

Community-Based Incentive Reward Programs for Juvenile Offenders:
Effective Components for an Ideal Program

Approved: Cheryl Banachowski Fuller Date: November 27, 2017

Community-Based Incentive Reward Programs for Juvenile Offenders:
Effective Components for an Ideal Program

A Seminar Paper

Presented to the Graduate Faculty
University of Wisconsin-Platteville

In Partial Fulfillment of the
Requirement for the Degree
Master of Science in Criminal Justice

Dominic C. Alvarez

December 2017

Acknowledgements

I'd like to thank all of the instructors and classmates who made this process both challenging and enriching. In particular, I'd like to thank Dr. Banachowski-Fuller for helping streamline this paper's topic, Dr. Amy Nemmetz and her guidance in completing this project, and Dr. Brian Johnson, whose consummate attention to detail and high standards for excellence during my first semester paved the way to success in this academic pursuit.

Husbands, wives, mothers, and fathers that have traveled this road know the difficult sacrifices our spouses and children make to support the achievement of our academic and professional goals. For my son Avner, his pleas for playtime with daddy were too often met with "daddy's doing homework", and as such, his three-year-old reckoning of school is likely measured in pillow forts not built, bedtime stories not told, and a plethora of other missing moments from the past two years. As I pen these final words, I look forward to being a full-time dad again. Words, written or otherwise, fall short of my love and appreciation for my wife throughout this endeavor. I am indebted to you, Ashley, for the many burdens you had to bear in my absence.

In addition to my wife and son Avner, this paper is dedicated to the memory of my father, Carlos. A man dedicated to education and family, during my first semester of this coursework he departed us too soon following a yearlong battle with brain cancer. Almost two years to the day of his passing, we welcomed our second son Elyon. I thank God for both.

Lastly, and most importantly, I thank my Lord and Savior Jesus Christ. He is my rock and my foundation, my sure tower, and ever-present friend. To Him be the glory.

Abstract

Community-Based Incentive Reward Programs for Juvenile Offenders:

Effective Components for an Ideal Program

Dominic C. Alvarez

Under the Supervision of Dr. Amy Nemmetz

Statement of the Problem

According to the Office of Juvenile Justice and Delinquency Prevention (OJJDP), in 2015, law enforcement agencies in the U.S. made an estimated 921,600 arrests of persons under age 18 (2017). The Federal Bureau of Investigation's Uniform Crime Reports estimate that the same population represented approximately 8.5% of total arrests in 2015 (2016). While this is a 56% decrease from arrests in 2006 (OJJDP, 2017), according to the Campaign for Juvenile Justice, concerns over juvenile crime have increased in recent years as many administrations face dramatic budget cuts, limited programs, and growing trepidation about juvenile offenders (as cited in Bontrager Ryon, Winokur Early, Hand, & Chapman, 2013, p. 359). Over the past decade evidence has emerged supporting community-based programs for juvenile delinquents that are equivalently effective, yet less costly (Andrews et al., 1990; Andrews & Bonta, 2006). Furthermore, a growing body of research indicates that the best way to advance positive behavior is to apply incentives for good behavior combined with sanctions for misbehavior (Center for Children's Law and Policy [CCLP], 2016). However, many juvenile justice agencies have been hesitant to adopt the utilization of incentives to the same extent as sanctions. Nonetheless,

evidence is readily accessible from numerous youth-serving and criminal justice frameworks that utilizing incentives more often than sanctions is the modality most likely to impart changes in behavior (American Probation and Parole Association, National Center for State Courts, and The Pew Charitable Trusts, 2012; Muscott, Mann, & LeBrun, 2008).

Purpose of the Study

The purpose of this research is to develop a set of best practices and guidelines pertaining to the use of community-based incentive reward programs for juvenile offenders. The arguments of this paper are two-fold. First, the use of incentives is an effective, evidence-based mechanism to influence positive behavior change in youth (CCLP, 2016). Second, there are essential design components and management strategies necessary to implementing and sustaining a successful incentive program and inattention to these guidelines can interfere with and jeopardize results or have unintended negative consequences (Meyer, 2006).

Significance or Implications of the Study

In the adult criminal justice system, similar offenses result in similar sentences and the process is typically indifferent to the potential presence of definitive variances amongst offenders (Moeser, 2015). Conversely, extensive differences in how the juvenile system approaches individual youth can appropriately provoke unease about the presence of inequities and differential treatment. The use of incentive rewards can be an important component of strategies aimed at building and shaping prosocial behaviors and skills of juvenile offenders. However, the

various aspects of practice and policy within the juvenile justice system require a delicate balance between consistency and individualization, especially as they pertain to how agencies establish and maintain programs using these modalities (Moeser, 2015). Therefore, the significance of this study is to create a comprehensive guide that will inform juvenile justice practitioners about the essential and effective evidence-based components of a community-based incentive reward program that concurrently addresses and maintains fidelity throughout the program's administration.

Method of Approach

This research paper will utilize secondary research as the method of approach in order to review empirical and theoretical findings from a variety of sources, including scholarly peer-reviewed journals, credible websites, and government websites, such as the Office of Juvenile Justice and Delinquency Prevention. The selection of these sources will be guided by the adequacy of the respective source's methodological standards for program review and the source's relevance to incentive reward programs. Analysis of these sources will determine key patterns and components of effective incentive program strategies, as well as those that are ineffective and as such should be excluded from programs.

Contribution to the Field

The specific contributions of this research to the field of criminal justice will be to present a comprehensive guideline pertaining to best practices of community-based incentive

reward programs for juvenile offenders. There are a variety of approaches and programs that use incentives to encourage positive behavior change, as well as a wide range of terms used to describe these strategies, including contingency management, graduated responses, token economies, positive reinforcement, and behavioral management. This research endeavors to review and assimilate the most promising components of these approaches and appropriately describe and frame them within the juvenile justice context.

Table of Contents

	Page
APPROVAL PAGE.....	1
TITLE PAGE.....	2
ACKNOWLEDGEMENTS.....	3
ABSTRACT.....	4
TABLE OF CONTENTS.....	8
SECTIONS:	
I. INTRODUCTION/STATEMENT OF THE PROBLEM.....	11
A. Purpose of the study.....	14
B. Significance or implications of the study.....	15
C. Definitions.....	15
1. Juvenile	
2. Delinquency/Offender	
3. Community-based program	
4. Incentive reward program	
5. Positive reinforcement	
II. THEORETICAL FRAMEWORK.....	16
A. Operant learning theory.....	17
B. Self-efficacy theory.....	22
C. Self-determination theory and subtheories.....	24

1. Cognitive evaluation theory	
2. Organismic integration theory	
D. Developmental cognitive neuroscience.....	27
E. Putting it together.....	29
III. INCENTIVE REWARD PROGRAM TYPOLOGY AND TERMINOLOGY....	31
A. Contingency management.....	31
B. Token economies.....	34
C. Graduated responses.....	36
D. PBIS.....	38
E. Summary.....	41
IV. OVERVIEW OF INCENTIVE REWARD PROGRAM COMPONENTS AND PRACTICES.....	41
A. General principles of effective interventions for juveniles.....	41
B. General considerations of effective incentive reward programs.....	43
C. Specific incentive reward program components and practices.....	49
1. Timely.....	49
2. Targeted.....	50
3. Proportional.....	50
4. Progressive.....	51
5. Developmentally appropriate.....	52
6. Individualized.....	54
7. Certain.....	55
8. Adaptive.....	56

9. A word on punishment.....	56
D. Ineffective or detrimental program components and practices.....	57
1. Unintended side effects.....	58
2. Other shortcomings.....	61
3. Incentives versus bribes.....	62
V. OTHER RECOMMENDATIONS.....	63
A. The cost of incentive rewards.....	63
B. Technology.....	64
C. Research needed.....	66
VI. SUMMARY AND CONCLUSION.....	67
VII. REFERENCES.....	69

Section I. Introduction and Statement of the Problem

The 2012 United States Supreme Court decision of *Miller v. Alabama* importantly recognized adolescents' reduced culpability and elevated aptitude for change as compared to adults. Similarly, the National Academies of Science in 2013 concluded that juveniles differ distinctly from adults in critical ways that adduce the need for responses that are different from the justice system (National Research Council, 2013). According to the Office of Juvenile Justice and Delinquency Prevention (OJJDP), in 2015, law enforcement agencies in the U.S. made an estimated 921,600 arrests of persons under age 18 (2017a). The Federal Bureau of Investigation's Uniform Crime Reports estimate that the same population represented approximately 8.5% of total arrests in 2015 (2016). While this is a 56% decrease from arrests in 2006 (OJJDP, 2017a), according to the Campaign for Juvenile Justice, concerns over juvenile crime have increased in recent years as many administrations face dramatic budget cuts, limited programs, and growing trepidation about juvenile offenders (as cited in Bontrager Ryon, Winokur Early, Hand, & Chapman, 2013, p. 359).

