokens become generalized conditioned reinforcers. However, this is not a feasible goal due to the cost of providing such limitless possibilities. Therefore, the most efficient and effective way to create an optimal degree of effect while running the intervention in a cost effective manner is to create a store or reinforcement box stocked with backup reinforcers that are individualized to reflect the preferences of the intervention's target group.

In addition, the form of the tokens used in token economies must be individualized to the intervention's target group (Maag, 2004). In this study, a preference assessment was conducted with the adolescents to determine which items and/or activities they would like to have the option to purchase with their tokens. The preference assessment was conducted face-to-face as investigators took each of the adolescents aside and compiled lists of preferred items and activities for the home's store. The adolescents were able to earn one token per day if a job card had not been received. Tokens could be cashed in once a week for prizes which varied in price from one to seven tokens. This allowed the adolescents to have the ability to purchase any item in the store if a token was obtained each day of the week.

Token economies have been used in various settings from the classroom, psychiatric facilities, to the penal system and across a wide range of ages from preschool aged children to adults (Boniecki & Moore, 2003; Field et al., 2004; Filcheck et al., 2004; Foxx, 1998; LePage, 1999; LePage et al., 2003; Moore et al., 2001; Novak & Hammond, 1983; Reitman et al., 2004; Rice et al., 1990; Scallion et al., 1976; Truchlicka et al., 1998). Token economies have also been found to be effective for individuals with a

variety of disabilities and psychiatric diagnoses (Bennett et al., 1989; Dickerson et al., 2005; Eisolowski & Zencius, 1992; Klimas & McLaughlin, 2007; Matson & Boisjoli, 2009; Tarbox et al., 2006).

Dependent Variable

The dependent variable in single subject research designs are the behavior(s) targeted for change (Alberto & Troutman, 2006). The dependent variable in this study was the number of rules broken by the adolescents. The rules were developed by the investigators and the housemothers. There was a slight variation in the rules developed in the summer of 2005 from the rules developed in the summer of 2006 (See Table 3.12 and Table 3.13). Additionally, a list of all the requirements of a clean room was posted on the inside of each of the adolescents' rooms during both years (See Table 3.14).

Table 3.12 House Rules Year 1

1. Use appropriate language.
 2. Keep horseplay and tussling outside of the house.
 3. Do what adults say.
 4. Lights out at 10 pm.
 5. Keep your room clean.
 6. Keep food and drinks out of the bedrooms.
-

Table 3.13 House Rules Year 2

1. Use appropriate language.
 2. Keep horseplay and tussling outside of the house.
 3. Do what adults say.
 4. Take a bath by 9:30.
 5. Keep your room clean.
 6. Lights out by 10:00 on Sunday and weekdays and by 12:00 on Friday and Saturday nights.
 7. Keep opened food or drinks out of the bedrooms.
-

Table 3.14 Clean Room Guidelines Year 1 and 2

1. Clothing placed in drawers or hanging in the closet.
 2. Shoes in the closet.
 3. Nothing under the bed.
 4. Room vacuumed or swept.
 5. Keep food and drinks out of the bedrooms.
-

Note: There was a slight change to rule number 5 in the summer of 2006. The word opened was inserted before food. Resulting in a rule which read “Keep opened food and drinks out of the bedrooms.”

Description of Design

The current study used an experimental ABB+CA design. The reason JCG was implemented was to help provide a reliable, predictable, and stable environment for the adolescents. The intentional removal of JCG could create dysfunction in the home,

therefore, an ABB+C design rather than ABAB was considered more appropriate for this particular study. The investigators felt that removing the intervention, solely for research purposes was unethical for this population. However, the housemother withdrew treatment in Year 1 when school started, resulting in a natural withdrawal adding a withdrawal phase, A, in Year 1. The withdrawal of treatment resulted in a return of undesirable behaviors. In Year 2, an AB design was utilized. Once again the researchers felt that withdrawing treatment simply for research purposes would be unethical. The data from Year 1 showed a return of problematic behaviors once treatment was removed. The reoccurrence of problematic behavior motivated the housemother to leave the treatment in place in Year 2 resulting in an AB design for Year 2.

An interdependent or dependent group contingency was not used for this study as the very small sample size and the close quarters of the adolescents made maintaining anonymity extremely difficult. Additionally, should an adolescent cause the group to lose their reinforcement they would most likely have been targeted for mistreatment by the rest of the group. Despite these issues, group contingencies have consistently been proven to decrease problem behavior individually, classroom-wide, school-wide, and with varied populations such as, normal functioning children, children with mental retardation, and children with Serious Emotional Disturbance.

Description of Procedures

Year 1

In Year 1, three investigators began work at the home as part of an internship offered through a major university. During the first meeting with the housemother, the

behavioral concerns of the housemother and the adolescents were discussed. At the time, the housemother was using an arbitrary discipline system, in which a violation of a house rule resulted in a variety of punishments (i.e., grounding, chores, and loss of allowance) which lasted for varying durations depending on “the mood” of the housemother and the response/behavior of the offending adolescent. For example, one adolescent may be grounded for a week for “talking back” to Ms. Jones while another adolescent may only be grounded for a few hours for the same offense. Ms. Jones stated she was interested in having a more consistent form of discipline for the adolescents in her care. The investigators suggested JCG because of its predictability, consistency, ease of use, and recommended use with adolescents. They also suggested that a reinforcement component, token economy, be used in addition to the JCG to reinforce appropriate behavior.

After the housemother agreed to try JCG with a token economy, the investigators and housemother adapted the current house rules. Twenty jobs which took approximately 15 minutes to complete were also developed and written on 3 by 5 inch note cards (See Table 3.15). The name of the job and a detailed description of correct completion of the job were outlined on each card. The list of house rules was reduced to six and the rules were restated to reflect more positive language, such that the rules told the adolescents what to do, rather than what not to do (See Table 3.12 & 3.13). The house rules were posted in the public living area and on the back of the adolescents’ rooms’ doors. Ms. Jones had specific concerns regarding the upkeep of the adolescents’ rooms consequently a separate set of rules was developed to outline what constitutes a clean room (See Table 3.14).

Using a chart created by the investigators, Ms. Jones kept 12 days of baseline data for all adolescents except Curt who arrived in the home after collection of baseline data had begun (See Appendix A). Ms. Jones collected seven days of baseline data for Curt because he did not reside in the home for the first five days of baseline collection. The baseline data were used to demonstrate which adolescent broke which rule and how often the rules were broken. Ms. Jones did not tell the adolescents that they were being monitored and used her normal punishment methods during collection of baseline data.

After 12 days of baseline data collection, the investigators examined the data for changes in level, trend, and variability. Determining that the baseline data was sufficient to proceed to the treatment phase of the intervention, the investigators met with the five adolescents and explained JCG. The rules were explained during this meeting and any questions regarding the rules were addressed. For example, the adolescents wished to discuss the rule, "Use appropriate language," so the investigators explained in detail what constituted appropriate and inappropriate language. This was done by verbally listing which words would result in the adolescent being required to pull a job card. The adolescents questioned the investigators about additional words and most of the words offered by the adolescents were added to the list (i.e., stupid, piss, sucks, and dumb). The job cards themselves were also explained in detail. The investigators thoroughly went over the requirements for correct completion of a job and the minimum performance of a job that would be acceptable for an adolescent to be released from grounding. The procedures for administering a job card were explained and modeled. The adolescents then participated in role play activities that focused on accepting a job card and proper completion of the job. The investigators quizzed the boys verbally to assure that they

understood the process. Data were collected for 9 days during the B phase, 13 days during the B+C phase, and 14 days during the A phase or natural withdrawal phase.

Table 3.15 List of Jobs and Description of Satisfactory Completion of Jobs Included on the Job Cards

-
- COBWEBS
 - Remove all cobwebs in the dining room.
 - Remove all cobwebs from the living room.
 - CLEAN PATIO
 - Sweep patio.
 - Pick up all garbage from around the patio.
 - CLEAN KITCHEN
 - Empty food into the trash.
 - Wash the plates, cups, and utensils.
 - Wash pots and pans.
 - Clean microwave.
 - Wipe down the counters.
 - Put up the dishes.
 - WASH WINDOWS
 - Wash all the windows on the outside of the house.
 - WASH WINDOWS
 - Wash all of the windows on the inside of the house.
 - MOW YARD
 - Mow the ditch.
 - MOW YARD
 - Mow the left side of the yard.
 - DUST
 - Dust the windowsills.
 - Dust the dressers.
 - Dust the table.
 - VACUUM
 - Vacuum the living room.
 - Vacuum the bedrooms.
 - MOP
 - Mop the kitchen.
 - Mop the bathroom.
 - CLEAN WINDOWSILLS
 - Use Windex to clean all the windowsills in the living room.
 - Use Windex to clean all the windowsills in the bedrooms.

Table 3.15 (cont.)