According to OJJDP (2017b), on any given day in 2015 there were over 48,000 juveniles held in state, local, and private residential placements including detention centers, shelters, group homes, and long-term secure facilities. Also in 2015, according to the Adoption and Foster Care Analysis and Reporting System (AFCARS), there were 427,910 children living in foster care with an average duration of over 20 months (U.S. Department of Health and Human Services, 2016). Furthermore, it is estimated that almost 30% of youth involved in the child welfare system are also involved in the juvenile justice system (Ohio Juvenile Justice Association, 2015).

Juvenile incarceration and out-of-home placement can be both costly to taxpayers and harmful to the individual youth. It is estimated that the average daily cost to keep a youth in

juvenile detention facilities is \$407 or approximately \$150,000 for 9 to 12 months (Justice Policy Institute, 2014). An estimated \$8-\$21 billion in long-term costs are incurred each year in the U.S. for the confinement of youth. Under Title IV-E of the Social Security Act the annual monetary cost of foster care, based on state and federal expenditures, exceeds more than nine billion dollars (Zill, 2011). While precise figures are challenging to extricate, even larger amounts are spent on things such as publicly subsidized medical care for foster children, Food Stamps, child care payments to foster families, and other Welfare program expenses (Zill, 2011).

There are also harmful outcomes to youth that are incarcerated or placed out-of-home. For example, youth in secure detention are exposed to increased vulnerability to specific types of violence, most notably sexual assault (Justice Policy Institute, 2014). In fact, studies suggest that as the type of juvenile justice intervention imposed becomes more intense and constrictive, the deleterious impact of the intervention increases (Gatti, Tremblay, & Vitaro, 2009). Furthermore, juveniles sentenced to a detention facility are 37% more likely to be arrested as adults as compared to their antisocial peers (Gatti et al., 2009).

While research findings on the potential for negative socioemotional and developmental consequences for youth placed in foster care are mixed, there are some results indicative of negative outcomes (Miller-Perrin & Perrin, 2007). For example, a study by Lawrence, Carlson, and Egeland (2006) found that children placed into unfamiliar foster care demonstrated elevated levels of internalizing problems versus children in familiar care, children who received adequate caregiving, and children reared by maltreating caregivers. Doyle (2013) found that foster care placement increases the likelihood of delinquency and emergency healthcare episodes as compared to youth that remained in their homes. Furthermore, research suggests that children

that age-out of foster care face increased probabilities of homelessness, unemployment, early pregnancy, and post-traumatic stress disorder (Sharp, 2015).

Over the past decade evidence has emerged supporting community-based programs for juvenile delinquents that are equivalently effective, yet less costly (Andrews et al., 1990; Andrews & Bonta, 2006). Moreover, community-based youth services reduce dependence on expensive residential programs and retain the youth in prosocial settings (Bontrager Ryon et al., 2013). Early interventions that avert high-risk youth from engaging in recurrent delinquent and criminal offenses can save tax payers nearly \$5.7 million in costs over that individual's lifetime (Cohen & Piquero, 2007). In fact, research suggests that for each dollar spent on evidence-based programs a \$13 cost savings can be realized (Juvenile Detention Alternatives Initiative, 2007).

Perhaps one of the most significant juvenile justice initiatives in the last ten years is the push for evidence-based practice, which emphasizes effective treatments, services, and supports for children and families (Lipsey, Howell, Kelly, Chapman, & Carver, 2010). A growing body of research indicates that the best way to advance positive behavior is to apply incentives for good behavior combined with sanctions for misbehavior (Center for Children's Law and Policy [CCLP], 2016).

However, many juvenile justice agencies have been hesitant to adopt the utilization of incentives to the same extent as sanctions (CCLP, 2016). While the application of punishment often results in a suppression or reduction of particular conduct, this modality does not replace undesired behaviors with desired ones, it merely constrains them (Goldstein, NeMoyer, Gale-Bentz, Levick, & Feierman, 2016). Furthermore, over time and as individuals become familiarized to the negative experiences associated with punishment, effectiveness also tends to diminish. In some situations, such as when punishment is overly punitive, usage can even

inadvertently produce new negative behaviors. In addition, learned helplessness can arise in offenders that routinely have negative experiences in circumstances that they perceived they have no control over (Maier & Seligman, 1976). These individuals often conclude that the negative consequences are inevitable and thereafter fail to make appropriate responses to similar circumstances in the future (Goldstein et al., 2016).

Acknowledging the finite utility of punishment to generate desired positive behaviors in youth, contemporary juvenile justice reform efforts urge the commitment towards reinforcement of young offenders' positive behaviors coupled with the application of negative consequences for their negative conduct (Goldstein et al., 2016). Nonetheless, evidence is readily accessible from numerous youth-serving and criminal justice frameworks that utilizing incentives more often than sanctions is the modality most likely to impart changes in behavior (American Probation and Parole Association [APPA], National Center for State Courts, and The Pew Charitable Trusts, 2012; Muscott, Mann, & LeBrun, 2008).

Purpose of the Study

The purpose of this research is to develop a set of best practices and guidelines pertaining to the use of community-based incentive reward programs for juvenile offenders. The arguments of this paper are two-fold. First, the use of incentives is an effective, evidence-based mechanism to influence positive behavior change in youth (CCLP, 2016). Second, there are essential design components and management strategies necessary to implementing and sustaining a successful incentive program and inattention to these guidelines can interfere with and jeopardize results or have unintended negative consequences (Meyer, 2006).

Significance or Implications of the Study

In the adult criminal justice system, similar offenses result in similar sentences and the process is typically indifferent to the potential presence of definitive variances amongst offenders (Moeser, 2015). Conversely, extensive differences in how the juvenile system approaches individual youth can appropriately provoke unease about the presence of inequities and differential treatment. The use of incentive rewards can be an important component of strategies aimed at building and shaping prosocial behaviors and skills of juvenile offenders. However, the various aspects of practice and policy within the juvenile justice system require a delicate balance between consistency and individualization, especially as they pertain to how agencies establish and maintain programs using these modalities (Moeser, 2015). Therefore, the significance of this study is to create a comprehensive guide that will inform juvenile justice practitioners about the essential and effective evidence-based components of a community-based incentive reward program that concurrently addresses and maintains fidelity throughout the program's delivery.

Definitions

The following are definitions of the fundamental elements of this paper's topic that are used throughout this document and apply to each instance the term is used, unless otherwise noted:

Juvenile. According to U.S. Code 18 U.S.C. § 5031 a "juvenile" is an individual who has not attained their eighteenth birthday. For purposes of this paper, the terms juvenile, youth, and adolescent have the same implied definition unless otherwise specified.

Delinquent/offender. "Juvenile delinquency" is the violation of a law of the United States committed by an individual before their eighteenth birthday which otherwise would have

been considered a crime if perpetrated by an adult (U.S. Code 18 U.S.C. § 5031). As such, “delinquent” means a juvenile who is less than 18 years old who has violated any state or federal criminal law.

Community-based program. A community-based program facilitates social service providers, organizers, developers and evaluators to serve specific needs to individuals in their own environment (Underwood, et al., 2006). Youth who have come into contact with the juvenile justice system receive supervision and services in the community. Community-based programs provide services in small groups and in suitable places located near or at juveniles’ home (Underwood, et al., 2006). There are many different types of community programs for juveniles; some work individually with the juvenile, others in group settings, or with family’s involvement. Depending on the programs, the juvenile works with providers to help rehabilitate and guide them toward making prosocial choices in the community (Underwood, et al., 2006).

Incentive reward program. An incentive reward program is a highly structured plan of action that provides positive reinforcements for desired behaviors.

Positive reinforcement. According to operant conditioning, a positive reinforcement is a reward that encourages the increase or strengthening of a behavior (Bartol & Bartol, 2011).

Section II: Theoretical Framework

As noted above, the purpose of incentive rewards is to promote positive behavioral change. The theoretical literature pertaining to learning, behavior modification, and applied behavior analysis (ABA) is extensive. Behavior modification is the utilization of behavior change approaches to augment the frequency of positive behavior and reduce the occurrence of maladaptive behavior (Nugent, 2013). ABA is a field of science focused on cultivating techniques resting on the principles of learning and administering these to modify socially

significant behaviors (Baer, Wolf, & Risley, 1968). A primary difference between behavior modification and ABA is that the former approach attempts to change behavior without a robust consideration to all of the relevant behavior-environment interactions. By comparison, ABA attempts to alter behavior following an initial functional assessment of the relationship between the environment and a targeted behavior (Baer et al., 1968). This distinction is important because the following discussion leans upon both viewpoints to develop a well-rounded perspective of the application of incentive rewards with juvenile offenders.

Several theoretical perspectives are helpful in explaining and framing the use of incentive reward strategies with juvenile offenders. The following discussion, albeit far from exhaustive, focuses on theories of operant learning, self-efficacy, self-determination and two subtheories, as well as a developmental cognitive neuroscience perspective.

Operant Learning Theory

In Pavlov's classical conditioning process an individual learns via the temporal association between two events when a neutral catalyst becomes linked with another stimulus that naturally elicits a behavior (Comer, 2014). Once the association between stimuli is learned, the historically neutral stimulus is adequate to produce the behavior (*Introduction to Psychology [Psych]*, 2015). Thus, in classical conditioning the individual does not learn something new but instead starts to execute an extant behavior when triggered by a new stimulus. By comparison, operant conditioning is learning that takes place due to an action's consequences and can include the learning of new behaviors (*Psych*, 2015).

According to Lester, Braswell, and Van Voorhis (2004), operant learning theory is representative of a psychological perspective of human behavior and is largely identified with the contributions of behavioral psychologists such as Skinner and Thorndike (as cited in Wodahl,

Garland, Culhane, & McCarty, 2011, p. 388). According to Skinner (1966), operant learning theory is grounded in the principle that behavior is learned, and more explicitly, these behaviors are conditioned through the results of a person's actions (as cited in Wodahl et al., 2011, p. 388). Furthermore, behavior produces changes in a person's environment that can be either intended or unintended (Wodahl et al., 2011).

The first scientist to systematically study operant conditioning was Thorndike (1998), who observed cats held in a "puzzle box" from which they attempted to escape. Thorndike's observations of the cats' behavioral changes led to the development of the law of effect (1911), which posits that behaviors that result in a generally positive outcome in a specific occurrence are more probable to happen again in a similar occurrence. Conversely, behaviors that result in a generally negative outcome are less probable to situationally occur in the future (as cited in *Psych*, 2015, p. 276).

Skinner's operant learning theory extended upon Thorndike's concepts to create a more robust set of principles to explain operant conditioning (*Psych*, 2015). Skinner created operant chambers, often referred to as Skinner boxes, to systemically and meticulously study how animals modified their behavior through punishment and reinforcement, and he subsequently produced terminology that clarified the mechanisms of operant learning. The term "reinforcer" specifies any incident that increases or bolsters the probability of a behavior and the term "punisher" indicates anything that decreases or abates the probability of a behavior. Skinner also used the terms positive and negative to indicate if a reinforcement was applied or withdrawn. Therefore, a positive reinforcement bolsters a behavior by providing a pleasant outcome after the response and a negative reinforcement bolsters a behavior by withdrawing something unpleasant (*Psych*, 2015). For example, providing praise to a juvenile offender who

has a negative drug test is an example of positive reinforcement, whereas removing an electronic monitoring device for successfully following curfew is a negative reinforcement.

According to Lester et al. (2004), reinforcements work to increase desired behaviors (as cited in Wodahl et al., 2011, p. 388). While the process of using positive reinforcement to instill and enhance desirable behaviors is the crux of this paper, it is worth acknowledging that Skinner's principles of operant learning theory are also applicable to punishments. Punishment refers to any incident that decreases or abates the probability of a behavior. As such, positive punishment abates a behavior by rendering something unpleasant after the behavioral response. Conversely, negative punishment abates a behavior by withdrawing something pleasant (*Psych*, 2015). For example, placing a juvenile in secure detention after committing a delinquent act is an example of positive punishment, whereas taking away a juvenile's cell phone after breaking curfew is a negative punishment.

Three other important concepts relative to operant conditioning are reinforcement schedules, shaping, and secondary reinforcers. Reinforcement can be utilized to create complex behaviors by modifying the schedule on which the reinforcement is applied (*Psych*, 2015). In a continuous reinforcement schedule, the desired response is reinforced each time it happens. The benefit of continuous reinforcement is that it achieves fairly rapid learning but it can also result in rapid extinction or the disappearance of the desired behavior once the reinforcer stimulus stops. However, in non-laboratory settings most reinforcers happen on an intermittent or partial reinforcement schedule. This is a schedule in which behaviors are at times reinforced, and at other times they are not. Relative to continuous reinforcement, partial reinforcement schedules portend to more protracted rates of preliminary learning, but they also result in increased impedance to extinction (*Psych*, 2015).

Partial reinforcement schedules are described by either the interval of time between reinforcement or the ratio of responses that the individual partakes in, and by whether the reinforcement happens on a fixed or variable schedule (*Psych, 2015*). As such, there are four types of partial reinforcement schedules: fixed-ratio, variable-ratio, fixed-interval, and variable-interval (*Psych, 2015*).

Fixed-ratio schedule. A fixed-ratio schedule means that a behavior is reinforced after a particular quantity of responses (*Psych, 2015*). An example of this is a student that is paid according to the number of A's they receive on a report card. This schedule leads to high, consistent responding until reinforcement delivery, followed by a compressed response pause after reinforcement, but responding quickly begins again (*Psych, 2015*).

Variable-ratio schedule. A variable-ratio schedule is when a behavior is reinforced after an average number of responses that is administered in an unpredictable way (*Psych, 2015*). An example is a juvenile that gets their name added to a prize drawing for completing an activity. These schedules typically promote high response rates because as the number of responses increases so does reinforcement (*Psych, 2015*).

Fixed-interval schedule. A fixed-interval schedule is when a behavior is reinforced for the initial response after a particular amount of time has passed (*Psych, 2015*). An example is a youth that receives a weekly allowance for completing daily chores. This modality results in a fairly significant post-reinforcement delay in responding and responses generally increase steadily as the time of reinforcement draws nearer (*Psych, 2015*).

Variable-interval schedule. A variable-interval schedule is when a behavior is reinforced for the initial response after an average, but unpredictable, passage of time (*Psych, 2015*). An example is a youth who receives random face-to-face visits by a juvenile justice

worker. This reinforcement schedule tends to produce slow and steady rates of responding (*Psych*, 2015). According to Domjan (2000), variable-interval schedules of reinforcement are considered one of the most effective methods for fostering long-lasting habitual behaviors (as cited in Hulac, Benson, Nesmith, & Wollersheim Shervey, 2016, p. 92).

Shaping. The development of complex behaviors can occur through shaping; a process that influences an individual's behavior toward a desired outcome by using sequential approximations (*Psych*, 2015). While shaping can be a time-consuming process, it allows operant conditioning to develop behavior chains that are reinforced only when they are completed (*Psych*, 2015).

Secondary reinforcers. A primary reinforcer is stimuli that are naturally enjoyed or preferred by the individual (*Psych*, 2015). Examples of primary reinforcers include the basic necessities of life, such as water and food and other things like pain relief. A secondary or conditioned reinforcer is a neutral stimulus that neither directly harms nor benefits the individual. This neutral incident becomes linked with a primary reinforcer through the aforementioned classical conditioning (*Psych*, 2015). An example of a secondary reinforcer would be giving a restaurant gift card to a youth.

Operant extinction. When reinforcement is no longer forthcoming, a behavioral response becomes less and less frequent (Skinner, 1953). For example, operant extinction occurs when a teacher ignores the attention-seeking behavior of a disruptive student.