-
- VAN
 - Sweep the inside of the van.
 - Clean footsteps.
 - Clean paneling and dash boards.
 - VAN
 - Wash the outside of the van until there are no streaks.
 - BASEBOARDS
 - Clean baseboards with dust polish in the dining room.
 - BASEBOARDS
 - Clean baseboards with dust polish in the living room.
 - PICK UP TRASH
 - Pick up all the trash from home to the cross roads on one side of the road.
 - BATHROOM
 - Use cleanser to clean out the tub.
 - Clean the toilet.
 - Clean toilet base.
 - Clean sink.
 - RAKE YARD
 - Area in front under the pine trees.
 - Until all the pine needles and pine cones are put on the burn pile.
-

Implementing Job Card Grounding

The steps for implementing JCG are as follows. Upon breaking one of the house rules, an adolescent was initially warned by a staff member that he is in violation of a rule. For example, if an adolescent were up past bedtime, the staff member may say, “John the rule is that bedtime is 10:00 p.m. If you do not go to bed you will receive a job card.” If John did not comply, the staff member would issue him a job card. A job card was issued by taking the deck of job cards and fanning them out face down in front of the adolescent. The adolescent drew a job card. A chart was created that had note card sized pockets with each residents’ name on a pocket. When an adolescent received a job card, it was placed in his pocket. He was grounded until the job was completed to the

specifications on the card and a staff member had checked his work. After checking his work and determining that the job had been completed, the staff member socially reinforced the adolescent by praising him for completing the task and removed the job card from his pocket. The adolescent was then released from grounding. Additional job cards could be issued if the adolescent argued excessively about receiving a job card; however, an adolescent could have no more than three job cards in his pocket at one time. Every time a staff member issued a job card he or she filled out an incident report and placed it in the adolescent's file and place a tic mark on the data collection sheet in the appropriate box (See Appendix A). A brief description of the steps for administering a job card was placed in a three ring binder which held the data collection sheets and incident reports (See Table 3.16).

Table 3.16

Table 3.16 Staff Implementation Instructions for JCG

Job Card Grounding	
Instructions	<ol style="list-style-type: none"> 1. Rule is broken. 2. Warning is issued "If you do not . . ." then you will receive a job card. 3. Wait 10 seconds for compliance. 4. If adolescent does not comply then issue job card. 5. The adolescent remains grounded until the job is completed appropriately (instructions for proper completion of the job are on the card).
Severe Behavior (such as fighting)	<ol style="list-style-type: none"> 1. Report all severe behavior to the housemother, and/or the Executive Director. 2. An adolescent can be issued more than one job card for severe inappropriate behaviors such as fighting. 3. An adolescent can never be issued more than three job cards at a time. 4. An adolescent cannot have more than three job cards at a time.

Objectives of Job Card Grounding

The objectives of job card grounding were as follows:

- Maintain a stable, consistent, and predictable environment.
- Teach the adolescents to manage their own behavior.
- Reduce the escape/avoidance component of discipline (reduces the arguing or discussion of a fair punishment as a way to escape or avoid the impending discipline).
- Place the power of choice in the adolescents' hands.
- Teach the adolescents responsibility for their actions.
- Provide opportunities for positive reinforcement.
- Help the adolescents develop self-control, motivation, and self-acceptance.

Just prior to implementing the token economy a house meeting was called and the adolescents were asked to list items and activities they would like to earn. An extensive list was compiled. The investigators reviewed the list and removed all items that were unobtainable such as new cars and computers.

Year 2

In Year 2, Ms. Smith used a similar data collection sheet to collect six days of baseline data (See Appendix B). After collecting baseline, the investigators met with Ms. Smith and the adolescents to re-introduce JCG, the token economy, and the new rules that Ms. Smith and the investigators developed together. Ms. Smith wished to rework some of the rules so a new list of rules was developed and again posted in public areas and on the

back of each of the adolescents' bedroom doors. Data was collected for the package intervention of JCG and a token economy for 77 days.

Description of Job Card Grounding Year 1 and Year 2

The basic concept of JCG is as follows: when an adolescent broke a house rule, he pulled a job card. The job cards consisted of various chores that the boys did not like to do such as raking the yard, cleaning the baseboards, washing the windows, cleaning the bathroom. A poster was created which had six pockets. Each adolescent had a pocket with his name on it and one pocket was used to hold the job cards. When an adolescent was required to pull a job card, he placed the card in his pocket and remained grounded until he correctly completed the job described on his card. Upon successful completion of the job, the card was removed from the adolescent's pocket and he was no longer grounded.

Grounding entailed loss of all privileges, confinement to the house, and prevention from engaging in all activities except school. The investigators emphasized that the adolescents held the power for their length of grounding. An adolescent could be grounded for only 10-15 minutes if he completes the chore in that amount of time, or he could remain grounded indefinitely should he decide not to complete the chore. It was believed that highlighting the adolescents' power of choice was an effective way to "sell" the intervention, as the adolescents had not previously had any control over their length of their punishment for rule breaking behavior.

Next, all of the adolescents and the investigators discussed approximately 20 jobs, outside of the adolescents' regular chores, that could be used for job cards. The number of job cards was chosen because there should have been enough cards for every

adolescent to have the maximum number of three job cards. If an adolescent had job cards and refused to do the jobs, then the treatment implementer continued the grounding until the adolescent completed the jobs. Although this required a lot of time, as long as the treatment implementer was firm with the grounding, the adolescent typically completed the job within a few days, or sooner as he continued to miss preferred activities. The longest an adolescent remained grounded in this study was seven days.

The job names and steps for satisfactory completion of the job were recorded on one side of the card the other side remained blank so that the cards could be fanned out for the adolescent to choose a job card without the adolescent being able to choose what job he would be required to complete. This was necessary because the adolescents disliked some of the jobs more than other jobs. For example, all of the adolescents felt that cleaning the bathroom was the worst job card. Each job listed on a card was designed to take 10-15 minutes to complete and all necessary materials were available to complete the job (Eaves et al., 2005). The duration of the jobs on the job cards were designed to be short enough so that the adolescent did not feel overwhelmed and powerless, but long enough to be considered an annoyance or hassle so as to be a deterrent to inappropriate behavior.

Next, the adolescents, Ms. Jones, and the investigators decided what constituted grounding. Grounding included no access to: television, telephones (including cell phones), electronic gaming material, junk food and activities the boys enjoyed, such as sport practice, dating, skating, swimming, computers, friends visiting, or anything else considered reinforcing for the adolescents. The grounding did not end for dances, basketball games, or other previously scheduled activities. The only activity in which a

grounded adolescent was allowed to engage was school. House rules were then discussed with the adolescents. The discussion included examples of rule-breaking behavior and alternatives. For example, eating in the bedroom was breaking a rule, but eating in the kitchen or at the table was acceptable.

Finally, in Year 1, the housemother and the investigators modeled and role-played what would happen if a house rule was broken and an adolescent was given a job card. After the role-play, two of the adolescents role-played with each other and received feedback from the other adolescents and adults. In Year 2, the investigators did not use modeling and role playing to explain JCG because the adolescents were already very familiar with the system. However, the investigators verbally reviewed the rules, definition of inappropriate words, and the procedures of JCG and the token economy. The charts were also reintroduced to the adolescents and placed on the wall in the living room.

Ms. Jones and Ms. Smith were given a month's worth of the same data collection sheets used in baseline and asked to record a tic mark when a rule was broken and a job card issued. The investigators checked in five times a week to monitor progress.

Description of Token Economy Year 1 and Year 2

In Year 1, a token economy reward system was added to the JCG intervention. In Year 2, the token economy and JCG treatments were implemented together without implementing JCG alone.

Along with the response-cost based JCG, a token economy was put in place in the home. For each day that an adolescent did not receive a job card, he received one token. Public posting was utilized to provide the adolescents with feedback and reinforcement

for good behavior (Jenson, Rhode, & Reavis, 1994). A chart was placed in the living room which had seven colored squares arranged vertically on a poster board. There were six rows of squares and each square was a different color. Each adolescent was assigned a color, and a Velcro strip was affixed to each of the squares. The bottom square served as a starting point. For each day an adolescent did not receive a job card, his name tag was moved up one square. At the end of the week, each adolescent was given a token for each square he had moved up with a total of seven squares available. The tokens could be cashed in on Saturday for prizes.

In order to supply the token economy with rewards, the investigators collected items donated by various local businesses. Rewards included: key chains, t-shirts, gift certificates, coupons, and snack foods. The rewards were assigned a point value ranging from 1 to 7 points. If an adolescent went a day without receiving a job card, he received a point. A chart was designed and placed on the wall in the living room to provide a visual reminder of how many points each adolescent earned. No points were taken away for earning a job card; however, the adolescent did not receive a point for that day. Every Saturday the adolescents could either cash in their points for a reward, or they could save them for a larger purchase. Again, Ms. Jones and Ms. Smith used the data sheets from baseline and phase B to collect their data.

Procedures Year 2

In Year 2, the same procedure was utilized with a new housemother. Resulting in a replication of the study conducted in Year 1 with a different change agent. A meeting was held with the new housemother to explain the JCG and token economy procedures and the data collection form to answer questions regarding the behavior package, and to

address the housemother's concerns and proposed changes to the system. During this meeting, the JCG and token economy procedures were modeled by the investigators and Ms. Smith as they role played the administration of a job card to a specific criteria. Ms. Smith, the adolescents, and investigators met to discuss the rules and re-explain JCG. During this meeting the investigators went over the JCG and token economy procedures, the rules, and thoroughly discussed what constitutes inappropriate language. The same adolescents were in the home in the second year as in the first, so it was not difficult to re-implement the procedure. In Year 2, the rules were posted in common areas and on the inside of each of the bedrooms. The clean room rules were posted on each of the bedroom doors and were also explained to the adolescents. After JCG and the token economy were presented to the adolescents in Year 2, the investigators verbally quizzed them to assure that they understood the rules and consequences of inappropriate behavior just as they had in the first year.