Premack Principle. While not a part of Skinner's operant learning theory, an important related and alternative perspective worth a brief discussion is the Premack principle (1962). The Premack principle asserts that it is actions that reinforce actions, rather than stimuli (Killeen, 2014). In other words, the Premack principle is a reinforcement strategy that uses activities as

positive reinforcement (Vanderbilt University, 2017). An example of the principle in practice would be if an individual is permitted to participate in a high-probability, preferred activity as a reward for completing a low-probability, less preferred activity with the goal of using the former to increase the latter behavior (Vanderbilt University, 2017).

Self-Efficacy Theory

Although classical and operant conditioning each play integral parts in learning, they do not account for all of the ways in which an individual may learn (*Psych*, 2015). For example, Bandura, Ross, and Ross (1963) importantly demonstrated the role of modeling or imitation as a modality of observational learning. Simple observations of others' behaviors and in particular those of adults, can have far-reaching learning effects on children's behavior (Tibbetts & Hemmens, 2010).

Beyond a purely extrinsic source of learning, whether from conditioning or modeling, another important consideration is the individual's perception of their capacity to successfully and routinely perform certain behaviors in their life. Bandura's (2001) social cognitive theory is grounded in an agentic perspective of human behavior that posits that individuals operate as "anticipative, purposive, and self-evaluating proactive regulators of their motivation and actions" (p.87).

It was from social cognitive theory (Bandura, 1986), which evolved from social learning theory (1977), that Bandura (1994) cultivated the concept of self-efficacy, or a person's beliefs about their ability to affect positive outcomes. An individual's convictions about self-efficacy dictate how the person thinks, feels, and self-motivates and ultimately their behavior. Beliefs about self-efficacy create these various effects through cognitive, motivational, affective, and selection processes (Bandura, 1994). In this conceptual model expectations of personal mastery

affect both initiation and persistence of coping behavior (Bandura, 1977). Furthermore, these expectations determine how much effort people will expend and how long they will persist in the face of obstacles and aversive experiences (Bandura, 1977).

Beliefs about self-efficacy can be cultivated by four primary influences: mastery experiences, vicarious experiences, social persuasion, and reduced stress reactions (Bandura, 1994). Beliefs about self-efficacy influence whether a person thinks in ways that are self-debilitating or self-enhancing (Bandura & Locke, 2003). They also affect how well the person self-motivates and perseveres in difficult situations, their emotional well-being, susceptibility to depression and stress, and the judgments they make at critical decision times (Bandura & Locke, 2003).

Mastery experiences. A robust sense of self-efficacy can be effectively created through mastery experiences (Bandura, 1994). Failures potentially weaken it, most notably when failures precede a firmly established sense of efficacy. However, if individuals only experience effortless successes they tend to subsequently assume immediate results and are easily disheartened by failure. Resiliency, as it pertains to efficacy, necessitates experience in prevailing through adversity with determined effort. As such, some stumbling blocks and obstacles in life serve as a beneficial function to teach that success typically requires effort that is sustained (Bandura, 1994).

Vicarious experiences. Another modality of building and bolstering self-efficacy is by social models and the vicarious experiences they provide (Bandura, 1994). An individual that observes a similar person succeed via sustained effort profits by increasing confidence that they too have the capacity to master comparable activities and be successful. Modeling and the impact of modelling on self-efficacy is robustly shaped by the observer's perception of similarity

or dissimilarity to the models. The more the perceived likeness the more persuasive are the models' failures and successes. Furthermore, if an observer sees the models as very different from them self, there is little influence over their perceived self-efficacy (Bandura, 1994).

Social persuasion. Another way of bolstering others' beliefs that they possess the necessary skills and attributes to be successful is social persuasion (Bandura, 1994). Verbal encouragement that persuades individuals to believe that they have the capacity to master certain activities are more apt to deploy increased and sustained effort versus if they instead think about personal shortcomings and self-doubts when difficulties occur. However, successful efficacy building requires more than just giving encouragement. It also needs thoughtful structuring of situations in a manner that helps facilitate success and avoids premature placement in circumstances that are prone to precipitate recurrent failure (Bandura, 1994).

Reduce stress reactions. The final mechanism of altering self-beliefs of efficacy is to decrease an individual's reactions to stress and change their misconceptions of their physical states and negative emotional inclinations (Bandura, 1994). In addition to the aforementioned influences, individuals also rely on perceptions of their physical reactions and emotional affect in order to assess their capabilities. The intensity of physical and emotional reactions is not as important as the individual's perception and evaluation of those conditions. Individuals that possess an elevated sense of efficacy are apt to regard their level of physical and emotional arousal as an invigorating performance promoter. Conversely, those besieged by doubt and indecision view it as crippling (Bandura, 1994).

Self-determination (SDT) and subtheories

SDT was introduced by Deci and Ryan (1985b) and delineates various kinds of motivation based on the different goals or reasons that precipitate action. The simplest

differentiation is between intrinsic motivation (IM) and extrinsic motivation (EM). Motivations that are intrinsic implies doing something because it is innately enjoyable or interesting, and motivations that are extrinsic in nature attributes doing something because it leads to an outcome that is separate from the behavior. In other words, when intrinsically motivated an individual takes action for the challenge or enjoyment involved versus external rewards or pressures (Ryan & Deci, 2000).

Cognitive evaluation theory. Cognitive evaluation theory (CET; Deci & Ryan, 1985a) is considered a subtheory of SDT and stipulates the influences in social contexts that yield variability in IM. It contends that events such as rewards and feedback that contribute toward perceptions of competence (or self-efficacy) can improve IM for that action (Ryan & Deci, 2000). Furthermore, CET stipulates that, in accordance to deCharms (1968), an individual's impressions of competence will not improve IM unless coupled with perceptions of autonomy, or having the perception of an internal locus of causality (as cited in Ryan & Deci, 2000, p. 58). In other words, in order to have an elevated degree of IM individuals must experience fulfilment of the needs for both autonomy and competence. Thus, CET asserts that contextual settings can expedite or hinder IM by enabling versus impeding the needs for autonomy and competence (Ryan & Deci, 2000).

Organismic Integration Theory. For activities that do not have the allure of novelty, challenge, or aesthetics, attention must shift to the essence and dynamics of EM (Ryan & Deci, 2000). Another subtheory of standard deviation theory by Deci and Ryan (1985) is organismic integration theory (OIT) and was presented to specify the various forms of EM and the environmental factors that enable or impede the internalization and assimilation of these behaviors' regulation (as cited in Ryan & Deci, 2000, p. 61). OIT suggests a taxonomy of types

of motivation, arranged categorically from left to right based on the degree to which an individual's motivation for their behavior comes forth from one's self (Ryan & Deci, 2000).

Amotivated. Amotivation is a state of lacking any intention to engage in an activity (Ryan & Deci, 2000). Amotivation results from not seeing the value of an activity (Ryan, 1995), or according to Seligman (1975), not thinking it will result in a favorable outcome, or according to Deci (1975), lacking the sense of self-efficacy to do it (as cited in Ryan & Deci, 2000, p. 61).

EM-External regulation. This category is the least autonomous type of EM (Ryan & Deci, 2000). These behaviors are carried out to appease external requirements or acquire an externally dictated reward contingency. According to deCharms (1968), these behaviors have an external perceived locus of causality (EPLOC) and people often experience them as regimented or disaffected (as cited in Ryan & Deci, 2000, p. 61). This type of motivation is the only one acknowledged by operant theorists such as Skinner (Ryan & Deci, 2000).

EM-Introjection. Individuals carry out these actions resultant from feelings of pressure in order to avoid anxiety or anxiety or to attain pride (Ryan & Deci, 2000). This category is representative of regulation by contingent self-esteem, or when doing things in order to augment or maintain feelings of self-worth. Introjected behaviors, although internally regulated, are not experienced completely within self and therefore still have an EPLOC (Ryan & Deci, 2000).

EM-Identification. Regulation of behavior through identification is a more self-determined type of EM (Ryan & Deci, 2000). In this category the individual identifies with the personal relevance of a behavior and therefore receives the behavior's regulation as their own. For example, when a child values writing as a life goal and subsequently memorizes spelling lists because they perceive it as relevant to writing the child identifies with the value of this activity (Ryan & Deci, 2000).

EM-Integration. Integration is the most self-determined form of EM and happens when identified regulations have been completely assimilated to the self through self-examination and alignment with the individual's other needs and values (Ryan & Deci, 2000). As an individual increasingly internalizes the reasons for an action and conforms them to the self, extrinsically motivated actions become more autonomous. While these types of motivation are very similar to IM, they are still extrinsic since regulation is completed for the action's supposed instrumental worth regarding some outcome that is independent of the behavior (Ryan & Deci, 2000).

Intrinsic motivation. This category of motivation underscores that IM is an archetype of autonomous activity (Ryan & Deci, 2000). However, it is important to also stress that this does not imply that as extrinsic regulations become increasingly internalized they are converted into IM. It is therefore worth noting that the above taxonomy continuum is not necessarily a developmental continuum. While movement between categories can have predictable reasons, there is no absolute sequence of change (Ryan & Deci, 2000).

Developmental Cognitive Neuroscience

Developmental cognitive neuroscience combines perspectives from cognitive science, neuroscience, and psychology (Ansari, König, Leask, & Tokuhamma-Espinosa, 2017). Neuroscience is the study of the nervous system and brain form and function. The field of cognitive neuroscience offers biological constraints to the understanding of human psychology, or, "how the brain enables the mind" (Ansari et al., 2017, p. 199). As such, the focus of developmental cognitive neuroscience is on brain structure and function and how the brain changes over developmental time and how experiences influence brain structure and function. The phenomena of brain structure and function being affected by experience are referred to as

plasticity (Bartol & Bartol, 2011). Furthermore, these changes vary over the course of learning and development (Ansari et al., 2017).

Through the advent of non-invasive neuroimaging technologies, such as functional Magnetic Resonance Imaging (fMRI), developmental cognitive neuroscience examines brain functions as they pertain to neural correlates of complex human behaviors, such as emotions and problem solving (Ansari et al., 2017). More specifically, developmental cognitive neuroscience looks at how children learn to read, do math, and how the acquisition of these skills is informed by other cognitive functions such as working memory, attention, and exercise. Other important areas of research include adolescent risk-taking, and the interface of social behaviors and emotional factors related to reward processing and motivation (Ansari et al., 2017).

In fact, recently a significant body of research exploring the developmental neurobiology of adolescence has taken shape (Somerville & Casey, 2010). This research largely aims to examine the hypothesis that particular brain activity patterns emerge during adolescence predictive of stereotypical features of adolescent behavior such as risk-taking and suboptimal decision making when facing incentives (Somerville & Casey, 2010).

Research suggests several important findings regarding structural and functional differences between adolescent and adult brains as it pertains to impulse control, reward motivation, emotional response, and perception of self and others (Pope, Luna, & Thomas, 2012).

Impulse control. In adolescents the processes of the brain that support the ability to voluntarily restrain a reflexive response are immature (Pope et al., 2012). Risk-taking gradually declines between adolescence and adulthood due to continued development of the brain's cognitive control system, thereby enhancing the ability for self-regulation (Steinberg, 2008).

Reward motivation. Adolescent brains experience increased reactivity in regions that support reward processing in concert with an engagement of neural networks sustaining behaviors driving the reception of rewards (Pope et al., 2012). Findings also indicate that adolescents' heightened responsiveness to motivational cues regulates processes that are related to cognitive control differently than adults or children. During adolescence and peaking between ages 14 to 16, motivational cues signaling potential rewards are particularly salient, and can lead to suboptimal or riskier choices that abate efficacious goal-oriented behavior (Somerville & Casey, 2010). Furthermore, the cognitive control capacity of adolescents can be strengthened or weakened, contingent on whether the demands of a task necessitate attention to or suppression of these motivational cues (Pope et al., 2012).

Emotional response. In adolescents there is an underdevelopment of the systems of the brain that are connected with risk-taking and amplified emotional responses to idle threats and implicated in basic emotional behaviors (Pope et al., 2012). Additionally, when pressed by an urgent decision, adolescents will depend more on feelings and less upon intellectual capabilities (Casey, Getz, & Galvan, 2008).

Perception of self and others. Adolescents, as compared to adults, demonstrate unique activity patterns in regions of the brain that induce self-awareness, thinking about emotions and intentions, and understanding others (Pope et al., 2012).

Putting it Together

Perspectives from operant learning, self-efficacy, self-determination and two subtheories, as well as developmental cognitive neuroscience form an integrative framework for considering a programmatic approach using incentive rewards with juvenile offenders. The "heavy lifting" of incentive rewards is built upon the tenets of operant learning. However, if external or

environmental determinants of behavior are overemphasized the individual may be overlooked, thereby neglecting a critical level of explanation (Bartol & Bartol, 2011). It is important to bear in mind that people are, for the most part, active participants in problem solving who observe, discern, decipher, and make choices and judgements based on what the environment offers. Therefore, internal factors, as well as external ones, may play significant roles in behavior (Bartol & Bartol, 2011).

Furthermore, reward processes can be scrutinized at both the behavioral and neural levels (Hidi, 2016). From within and without, from inside and out; the examination of rewards and rewards' effects and relationships with behavior, motivation, and the brain are complex and integrated.

As such, analogies are useful in helping to describe and explain complex concepts and relationships (Paris & Glynn, 2004; Treagust, 2007). Consider this first crude example of moving and boxes, whereas the act of moving to a new location is symbolic of acquiring and strengthening desirable behaviors. In this analogy, the box itself could be looked at as operant learning (akin to the previously mentioned "heavy lifting"). The box has been fitted with two slots or handles. These represent the role of positive reinforcement as a component of operant learning (and part of the box itself). Furthermore, the box is labeled with where it's going (i.e. "kitchen") and this information is based on the contributions of self-efficacy and self-determination. Without this information, the journey toward change could be misdirected and circuitous. Lastly, the box is also labeled with the contents of what is inside. What is "in the box" is defined by neuroscience. A rudimentary example indeed.

In a second analogy, consider the relationships between a target, arrow, and scope/sight. The target aptly represents the target behaviors that are intended to be changed. The arrow, or

mechanism of impacting behavior change, represents positive reinforcement, as a component of operant learning. Lastly, the alignment of aim and focus are represented by self-efficacy, self-determination, and developmental neuroscience.

According to Goldstein et al. (2016), an effective juvenile justice model should utilize current research on adolescent development and behavior modification (Goldstein et al., 2016). The above descriptions of various theoretical perspectives coupled with basic analogies of their potential integration paves the way for greater and more detailed discussion on the use of community-based incentive reward programs for juvenile offenders.

Section III. Incentive Reward Program Typology and Terminology

In order to provide a comprehensive framework pertaining to effective components of community-based incentive reward programs for juvenile offenders it is useful to overview incentive reward program typologies and terminology. There are several types and subtypes of incentive reward programs, each with their own unique terminology. The following discussion describes several prominent behavioral management interventions used across a variety of contexts. Contingency management, token economies, graduated responses, and Positive Behavioral Interventions and Supports (PBIS) are some of the more well-known modalities for impacting positive behavioral change. These strategies are used across a diverse range of contexts and environments including corrections, schools, drug abuse treatment, and other residential settings.

Contingency Management

Contingency management is the systematic application of principles of behavioral management that underlie reward and punishment (NIDA, 2014). Contingency management is grounded on the precept that behavior is a function of the consequences of actions (Ylvisaker,

Feeney, & Hibbard, 2007). In other words, how individuals behave is predictably related to the consequences of their behavior. Contingency management has been utilized as a modality of change for a variety of targeted behaviors such as attendance and compliance to treatment, diminished HIV risk behaviors, compliance to rules and expectations within a controlled setting, as well as grooming and personal hygiene among individuals with mental deficits (Trotman & Taxman, 2011). Contingency management is most often associated with the field of substance abuse and according to Bigelow and Silverman (1999), is considered one of the most empirically supported modalities for augmenting drug abstinence (as cited in Benishek et al., 2014, p 1426). Types of contingency management systems include, but are not limited to, voucher and prize-based approaches (Benishek et al., 2014), token economies, shaping, and behavior contracting (Trotman & Taxman, 2011).