Data Analysis

Clinical significance was assessed using methods of traditional single subject research design. The data was assessed for changes in means, level, trend, variability, and latency through visual inspection (Kazdin, 1982). The criteria used to assess stability was, 80%-90% of the data points should fall within a 15% range of the phase mean (Tawney & Gast, 1984). The interventions which were implemented in year 1 were replicated with the same adolescents in year 2. Additionally, therapeutic criteria, was used to assess the effectiveness of the intervention. Therapeutic criteria, assesses the extent to which an intervention has applied or clinical significance (Kazdin). In other words, would the intervention be practical in real world situations? Treatment

acceptability was also assessed through interviews with the adolescent participants and the housemothers.

CHAPTER 4

RESULTS

The purpose of the current study was to examine the effectiveness of JCG alone and a behavior package which incorporated JCG and a token economy with five adolescent males who resided in a residential group home. Clinical significance was assessed using methods of traditional single subject research design. The data were assessed for changes in mean, level, trend, variability, and latency through visual inspection (Kazdin, 1982). The criteria used to assess stability traditionally, is 80%-90% of the data points within a 15% range of the phase mean (Tawney & Gast, 1984). The data illustrated on all graphs did not have adequate stability according to the criteria set by Tawney and Gast for all graphs. The stability percentages ranged from 42% to 100% of the data points within the 15% range. However, variability during baseline phases can often be the result of extraneous variables. Additionally, one of the goals of these interventions was to stabilize the behavior of the participants. Examination of the participants' baseline phases, intervention phases, and withdrawal phases indicated that the interventions served to stabilize the behavior of the participants. One of the participants, Jay, maintained appropriate behavior throughout all phases of the study. Thus, his graphs were used as a model of appropriate behavior. Through social comparison, it was determined that the behavior of all the participants in this study improved to reflect the behavior of their peer, Jay, who was displaying appropriate

behavior before the intervention(s) were put into place. This lends further evidence to the effectiveness of the intervention(s) explored in this study. Visual inspection of the graphs suggested that both JCG alone and the combination of JCG and a token economy were effective in reducing the rule violating behavior of the participants in this study.

Additionally, the interventions that were implemented in Year 1 were replicated with the same adolescents in Year 2. The successful replication of the interventions further supports their effectiveness. Additionally, therapeutic criteria were used to assess the effectiveness of the interventions. Therapeutic criteria, assesses whether or not an intervention has applied or clinical significance (Kazdin, 1982). The interventions in this study were determined to have therapeutic significance by the investigators, adolescents, and the housemothers. Therapeutic criteria, was assessed through measures of treatment acceptability.

Treatment acceptability was assessed via anecdotal evidence through conversations with the adolescents and the housemothers. In addition to verbal reports, the acceptability and effectiveness of the intervention was monitored by the investigators five days per week throughout the study. The acceptability of the intervention was also assessed by the Department of Mental Health. The consensus of the adolescents was that the intervention resulted in punishments that were “more fair” than before the intervention. The housemothers stated that the intervention allowed them to discipline the adolescents in a more consistent and effective manner. The housemothers also felt that the adolescents complained less and did not try to “bargain” their way into a lesser punishment when the interventions were in place. These interventions were used as a key piece in obtaining therapeutic group home status through the Department of Mental

Health. As a result of these interventions, the home in this study obtained therapeutic group home status and upon obtaining this status was the only such facility in the state to hold this title. Due to the individual nature of each of the adolescents' responses to the interventions their data is presented individually.

Individual Participant's Results

Jay

Jay's behavior was appropriate prior to the implementation of the interventions. His graphs will be used as a model of appropriate behavior (See Figures 4.1 and 4.2). In Year 1 all (100%) of Jay's data points fell within a 15% range of the phase mean. Additionally, his mean across all phases was 0 indicating that he displayed appropriate behavior across all conditions. In Year 2, most (86%) of his data points fell within a 15% range of the phase mean. In Year 2, Jay's mean for the baseline phase was .17 and his intervention phase mean was 0. Additionally, Jay's data met the 80% or greater stability criteria both years. Jay's behavior was also appropriate both years and his data was used as a measure of social comparison for the other participants.

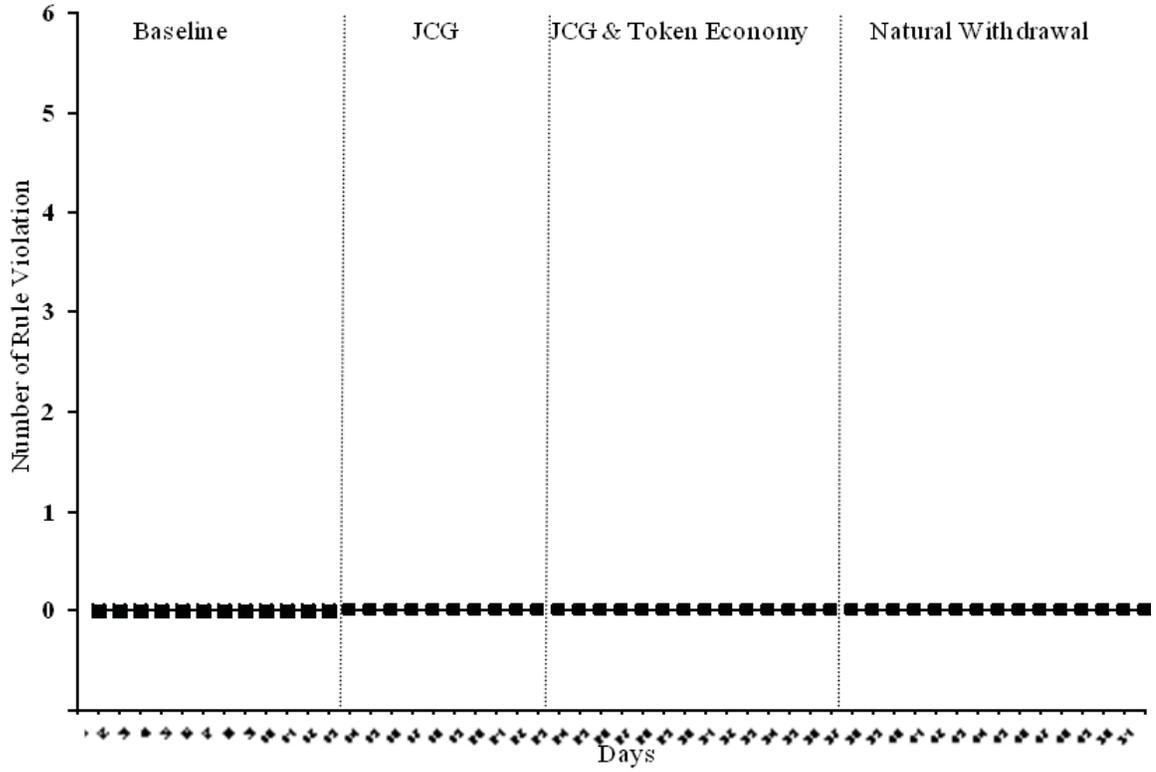


Figure 4.1 Jay Year 1

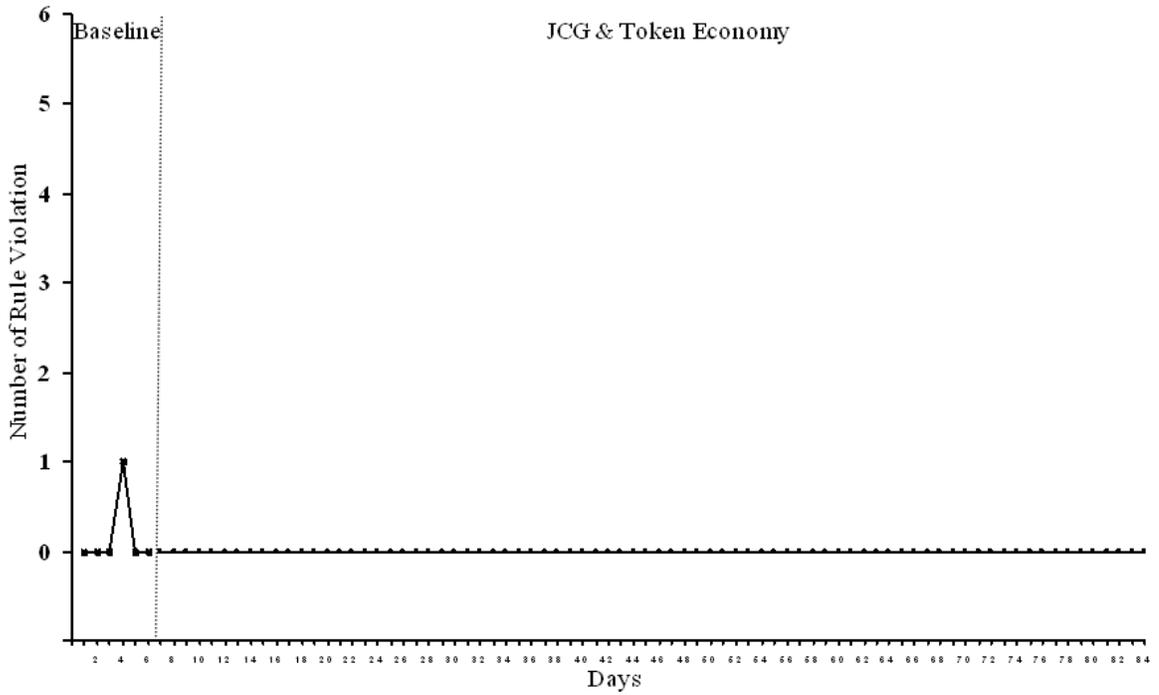


Figure 4.2 Jay Year 2

Curt

Visual inspection of Curt's graphs from Year 1 and Year 2 revealed, that the interventions stabilized Curt's rule violations (See Figure 4.3 and 4.4). When Curt's intervention phases are compared to Jay's graph they are practically identical. In Year 1, most (71%) of Curt's data points fell within a 15% range of the phase mean. In Year 2, most (86%) of Curt's data points fell within a 15% range of the phase mean. Curt's data met the stability criteria in Year 2, but did not meet criteria in Year 1. An inspection of the phase means in Year 1 revealed a mean of .25 during the baseline phase, mean of 0 during the JCG phase, mean of .07 during the JCG plus token economy phase, and a mean of 0 during the withdrawal phase. In Year 2 an inspection of Curt's phase means revealed a baseline phase mean of .33 and a JCG plus token economy phase mean of 0. It is also important to note that Curt had no rule violations for all 78 days of the JCG and token economy phase during Year 2.