Based on tenets of operant conditioning, contingency management conventions rely upon routine monitoring of an individual's drug use and the subsequent transfer of an incentive upon verification of drug abstinence (Petry & Stitzer, 2002). In this way, the incentive acts as a positive agent that competes with the drug's reinforcing effects thereby increasing the probability that abstinence will occur and remain ongoing (Bigelow, Stitzer, Griffiths, & Liebson, 1981).

The two primary components of contingency management are punishment and reinforcement (Trotman & Taxman, 2011) and usually incorporates three fundamental operations (Petry, 2000). The first procedural action is to acquire objective evidence of drug abstinence or another target behavior. The second step is to provide tangible reinforcers such as privileges or money upon the individual demonstrating the target behavior. Lastly, as appropriate the reinforcer is withheld if the target behavior does not transpire. In order for contingency management's contingencies to be effective, they must be administered systematically and in a

timely manner so that a minimal time lapse occurs between the target behavior and transfer of the consequence (Higgins, 1997).

Research demonstrating the efficacy of contingency management programs.

Research suggests that contingency management systems are an effective intervention modality across several disciplines including drug abuse treatment (Trotman & Taxman, 2011) and youth with disabilities such as attention-deficit/hyperactivity disorder (DuPaul & Eckert, 1997) and traumatic brain injuries (Ylvisaker et al., 2007b). Interventions grounded in contingency management have been shown to consistently increase abstinence from an assortment of substances and across various samples (Tevyaw et al., 2007) and also effectively increase participation in treatment and reduce program attrition (Petry, 2000). While most studies of incentives within contingency management systems have concentrated on cocaine use (Petry & Stitzer, 2002), incentives have also contributed to assisting individuals stop the use of opiates, marijuana, alcohol, and cigarettes (Benishek et al., 2014).

For example, a study by Branson, Barbuti, Clemmey, Herman, and Bhutia (2012) of 52 adolescents ages 12-17 examined the impact of a “fishbowl” or prize-based contingency management intervention on participation and attrition in an adolescent substance abuse program. Results suggested that the control group participants attended significantly less sessions compared to the contingency management group. The authors concluded that their findings supported the application of low-cost contingency management to enhance attendance of adolescents in clinical settings (Branson et al., 2012).

A study by Tevyaw et al. (2007) of 19 adolescents ages 14-18 that participated in a smoking cessation program found support for the acceptability and practicality of utilizing contingency management for adolescent smokers. Data indicated that contingency management

had a modest impact on abstinence rates and may be a profitable modality for reducing adolescent smoking (Tevyaw et al., 2007).

A meta-analysis of 63 studies by DuPaul and Eckert (1997) looked at the effects of school-based interventions for individuals ages 5-15 with attention-deficit/hyperactivity disorder. Results indicated that when disruptive behavior and/or task-related attention is targeted, contingency management coupled with academic interventions, such as peer tutoring, had greater effects than cognitive-behavior modification (DuPaul & Eckert, 1997).

Token Economies

Token economies are a system of contingency management (National Center on Intensive Supervision, n. d.) that have been successfully used as tools of motivation and behavior-management in rehabilitative and educational environments since around the early 1800s and perhaps even earlier (Hackenberg, 2009). According to Kazdin (1977) and McLaughlin and Williams (1988), the behavioral principles utilized in token economies are largely based upon the concept of operant conditioning (as cited in Doll, McLaughlin, & Barretto, 2013, p. 133).

Token economies are an interrelated array of contingencies that enumerates relationships among token production, accrual, and transfer. According to Kazdin (1977), the crucial parts of token economies include only a few basic elements (as cited in McLaughlin & Williams, 1988, p. 469). Several authors (Kazdin, 1977; McLaughlin, 1975; O'Leary & Drabman, 1971) specify that token systems are comprised of (a) tokens, (b) resolution of target behaviors, (c) rules for how tokens are gained or forfeited, (d) back-up consequences and their cost, and (e) transaction process for using tokens to acquire back-up consequences (as cited in McLaughlin & Williams, 1988, p. 469). Back-up consequences, also known as back-up rewards, are the things that the individuals have determined that they are willing to work towards earning (Doll et al., 2013).

The tokens themselves are typically objects such as poker chips or coins, but can also be things such as points on a counter or checks on a list (Hackenberg, 2009). A token, as implied by the name, is an item of no intrinsic value and whose function is created through relations to other unconditioned and conditioned reinforcers. Examples of unconditioned reinforcers include food or water, and examples of conditioned reinforcers include things like money or gift cards. Therefore, a token may have several functions, including reinforcement, punishment, discrimination, and elicitation. Discriminative and elicited functions have antecedent effects, or effects occurring before token-exchange. Discriminative functions of tokens can signal temporal proximity to exchange periods whereas eliciting can evoke behavioral responses to the tokens themselves. As such, the token's function is contingent on the relationship between token and outcome (Hackenberg, 2009).

There are several variations of token economies. The response cost system includes having tokens taken away for pre-defined behaviors (Doll et al., 2013). Lottery systems add an additional component to the exchange period in which target behaviors are rewarded with a token and there is subsequently a lottery to determine who actually receives the backup reward. Level systems include tiers that correspond to varying degrees of participant behavior that result in higher or lower rates of reinforcement and privilege. Lastly, token economies can also be administered to an individual or a group (Doll et al., 2013).

According to Alberto and Troutman (2013), as desired behaviors and their proficiency increase, token activity should be incrementally faded to reach a more natural, or irregular, delivery schedule (as cited in Diamond, Da Fonte, & Boesch, 2016, p. 73). This process requires specific procedures in order to carefully withdraw the economy without causing a decrease in behavior gains (Doll et al., 2013). According to Kazdin (1977), this also improves the

probability of participants maintaining the positive changes resultant from the token economy (as cited in Doll et al., 2013, p. 133).

Research demonstrating the efficacy of token economies. Token economies have been found to be an effective modality of behavior management across diverse settings (Doll et al., 2013). A wide-breadth of research cites evidence of this influential capacity, especially among school and community settings. While most applications of token economies focus on students in elementary school, there is evidence of their effectiveness beyond that population (Doll et al., 2013).

For example, a study by Swain and McLaughlin (1998) examined the effects of token economies on math accuracy among four middle-school students ages 13-14 with behavior disorders. Results suggested a positive effect of token reinforcement on academic responding with gains replicated across all four students (Swain & McLaughlin, 1998).

Hassan and Aderanti (2012) investigated the differential effectiveness of self-management and token economies in the treatment of the disorderliness of delinquent youth that were ages 9-18. The findings of this study indicated that adolescent disorderliness could be abated, regardless of socio-economic background and gender, by the administration of token economies and self-management strategies (Hassan & Aderanti, 2012).

Graduated Responses

Graduated responses are structured behavioral management systems based on research pertaining to adolescent development that aim to provide consistent, predictable, and proportionate responses to behavior (CCLP, 2012). These responses include developing incentives that reinforce progressively compliant, constructive behaviors and appropriately

matched sanctions to act in response to increasingly detrimental, noncompliant behaviors (CCLP, 2012).

The tenets of operant conditioning serve as the primary theoretical foundation for graduated responses systems (Goldstein et al., 2016). According to Kazdan (1975, 2005), in graduated responses systems reinforcements are typically labeled as incentives and can be concrete things such as movie tickets or conceptual responses such as praise or a reduction of supervision intensity (as cited in Goldstein et al., 2016). Furthermore, in graduated responses punishment is typically labeled as sanctions and can be delivered by taking away or diminishing something pleasant, like a privilege, or by enforcing something unpleasant, such as increasing community service hours or an earlier curfew. Together these incentives and sanctions are referred to as “graduated responses” (CCLP, 2016). Graduated responses use a matrix of responses, either as a structured decision-making process or a fixed list of behaviors, that informs responses to behavior as determined by severity of the behavior and the risk level of the individual (CCLP, 2016).

Research shows that responses in an effective graduated responses system should follow five important principles: certainty, immediacy, proportionality, fairness, and tailor-made (CCLP, 2016). Practices and policies that keep these tenets at the leading edge of work with juvenile offenders will increase the probability that a graduated responses system will be successful at advancing positive behavior and averting those that are negative (CCLP, 2016). These important principles will be discussed in greater detail later in this paper.

Research demonstrating the efficacy of graduated responses. Research from a variety of contexts, including adult parole and probation, drug courts, school climate reforms studies,

and human behavioral studies, indicate that graduated responses' combination of sanctions and incentives best promotes progress toward goals and rule compliance (CCLP, 2016).

For example, a study by Wodahl et al. (2011) examined the impact of rewards and sanctions on a random sample of 283 adult offenders in an Intensive Supervision Program. Results suggested that using a combination of sanctions and rewards led to higher rates of success. Furthermore, the authors importantly found that applying rewards in proportionally greater numbers than sanctions resulted in the most favorable outcomes, most notably when four or more rewards were given for every sanction (Wodahl et al., 2011).

Furthermore, according to the Maryland Department of Juvenile services, after implementing graduated responses practices, court filings for probation violations fell 41% (CCLP, 2016). Similarly, Monmouth County, New Jersey, experienced a 75% decrease in admissions to detention for violations (Haar, n.d.). Jefferson Parish, Louisiana saw a 66% reduction of the number of youth revoked from probation and committed to the state Office of Juvenile Justice (CCLP, 2016).

Positive Behavioral Interventions and Supports

As a result of evidence from the aforementioned systematic approaches and in particular the capacity of positive reinforcement to effect positive behavior change, numerous schools have adopted the use of PBIS, appreciating the significance of advocating for and acknowledging positive behaviors as a means of managing the conduct of students (CCLP, 2012; 2016). While PBIS does not refer to any specific program, in general terms it refers to a multi-tiered behavioral framework utilized to enhance behavioral practices, data-driven decision-making, professional development, school leadership, supportive state and local policies, and evidence-based instructional strategies (OSEP Technical Assistance Center on Positive Behavioral

Interventions and Supports [OSEP], 2015). In other terms, PBIS is a systemic approach to managing school behaviors aimed at bolstering the academic and social learning of all students, and in particular those with behavioral and emotional problems (Farkas et al., 2012). To achieve this, among other things, PBIS institutes a schoolwide policy for discipline with distinct procedures and behavior expectations. Akin to the principles of contingency management and graduated responses, there is a reinforcement continuum for positive behaviors and a deterrent continuum for behaviors that are negative (Farkas et al., 2012).

Grounded in the behavioral and prevention sciences, PBIS recognizes the following three-tiered prevention logic (OSEP, 2015):

Tier I. This first tier encompasses the primary or universal audience of PBIS in which the prevention of new incidence of problem behaviors are accomplished by fostering a high-quality learning milieu for all students and staff throughout all school settings (OSEP, 2015).

Tier II. The secondary or targeted tier focuses on reducing the prevalence of extant cases of problem behaviors that are either not responsive to primary intervention efforts and/or are displaying high risk behaviors. This is accomplished by administering more intentional, intensive, and periodic small group-directed responses in circumstances in which negative behavior is probable (OSEP, 2015).

Tier III. The tertiary or intensive tier focuses on reducing the complexity and/or intensity of existing issues of problem behavior that are unaffected by the efforts of tiers I and II by administering the most individual-centric responses to situations where negative behavior is probable (OSEP, 2015).

Within the above tiers and tethered to appropriate levels of engagement and intensity, PBIS deploys the strategic use of positive reinforcement and controlled reductions of natural rewards for problem behavior using evidence-based practices (OSEP, 2015).

Research demonstrating the efficacy of PBIS. Randomized control studies of school-wide (SW) PBIS has established their effectiveness fairly well (Bradshaw, Koth, Thornton, & Leaf, 2009; Horner et al., 2009). While finite in number, there are several mostly single-school studies that examine the efficacy of SWPBIS in middle and high school settings (Flannery, Frank, McGrath Kato, Doren, & Fenning, 2013).

For example, a four-year longitudinal study by Luiselli, Putnam, and Sunderland (2002) examined the effects of SWPBIS on a middle school with an enrollment of over 600 students. Results indicated reductions in problem behaviors as represented by student detentions and increased school attendance (Luiselli et al., 2002). A two-year study by Warren et al. (2006) of an inner-city middle school with an enrollment of approximately 737 students found a 20% decrease in disciplinary referrals and a 501% decrease in short-term suspensions lasting 1-5 days. A three-year study of multiple urban middle schools with over 600 total students by Lassen, Steele, and Sailor (2006) also found significant reductions in disciplinary referrals and suspensions and increases in standardized reading and math scores.

Flannery et al. (2013) examined the effects of SWPBIS across a three-year period on eight diverse public high schools serving over 15,525 students. Results suggested that at the high school level, while it took two years for statistically significant changes to manifest, SWPBIS can be reasonably put into effect both systematically and with fidelity (Flannery et al., 2013).

Summary

Contingency management, token economies, graduated responses, and Positive Behavioral Interventions and Supports are just some of the more well-known modalities for impacting positive behavioral change across a variety of settings. The methodology, scope, and contextual variance of each modality vary and/or overlap. However, one of the most significant commonalities is the integral reliance upon positive reinforcements to affect behavior change.

Section IV. Overview of Incentive Reward Program Components and Practices

There are a number of important considerations and integral components to an effective community-based incentive reward program for juvenile offenders. First, it might be helpful to visualize “effective interventions” as three concentric circles, with the largest, outermost circle containing general principles about *all* effective interventions for juvenile offenders. Within this circle is a slightly smaller circle that describes important general considerations and principles about incentive reward programs. Lastly, within this circle is a still smaller circle representing specific components of an effective incentive reward program.

As such, before getting into specifics about a reward incentive program (the innermost circle), it is useful to first highlight important general guidelines and principles that should guide any intervention for juvenile delinquents.

General Principles of Effective Interventions for Juveniles

Interventions for juvenile delinquents should transform their behavior so that there is a reduction of delinquency and improvements to the probability of thriving as productive members of society (Lipsey et al., 2010). While juvenile justice systems deploy a variety of interventions with these intentions, it is often challenging to gage their effectiveness. Growing evidence now

describes both effective programs and their key characteristics associated with positive effects on recidivism (Lipsey et al., 2010).

Mckee and Rapp (2014) indicate identifying the risk, need, and responsivity of juvenile offenders as three primary principles of effective interventions with this population. In practical terms, these principles stipulate the need to utilize behaviorally based interventions with offenders that are higher-risk, target interventions to offenders' criminogenic needs, and be aware of and reactive to the unique temperaments, learning styles, and motivation levels of juveniles to inform and shape appropriate interventions (Andrews et al., 1990).

Other authors (Andrews et al., 1990; Lipsey, 1999), including Cullen and Gendreau (2000), also include the principle of fidelity (as cited in Pealer & Latessa, 2004, p. 26). A fidelity principle specifies that the integrity of a program should be maintained throughout service delivery (Pealer & Latessa, 2004). According to a meta-analysis by Lipsey (1992), effective interventions focus on improving prosocial skills and changing behavior, problem solving among both juveniles and their families, and having multiple intervention modalities that are highly structured and intensive (as cited in Kurlychek, Torbet, & Bozynski, 1999, Key Elements of Effective Programs section). Guerra, Kim, and Boxer (2008) add considerations that highlight a preference for interventions to occur closer-to-home, be evidence-based, and that interventions are also strength-based, or recognize and take advantage of youth strengths as an additional means of risk abatement.

Furthermore, successful interventions for juveniles are based on philosophies that are restorative or therapeutic (Lipsey et al., 2010); subjected to regular evaluation and implemented by staff that are properly trained, supervised, and compliant to a program model (Dowden & Andrews, 2004; Lipsey, 2009); and are of adequate intensity and duration (Izzo & Ross, 1990;

Lipsey 2009). Moreover, according to Julian (2011), programs were more successful if they meticulously assessed needs and risks to pair juvenile delinquents with suitable interventions, used skill-building approaches, and provided feedback to program participants (as cited in McKee & Rapp, 2014, p. 313).

A final general consideration of interventions pertains to the location of programming, in particular, the benefits of community-based versus residential treatment. Successful interventions for juvenile offenders are typically administered in a community setting instead of an institutional environment (Izzo & Ross, 1990; Lipsey 2009). Offenders should be placed in residential settings only as a last resort (Guerra et al., 2008). This is of particular concern when individuals are separated from their families and communities. It is challenging for juveniles to learn and enhance skills and behaviors where they are allotted institutional adjustment and in turn apply these same advancements in their home communities. Likewise, when youth are placed out-of-home it is arduous to engage families in the intervention process. This is especially precarious if family risk factors significantly contributed to the individual's delinquency risk (Guerra et al., 2008). According to Greenwood (2004), the most effective community-based programs are those that accentuate family interactions. This is likely a result of these programs focusing on skills facilitation for the adults who have supervision and training roles with the youth. Juxtaposed to the dramatically increased costs of detention, programs are simply more effective within community settings (Andrews et al., 1990; Andrews & Bonta, 2006; Guerra et al., 2008).