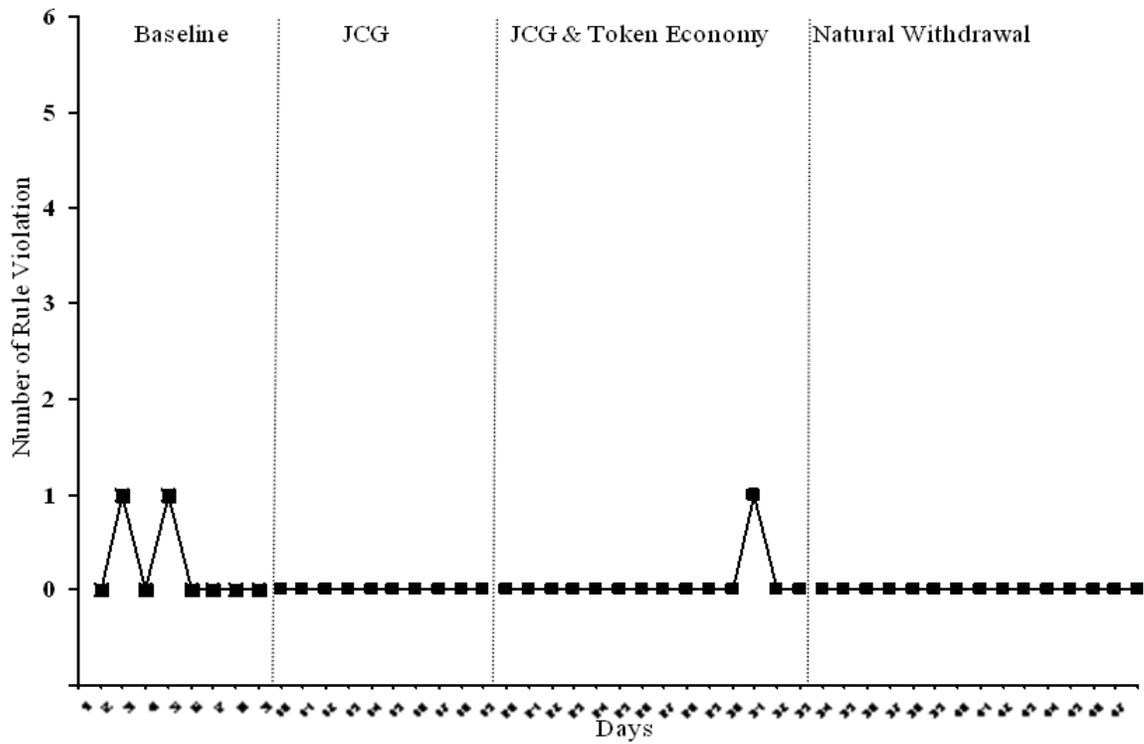


Figure 4.3 Curt Year 1

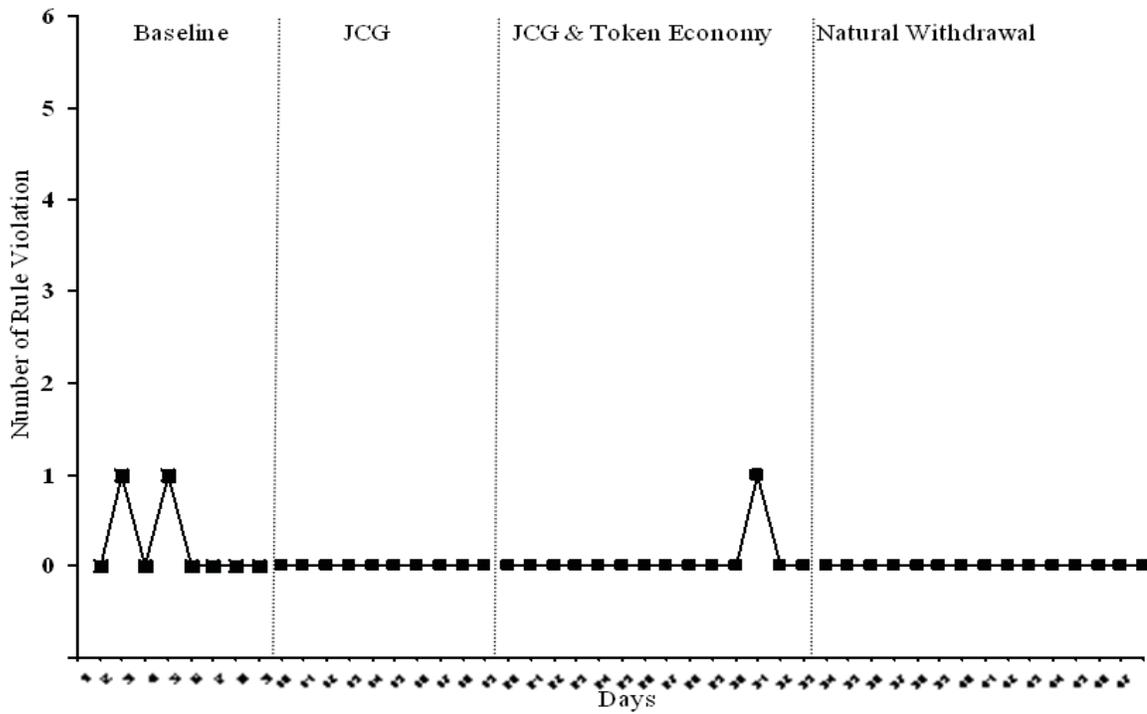


Figure 4.4 Curt Year 2

Kent

Visual inspection of Kent's graphs reveal, that the interventions were effective in reducing his number of rule violations (See Figure 4.5 and 4.6). Additional evidence for the effectiveness of the interventions is the increase in rule violations in Year 1 when treatment was withdrawn. Additional, support for the effectiveness of the intervention package of JCG and token economy is evident through visual inspection of the graph for Year 2, which shows that after the intervention was implemented Kent's rule violations dropped to 0 and remained at 0 for the next 69 days. In Year 1, most (75%) of Kent's data points fell within a 15% range of the phase mean. In Year 2, most (71%) of Kent's data points fell within a 15% range of the phase mean. Although, Kent's data did not meet the stability criteria either year the intervention stabilized his behavior reducing his incidents of rule violating behavior. An evaluation of Kent's phase means revealed that in Year 1 Kent's baseline mean was .25, his JCG mean was .11, his JCG plus token economy phase mean was 0, and his withdrawal phase mean was .14. In Year 2, his baseline phase mean was .5 and his JCG plus token economy phase mean was .04.

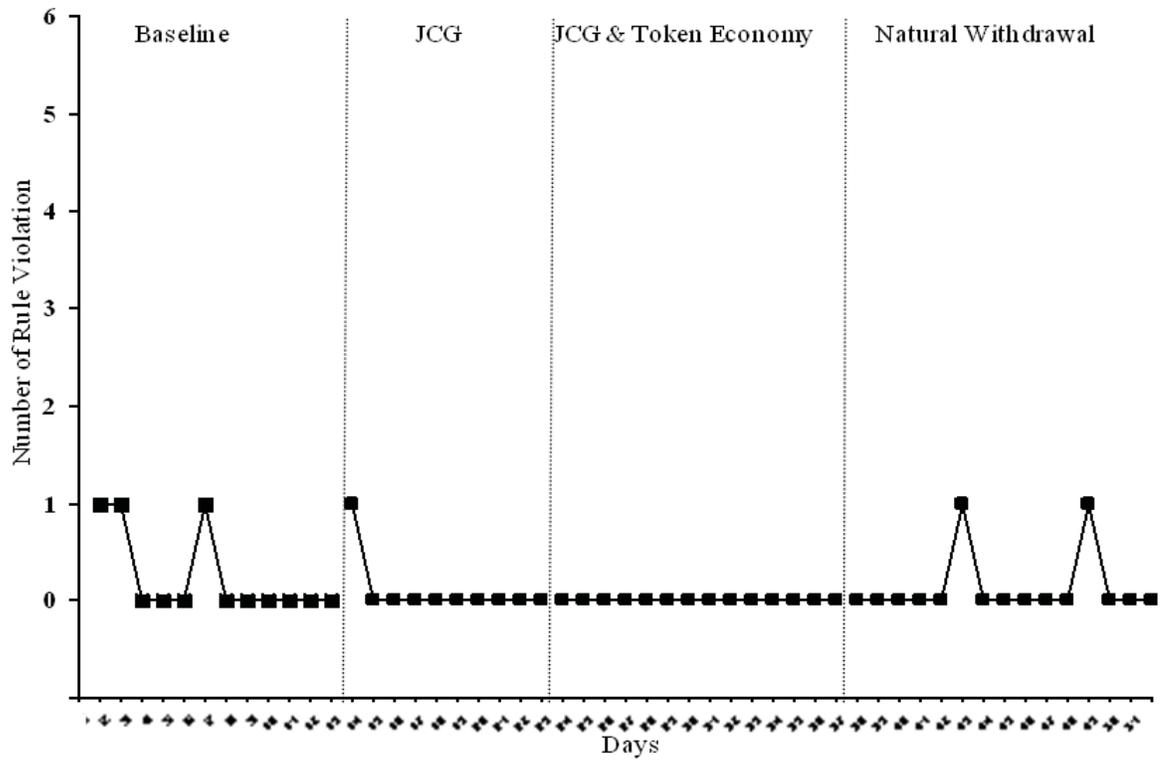


Figure 4.5 Kent Year 1

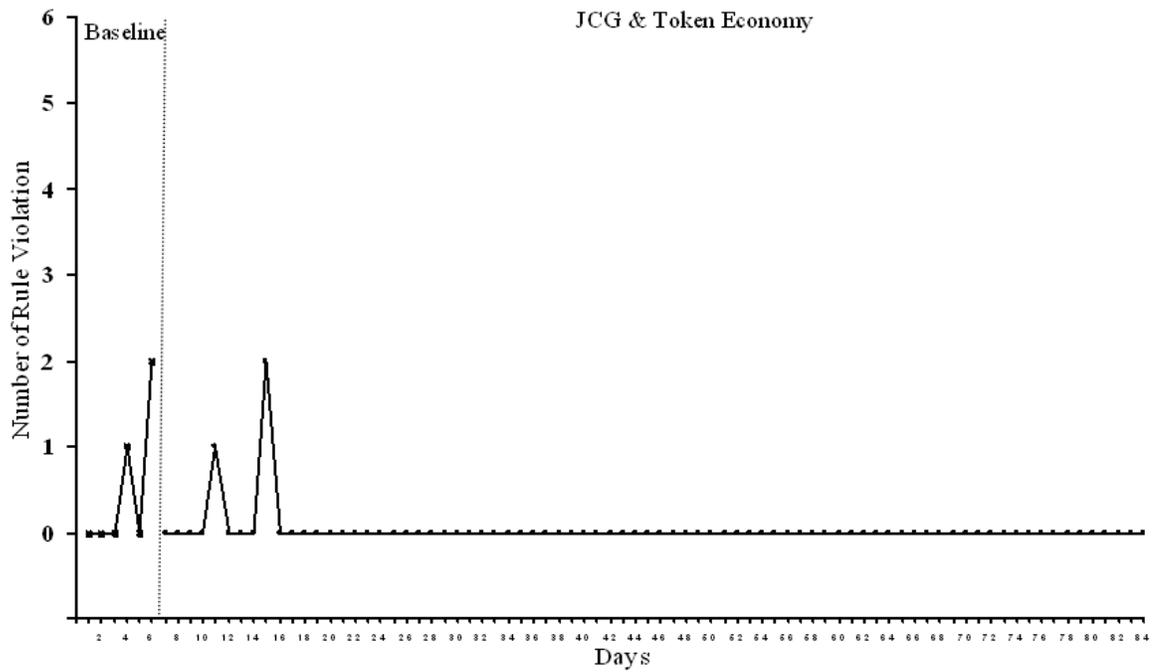


Figure 4.6 Kent Year 2

Jamie

Visual inspection of Jamie's graphs, reveal that the intervention decreased his number of rule violations (See Figure 4.7 and 4.8). This is particularly apparent in the graph of Year 2. In Year 1, most (91%) of Jamie's data points fell within a 15% range of the phase mean. In Year 2, almost half (42%) of his data points fell within a 15% range of the phase mean. Jamie's data met the 80% criteria for stability in Year 1. Although, he did not meet criteria in Year 2 after implementation of the intervention there was a reduction in his rule violating behavior, with 78 consecutive days of 0 rule violations. An examination of Jamie's phase means revealed that in Year 1 his baseline phase mean was .08, JCG phase mean was .20, JCG plus token economy phase mean was 0, and his withdrawal phase mean was 0. In Year 2 Jamie's baseline mean was 1 and his JCG plus token economy phase mean was 0.

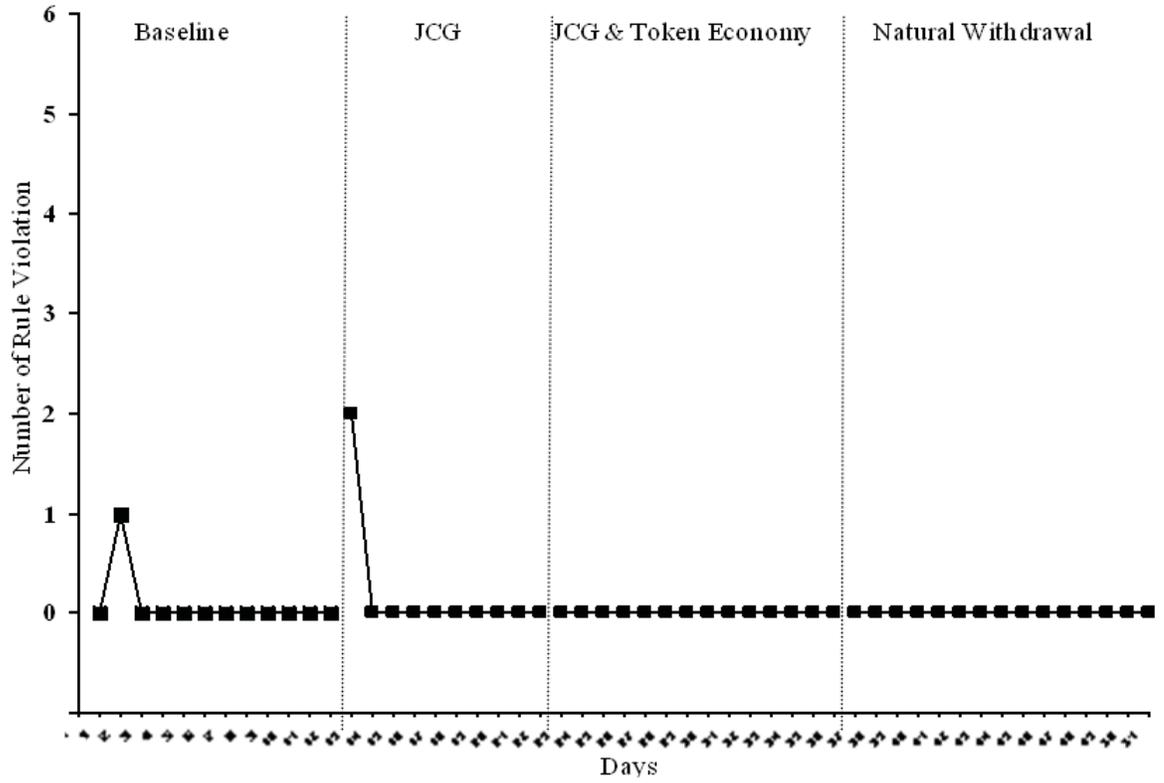


Figure 4.7 Jamie Year 1

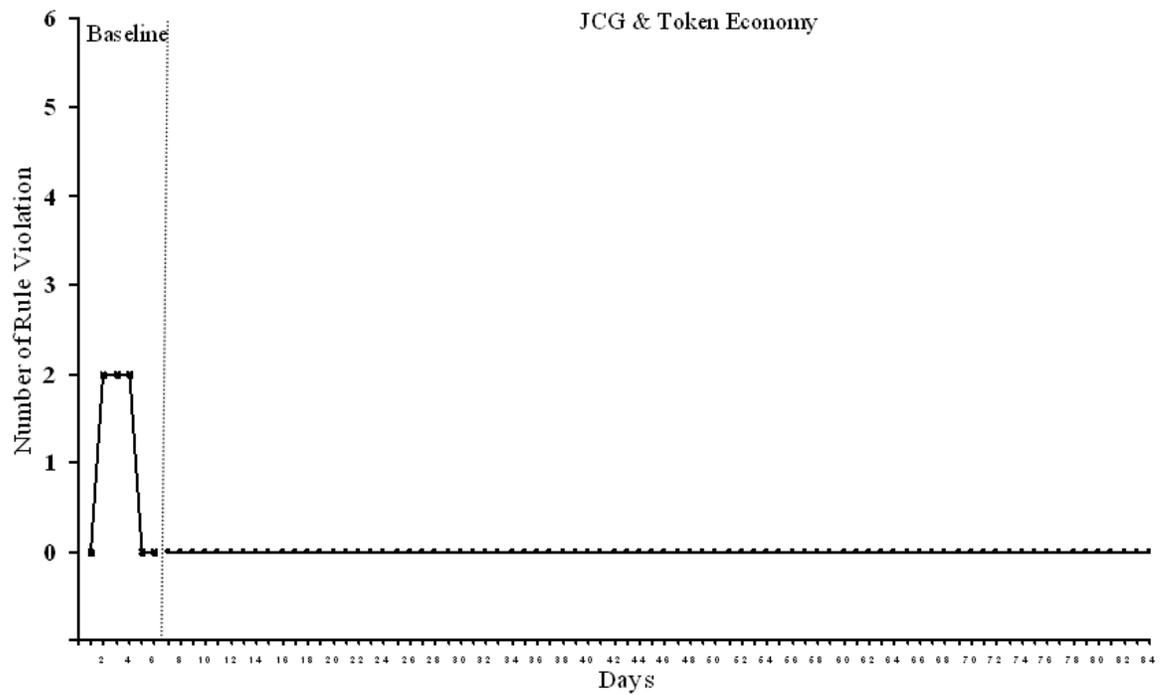


Figure 4.8 Jamie Year 2

Joe

Visual inspection of Joe's graphs revealed the most dramatic changes in behavior of the participants (See Figure 4.9 and 4.10). For Joe, the combination of JCG and token economy was the most effective. This intervention resulted in fewer rules violated and also stabilized Joe's behavior. An examination of the phase means in Year 1 showed that Joe's baseline phase mean was 1.08, his JCG phase mean was .20, his JCG plus token economy was 0, and his withdrawal phase mean was .27. Additional supporting evidence for the effectiveness of JCG plus token economy can be found by examining Joe's phase means in Year 2. In Year 2 Joe's baseline phase mean was 2.33 upon implementation of JCG plus token economy in Year 2 his phase mean dropped to .03. Further evidence for the effectiveness of the intervention can be seen in the return of rule violating behavior during the withdrawal phase. During Year 1, most (66%) of Joe's data points fell within a 15% range of the phase mean. In Year 2, most (71%) of Joe's data points fell within a 15% range of the phase mean. Although, Joe's data did not meet the criteria for stability either year the interventions stabilized his behavior resulting in a reduction in rule violations.

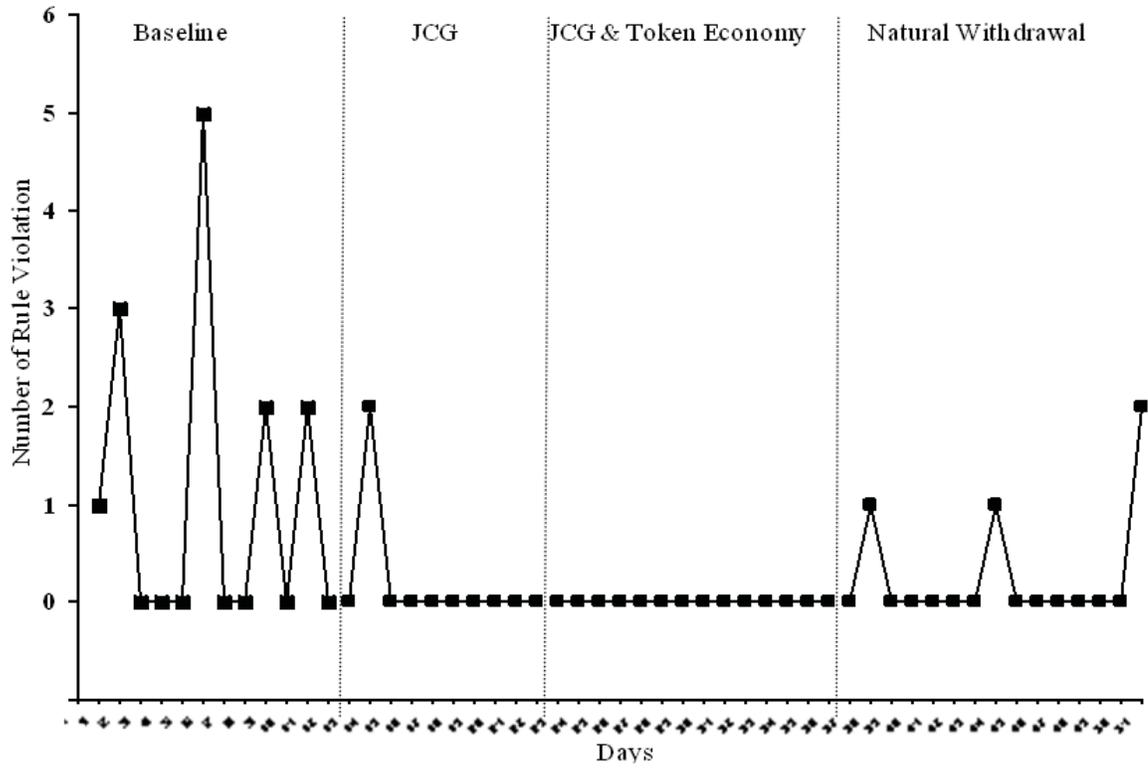


Figure 4.9 Joe Year 1

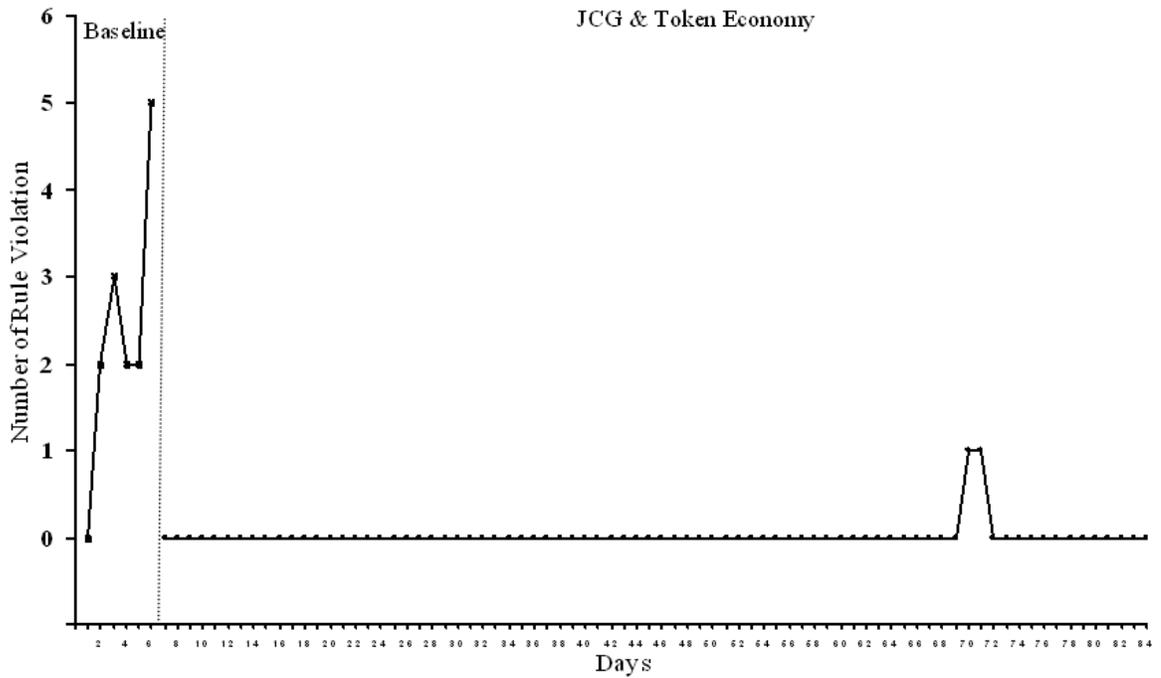


Figure 4.10 Joe Year 2

Research Questions

Three research questions were posed at the beginning of this manuscript and were designed to evaluate the effectiveness of JCG alone and JCG implemented simultaneously with a token economy as a package intervention. The results for each question will be addressed below.

Year 1

Research Question 1: Will there be a difference in the number of rules broken by the adolescents in the JCG phase when compared to the baseline phase?

It was hypothesized in earlier in this manuscript that there would be a difference in the number of rules violated during the baseline phase and the JCG phase. An examination of the baseline and JCG phase means revealed that there was a reduction in the number of rule violations for most participants after the implementation of JCG in Year 1 (See Table 4.1). Jay's baseline mean was 0, and his JCG mean was 0. Curt's baseline mean was .25, his JCG phase mean was 0. Kent's baseline mean was .25, and his JCG phase mean was .11. Jamie's baseline mean was .08 and his JCG mean was .20. Joe's baseline mean was 1.08, and his JCG mean was .20.

Table 4.1 Participant Phase Means Year 1 for Baseline and JCG Phases

Participant	Baseline Phase Mean	JCG Phase Mean	Withdrawal Phase Mean
Jay	.00	.00	.00
Curt	.25	.00	.00
Kent	.25	.11	.14
Jamie	.08	.20	.00
Joe	1.08	.20	.27

Research Question 2: Will there be a difference in the number of rules broken by the adolescents in the JCG plus token economy phase when compared to the baseline phase?

It was hypothesized that there would be a difference in the number of rules violated during the baseline phase and during the JCG plus token economy phase. An examination of the baseline and JCG plus token economy phase means revealed that there was a reduction in the number of rule violations for most participants after the implementation of the JCG plus token economy phase (See Table 4.2 and 4.3). In Year 1, Jay's baseline phase mean was 0 and his JCG plus token economy phase mean was 0. In Year 2, Jay's baseline phase mean was .17 and his JCG plus token economy phase mean was 0. In Year 1, Curt's baseline phase mean was .25 and his JCG plus token economy phase mean was .07. In Year 2, Curt's baseline phase mean was .33 and his JCG plus token economy phase mean was 0. In Year 1, Kent's baseline phase mean was .25 and his JCG plus token economy phase mean was 0. In Year 2, Kent's baseline phase mean was

.5 and his JCG plus token economy phase mean was .04. In Year 1, Jamie's baseline phase mean was .08 and his JCG plus token economy phase mean was 0. In Year 2, Jamie's baseline phase mean was 1 and his JCG plus token economy phase mean was 0. In Year 1, Joe's baseline phase mean was 1.08 and his JCG plus token economy phase mean was 0. In Year 2, Joe's baseline phase mean was 2.33 and his JCG plus token economy phase mean was .03. The JCG plus token economy intervention was effective for all participants resulting in phase means which were near or equal to zero for all participants.

Table 4.2 Participant Phase Means Year 1 for Baseline and JCG Plus Token Economy Phases

Participant	Baseline Phase Mean	JCG Plus Token Economy Phase Mean
Jay	.00	.00
Curt	.25	.07
Kent	.25	.00
Jamie	.08	.00
Joe	1.08	.00

Table 4.3 Participant Phase Means Year 2 for Baseline and JCG Plus Token Economy Phases

Participant	Baseline Phase Mean	JCG Plus Token Economy Phase Mean
Jay	.17	.00
Curt	.33	.00
Kent	.50	.04
Jamie	1.00	.00
Joe	2.33	.03

Research Question 3: Will there be a difference in the number of rules broken by the adolescents in the JCG phase when compared to the JCG plus token economy phase?

There was a difference in the phase means of the JCG phase and the JCG plus token economy phase. The JCG plus token economy phase was more effective than the JCG phase for three of the participants. This was evidenced by the differences in the phase means of the JCG and JCG plus token economy phases for the participants (See Table 4.4). Jay's JCG phase mean was 0 and his JCG plus token economy phase mean was 0. Curt's JCG phase mean was 0 and his JCG plus token economy phase mean was .07. Kent's JCG phase mean was .11 and his JCG plus token economy phase mean was 0. Jamie's JCG phase mean was .20 and his JCG plus token economy phase mean was 0. Joe's JCG phase mean was .20 and his JCG plus token economy phase mean was 0. Thus, in Year 2 four of the five participants' JCG plus token economy phase means were 0.

Table 4.4 Participant Phase Means Year 1 for Baseline and JCG Plus Token Economy Phases

Participant	JCG Phase Mean	JCG Plus Token Economy Phase Mean
Jay	.00	.00
Curt	.00	.07
Kent	.11	.00
Jamie	.20	.00
Joe	.20	.00

CHAPTER 5

DISCUSSION

Interpretation of Results

The current study sought to examine the effectiveness of two interventions, JCG and a package intervention of JCG plus a token economy. The effectiveness of these interventions was assessed as they compared to baseline levels of the rule violations of the adolescents in this study. These interventions were also compared to each other in an effort to determine if JCG or the package intervention of JCG plus a token economy would be most effective at reducing the rule violations of the adolescents in the current study. An interpretation of the results as related to each of these questions is presented below.

Research Question 1: Will there be a difference in the number of rules broken by the adolescents in the JCG phase when compared to the baseline phase?

The first research question evaluated whether JCG would reduce the number of rule violations of the adolescents in the current study. Through the data collected it was determined that JCG was an effective intervention for use with adolescent males in a group home setting. The implementation of JCG resulted in a reduction of rule violations for most of the participants. Additionally, the housemothers reported that JCG resulted in less complaining about punishments and “bargaining” to receive lesser punishments. The adolescents also reported that JCG resulted in punishments that were, “more fair.” This

result is consistent with Patterson and Forgatch's predictions of the reactions of treatment implementers and adolescents to the implementation of JCG (2005).

Providing a stable, predictable environment was especially important for the adolescents in this study due to their increased risk for developing psychological and/or behavioral disorders due to their placement in the foster care system. One of the major contributing factors to the ill effects of the foster care system is the instability of the environment and living conditions in which children and adolescents are placed.

Researchers have found that externalizing behavior problems are related to more unstable placements (Farmer et al., 2003). The current study provided further evidence to support Farmer et al.'s findings related to the importance of environmental stability. In the current study, when JCG was implemented and the adolescents' environment became more stable there was a reduction in rule violating behaviors or externalizing behavior problems.

The current study adds to the limited literature exploring the effectiveness of JCG and provides additional evidence to support that it possesses the basic behavioral components necessary to evoke behavioral change. The current study was consistent with Holnhorst and Roberts' (1992) findings that an intervention which incorporates a brief chore was effective in decreasing inappropriate behavior. Further, just as Holnhorst and Roberts' study lent evidence to support a chore being effectively utilized a response cost for inappropriate behavior, this study reiterated the effectiveness of the use of a chore as a response cost.

This study lends evidence to the hypothesis that JCG provides caregivers with a timely and cost efficient means of disciplining adolescents. The housemothers in this

study expressed their satisfaction with the time efficiency and cost effectiveness of this intervention. Additionally, anecdotal evidence obtained through interviews with the housemothers and the adolescents in this study supported the idea that JCG provided structure in which the adolescents could learn to accept the consequences of their inappropriate behavior, decrease the number of negative interactions regarding the “fairness” of punishments between adolescents and their caregiver(s), and provided opportunities for the housemothers in this study to deliver positive reinforcement to adolescents in their care through praise.

The current study also lends evidence to support Eaves et al.’s (2005) hypothesis that JCG would be an effective behavior management system for adolescents. It is believed that JCG was effective in the current study for the reasons outlined by previous researchers including the recommended qualities of successful behavior management plans such as stability, consistency, and opportunities for positive reinforcement (Christophersen & Mortweet, 2003; Eaves et al., 2005).

Although further research needs to be conducted to explore the effectiveness of JCG, this study serves as a first step in the vetting process of JCG. Due to the limited number of behavior interventions for use with adolescents in the home setting that have been empirically validated the current study is of particular importance. There continues to be a need to expand our knowledge on this topic. Further exploration of effective interventions for use in home settings for foster care children is of particular importance due to their heightened risk of developing psychological and/or behavior problems. Moreover, “highly structured treatment approaches within environments that approximate

natural family lifestyles” are optimal settings for children and adolescents who find themselves in the foster care system (Field et al., 2004, p. 439).

Research Question 2: Will there be a difference in the number of rules broken by the adolescents in the JCG plus token economy phase when compared to the baseline phase?

The second research question evaluated the effectiveness of JCG and a token economy implemented as a package intervention. During this phase JCG and a token economy were implemented in their entirety. Although, JCG has not been empirically validated in the literature there is a large body of literature which speaks to the effectiveness of token economies (Bennett et al., 1989; Boniecki & Moore, 2003; Dickerson et al., 2005; Eisolowski & Zencius, 1992; Field et al., 2004; Filcheck et al., 2004; Foxx, 1998; Klimas & McLaughlin, 2007; LePage, 1999; LePage et al., 2003; Lovitt, 1995; Matson & Boisjoli, 2009; Moore et al., 2001; Novak & Hammond, 1983; Reitman et al., 2004; Rice et al., 1990; Scallion et al., 1976; Tarbox et al., 2006; Truchlicka et al., 1998).

JCG and a token economy used as a package intervention proved to be an effective behavior management system for the adolescents who participated in this study. JCG and the token economy complemented each other. With JCG serving as a response cost component and the token economy providing a formal reinforcement component. The adolescent participants and the housemothers reported that the package intervention was better than their previous discipline system. As was mentioned previously, it is believed that the JCG component lent structure to the group home’s punishment system resulting in a more systematic and “fair” system of punishment that was preferred by both the adolescents and their caregivers.

The adolescents stated on many occasions that they enjoyed working for their tokens and spending their tokens in the home's store. The token economy was thought to be particularly effective in this study due to the adolescents' lack of access to treats. When the token economy was in place the adolescents had a pro-social means by which they could earn treats.

The current study lends additional evidence to the research base that has found that both formal and informal positive reinforcement is very effective in reducing problematic behaviors (Fabiano & Pelham, 2003; Gresham & Gresham, 1982; Skinner et al., 2004; Theodore et al., 2004; Theodore et al., 2001). Additionally, as Pazaratz (2003) found, adding a formal positive reinforcement component in the current study to an existing behavior management system, JCG, increased the potency of the behavior management system and resulted in fewer incident of rule violations for the adolescents.

Research Question 3: Will there be a difference in the number of rules broken by the adolescents in the JCG phase when compared to the JCG plus token economy phase?

The third research question evaluated the effectiveness of JCG compared to the package intervention of JCG plus a token economy. The data gathered through the current study demonstrated a decrease in rule violations during the JCG plus token economy phase and the JCG alone phase. The reduction in rule violations during the JCG plus token economy phase is thought to be a result of the adolescents' ability to access reinforcement contingent upon their behavior. It is important to note that the adolescents in the current study had limited access to treats or extra food such as, snack cakes, candy, soda, and chips. It is believed that the items the adolescents could purchase in the house store were more potent reinforcers due to the deprivation of the adolescents in the current

study. In other words, the adolescents' deprivation increased the rewarding nature of the items in the house store, possibly resulting in an increase in the effectiveness of the token economy and resulting in a further decrease in rule violations during the JCG plus token economy phase.

As was mentioned previously in this manuscript, researchers have demonstrated that the addition of a formal or informal positive reinforcement component to a behavior management system increases the effectiveness of the behavior management system (Fabiano & Pelham, 2003; Gresham & Gresham, 1982; Skinner et al., 2004; Theodore et al., 2004; Theodore et al., 2001). The current study lends additional support to these findings by demonstrating a stabilization of the adolescents' rule violations when the token economy was added to the current behavior management system, JCG.

Implications of Current Study for Practitioners and Researchers

Consistent with the predictions made in the beginning of this paper, JCG was an effective tool for decreasing problem behavior in the group of adolescent males who participated in the current study. It was thought that JCG was effective in this study as it incorporated the same behavioral components of other like systems used with younger children, such as time out (Christopherson & Mortweet, 2003; Eaves et al., 2005).

Additionally, JCG and a token economy used as a package intervention also proved to be effective in reducing the rule violations of the adolescents in this study. For Joe, in particular, the combination of JCG and token economy was particularly effective. The increased effectiveness of JCG and the token economy used as a package intervention was consistent with findings from previous researchers who have suggested that adding a positive reinforcement component to a behavior management system

increases the effectiveness of the behavior management system (Fabiano & Pelham, 2003; Gresham & Gresham, 1982; Skinner et al., 2004; Theodore et al., 2004; Theodore et al., 2001).

Also, the participants in the current study are at greater risk for developing psychological and behavioral problems as a result of their placement in the foster care system. Researchers have shown that the rate of psychological problems for individuals in the foster care system is 10% to 20% which is significantly higher than the population at large and also higher than the estimates for adolescents living below the poverty line (Marinkovic & Backovic, 2007). Due to their high risk of developing psychological and/or behavior problems, there is an elevated need for the evaluation of behavior modification systems such as the interventions evaluated in the current study for use with adolescents in the foster care system. Additionally, due to the importance of stability and consistency within discipline systems it is also important to find behavior modification systems that are effective for use with adolescents who are not placed in the foster care system.

One of the major contributing factors to the ill effects of being placed in the foster care system is the instability of the environment and living conditions in which children and adolescents are placed. Researchers have found that higher levels of externalizing behavior are related to unstable placements (Farmer et al., 2003). It is important that children and adolescents in the foster care system be placed in as stable of an environment as possible to help prevent psychological and behavioral problems. The interventions presented in the current study could serve as a means to provide the structure needed by adolescents who are in the foster care system. Additionally, many of

the adolescents in the current study displayed oppositional and severe behavioral problems. Researchers have found that, individuals with oppositional and severe behavior problems, require behavior management programs in which consequences are given immediately and consistently after inappropriate behavior occurs (Fonagy & Kurtz, 2002). Additionally, researchers have shown that externalizing behaviors can be reduced through behavior management plans that contain immediate discipline and predictable, consistent consequences. JCG and JCG plus a token economy have the components of immediate, predictable, consistent, consequences for inappropriate behavior and as such are effective behavior management system to use with adolescents as was demonstrated by the current study.

The current study “opens the door” for much needed research on interventions that have been designed for use in home settings. As mentioned previously in this manuscript there are a limited number of interventions that have been empirically validated for use with adolescents in the home setting. Due to the specific developmental challenges of adolescence for both the adolescent and his or her caregiver there is a critical need for more research related to the behavior management of individuals in this developmental phase and the exploration of behavior management systems designed specifically for this population. As well as interventions developed for use with adolescents who are in the foster care system.

Limitations of the Study

Although, the current study revealed that JCG and JCG plus a token economy are effective interventions for use with the adolescents in this study, there are some

limitations that must be mentioned. Limitations of this study could be related to both internal and external validity threats.

Several limitations of the current study are related to methodological design. The current study was designed to evaluate the effectiveness of two interventions JCG and a package intervention of JCG plus token economy. This study evaluated one component of the package intervention, JCG, but did not individually evaluate the other component, token economy. Future researchers should individually evaluate the effectiveness of each of the components of the package intervention described in the current study. Additionally, future research should include an evaluation of the elements in this study in a different order (i.e. present token economy first and then add JCG).

The participants in this study were all adolescent males who were wards of the state. This is a very specific sample and the generalization of these findings to other groups of individuals will be necessary in order to determine the generalizability of the interventions explored in the current study. Researchers interested in expanding this study with female participants may need to consider different types of chores and reinforcement.

As is the case with many interventions, this study had problems with the treatment agents maintaining the intervention with integrity when the investigators were no longer strictly monitoring their implementation of the intervention. Also it is important to note that the housemothers may not have consistently and accurately charted the number of rule violations of the adolescent participants. Future researchers should incorporate a formal measure of treatment integrity to assure that the treatment agents accurately collect data and carry out the intervention.

Researchers have shown that treatment integrity and acceptability of successful interventions can be increased by showing the treatment agents graphs of the adolescent's progress (Reitman et al., 2004). In this study, the researchers frequently showed the caregivers graphs to illustrate the effectiveness of the program in an effort to increase "buy in" and treatment integrity. The presentation of graphical evidence to demonstrate the effectiveness of the intervention was used throughout the study. However, treatment integrity improved in Year 2 due to the withdrawal of treatment by the housemother in Year 1 and subsequent return of problematic behavior. During the intersession between Year 1 and Year 2 the adolescents' rule violating behavior returned and intensified. During the intersession two of the participants were removed from their home school and placed in a day treatment program due to problematic behavior at school. The adolescents also engaged in law violating behaviors including grand theft auto, shoplifting, petty theft, and truancy. Additionally, in Year 2 the home's pursuit of licensure from the Department of Mental Health as a Therapeutic Group Home may have increased their desire to collect data because the intervention implemented in this study was one of the criteria for obtaining licensure and, thus, the treatment agents had additional incentive for maintaining good treatment integrity in Year 2. Due to the frequent viewing of graphical evidence to show the effectiveness of the intervention and the home's goal of obtaining licensure, treatment integrity improved in Year 2.

The residential group home in which this study was conducted was run like a home setting not a residential facility. For this reason the investigators could not monitor the treatment integrity of the intervention explored in this study as closely as they would have been able to if the setting had been a residential setting.

Directions for Future Research

Due to the limited research available on JCG, there is much that still needs to be explored. Further research needs to be conducted with female participants and participants from different developmental stages. Additionally, the effectiveness of JCG should also be explored across different settings and with other populations. Generalization studies in other environments such as school settings could also be explored.

Future researchers may also wish to explore the relative effectiveness of JCG as it compares to time-out procedures with children and adolescents. It would be interesting to explore whether there is a difference in the effectiveness of these procedures based on the developmental stage and gender of the participants.

Due to the busy nature of adolescence a self-reinforcement component could be explored with the interventions discussed in this paper. Novak and Hammond (1983) explored the use of self-reinforcement and found that, in some cases, self-reinforcement proved to be more highly reinforcing than externalizing reinforcement. Self-reinforcement was evaluated in several studies that investigated the effectiveness of a token economy. In a study conducted by O'Leary and O'Leary in 1976, students were taught to chart their own behavior and assign tokens based on set criteria. Teachers in this study monitored their students to assure that tokens were being distributed honestly. Self-reinforcement in this study proved to be an effective way to maintain the behavior system with limited effort from the teacher and to generalize appropriate behavior (Novak & Hammond, 1983). Due to the busy nature of adolescent youth and their parents, some

form of a self-reinforcement component should be explored with the intervention package discussed in this paper.

Finally, the component parts of the intervention package should be systematically explored in an effort to ascertain the effect of the token economy on the package intervention. The investigators in this study did not evaluate the effectiveness of the token economy alone due to the pressing needs of the housemothers' to get the adolescents' behavior under control in as timely a manner as possible.

Summary

The purpose of the current study was to evaluate the effectiveness of JCG and a package intervention which incorporated JCG and a token economy with adolescent males, who were wards of the state, and resided in a therapeutic group home setting. Through analysis of the data collected in this study it was determined that both JCG and the package intervention which incorporated JCG and a token economy reduced the rule violations of the adolescent, male, participants in the current study. As such, the current study contributes to the JCG and token economy literature as well as, the literature related to behavior management systems for use with adolescents in home settings by providing further evidence to support the effectiveness of both JCG and token economy.

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APPENDIX A
INSTITUTIONAL REVIEW BOARD PERMISSION LETTER



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compliance@research.msstate.edu
(662) 325-3294

July 19, 2007

Penny Ward
26 G Wallace Circle
Starkville, MS 39759

RE: IRB Study #07-117: Managing the behavior of at-risk adolescents using job card grounding and a token economy

Dear Ms. Ward:

The above referenced project was reviewed and approved via expedited review for a period of 7/19/2007 through 7/15/2008 in accordance with 45 CFR 46.110 #5. Please note the expiration date for approval of this project is 7/15/2008. If additional time is needed to complete the project, you will need to submit a Continuing Review Request form 30 days prior to the date of expiration. Any modifications made to this project must be submitted for approval prior to implementation. Forms for both Continuing Review and Modifications are located on our website at <http://www.msstate.edu/dept/compliance>.

Any failure to adhere to the approved protocol could result in suspension or termination of your project. Please note that the IRB reserves the right, at anytime, to observe you and any associated researchers as they conduct the project and audit research records associated with this project.

Please refer to your docket number (#07-117) when contacting our office regarding this project.

We wish you the very best of luck in your research and look forward to working with you again. If you have questions or concerns, please contact Christine Williams at cwilliams@research.msstate.edu or by phone at 662-325-5220.

Sincerely,

[For use with electronic submissions]

Christine Williams
IRB Compliance Administrator

cc: Sandra D. Devlin

APPENDIX B
DATA COLLECTION FORM YEAR 1

Behavior Tracking Form

Directions – Place one tic mark in the box for each violation of a rule

Rule	Joe	Jamie	Kent	Jay	Curt
Use appropriate language.					
Keep Horseplay and Tussling Outside.					
Do what adults say.					
Lights out at 10 P.M.					
Keep your room clean.					
Take medication.					
Keep food/drink out of bedrooms.					

Observer: _____

Date/Time: _____

Notes:

APPENDIX C
DATA COLLECTION FORM YEAR 2

Behavior Tracking Form

Directions – Place one tic mark in the box for each violation of a rule.

Rule	Joe	Jamie	Kent	Jay	Curt
Use appropriate language.					
Keep horseplay and tussling outside.					
Do what adults say.					
Lights out at 10 P.M. on weekdays and Sunday 12 P.M. on the weekend					
Keep your room clean.					
Take a bath by 9:30.					
Keep opened food/drink out of bedrooms.					

Observer: _____

Date/Time: _____

Notes:

APPENDIX D
INCIDENT REPORT FORM