General Considerations of Effective Incentive Reward Programs

There are important overarching considerations when implementing a reward incentive program for juvenile offenders. The following step-wise pre- and post-implementation

recommendations have been assimilated from several sources including the Graduated Responses Toolkit (CCLP, 2016) and tips from juvenile drug court strategies (Borg et al., 2013).

Define the purpose of the system. First, the team seeking to implement an incentive program needs to define the purpose of the system (CCLP, 2016). For example, is the program's purpose aimed at reducing the number of youth placed out-of-home or in secure detention? Perhaps it is intended to increase youths' successful completion of court orders? Identifying the goals of a new program will assist in focusing efforts while providing a benchmark against which results can be compared. However, the process of defining the program's purpose may require reviewing a broader topic pertaining to the purpose of juvenile probation. A clear-cut and coherent description of the general goals of juvenile probation and workers' roles and expectations can help support the utilization of an incentive reward system. A descriptive statement such as this can clarify that workers are agents of change, and that incentives are a valuable tool ready for their use (CCLP, 2016).

Embrace the philosophy. The above discussions and outcomes portend the team's need to embrace the philosophy that the use of incentives is to motivate behavior change (Borg et al., 2013). Commitment, in the context of a team, is a function of clarity and buy-in (Lencioni, 2002). Clarity is promoted by effectively discussing and defining the purpose of an incentive reward system and juvenile probation (CCLP, 2016). Buy-in is more likely to occur when team members have had an opportunity for unfiltered debate and everyone has stated their opinions and perspectives (Lencioni, 2002). A team can confidently commit to a decision, and embrace the philosophy, knowing that it has exhausted the shared knowledge of the entire group (Lencioni, 2002).

Develop a written plan. It is also essential to develop written goals (Lipsey et al., 2010), procedures, and policies (Borg et al., 2013) to describe and guide the programs implementation, monitoring, and evaluation (National Research Council, 2013). Adequately documenting an intervention's procedures allows replication and enhances consistency. Research indicates programs that have written guidelines for incentives procedures experience stronger outcomes (Borg et al., 2013).

Mobilize and advocate. Judges, prosecutors, public defenders, community-based service providers, juvenile justice workers, youth, and family members should be interviewed in order to ensure that a strong foundation exists to support the program initiative (CCLP, 2016). These dialogues will expose issues that will help further shape the program and are also an opportunity to educate and justify the use of incentives with juvenile offenders and thereby improve the probability that stakeholders will support rather than resist the incentive program initiative (CCLP, 2016).

Ongoing collaboration with a variety of community stakeholders and service providers are key to successfully implementing and maintaining an incentive reward program (CCLP, 2016). Furthermore, a successful incentive program has responses that are integrated with other aspects of the supervision process (Moeser, 2015).

Create a committee. Forming a committee can aid in the development of an incentive program (CCLP, 2016). The committee modality offers a means to acquire consensus regarding incentive specific behaviors as well as reward content and delivery. Furthermore, the group can safeguard the established policies and procedures of the program (CCLP, 2016).

List target behaviors. A general framework for promoting targeted skill development or a list of behaviors to promote should be defined based on offender assessment results (CCLP,

2016). A properly designed incentive reward program determines positive goals that are aligned with the results of the youth's risk and needs assessment. These attributes will vary from person to person and as such, it may be advantageous to provide guidance to workers pertaining to skills and behaviors they can advance in each of the various domains of the agency's assessment tool (CCLP, 2016).

Additionally, workers should differentiate between proximal and distal goals when addressing behaviors (Borg et al., 2013). Proximal goals are those that are more immediate and can be regularly focused on and as such should be rewarded right away. Distal goals take more time and effort to achieve. Rewards should be carefully constructed to match distal goals (Borg et al., 2013).

Identify Incentives. As mentioned above, committees will need to deliberate and broadly determine the kinds of incentives that their agencies are willing to provide to youth when they progress toward their goals (CCLP, 2016). Decisions will need to be made about a variety of issues including the permissibility of monetary incentives and their limits, what incentives require parental approval, and those that necessitate supervisor approval (CCLP, 2016).

It is also advantageous to get input from the youth, family members, school faculty, and other service providers about their perspectives regarding what would be the best motivators for respective youth (CCLP, 2016). What may be a reward to one youth may not have the same effect for another individual in the program (Borg et al., 2013). Furthermore, developing a degree of individualization, while also incorporating family-based incentives, gives rise to increased motivation for change (Borg et al., 2013).

Test draft materials. Upon completing development of the program's components, the team should reexamine and test those materials to assure that they will operate as proposed (CCLP, 2016).

Develop capacity to evaluate effectiveness. Teams should analyze how present data systems can be utilized or adapted to monitor the data required to appropriately evaluate an incentive reward program prior to implementing the system (CCLP, 2016). Evaluative tools should comprise of data-tracking mechanisms that allow the collection of information at both the individual case management level and the more comprehensive system level (Goldstein et al., 2016).

Train staff and educate youth and family members. Team members should be appropriately trained on the research and logic behind the utilization of incentive rewards, in conjunction with how to administer and execute the agency's policies and procedures (CCLP, 2016). Furthermore, an incentive program cannot accomplish the program's planned outcomes without youth and parents having a shared understanding of the behaviors that will result in rewards. Supervisors should clearly describe how juvenile justice workers should inform youth and family members about program expectations (CCLP, 2016).

Evaluate implementation and make adjustments. After implementing or piloting the incentive reward program, staff should collect data and evaluate whether efforts are having their planned effects (CCLP, 2016). Soliciting feedback from youth, family members, and other stakeholders about the program can assist in shaping adjustments. As such, workers should interview and/or survey youth and family upon completing the program in order to gather specific information about the effectiveness and appropriateness of status quo incentives and procedures (CCLP, 2016). Research indicates that agencies that utilize their data as an ongoing

mechanism of adaptive management have greater cost savings and stronger program outcomes (Borg et al., 2013).

Another perspective that focuses solely on the implementation activities of a rewards system with offenders is proffered by the Carey Guides (Bacula, 2012), which suggest five sequential steps:

Assess. Using feedback from the offender, decide what rewards are most valuable to each individual and the reasons supporting their inclusion in the program.

Target. Target and reward the distal goals, as well as the proximal objectives that precipitate these goals. Individuals are less likely to feel overwhelmed, and more apt to be successful, if three or fewer goals are targeted.

Engage. Engage individuals by promoting the ways that the behaviors that are being targeted will facilitate the achievement of long-term success. An important aspect of this process is developing personal rapport with offenders since relationships are critical to changing behavior.

Match. Couple rewards and sanctions with offenders that are most reflective of motivational factors, characteristics, and circumstances.

Plan. Outline a case plan with the offender that includes positive targeted behaviors that are linked to specific rewards. Change is often a tedious process. As such, include discrete, incremental modifications in the plan and establish rewards for each step where progress is made. Case plans should be adaptive and evolve as the circumstances, needs, or perspective of the individual change (Bacula, 2012).

Specific Incentive Reward Program Components and Practices

There are a number of specific components of an effective incentive reward program. These critical attributes should inform and shape an incentive reward program so that outcomes consistently achieve positive outcomes across diverse populations and environments. While the following eight general descriptors often overlap in their content, their imbrication forms a framework that describes important characteristics of an ideal incentive reward program for juvenile offenders:

Timely. The development and implementation of a successful reward system requires that incentive rewards be delivered in a timely fashion (Moeser, 2015). During the delays between behavior and response other behaviors interfere, and the incentive may become associated with unintended behaviors (Yeres & Gurnell, 2012). As such, the more time it takes to deliver an incentive reward, the less probable it is to have the intended effect. Moreover, contingency management studies indicate that the outcomes of reinforcements are more efficacious when given immediately (Burdon, Roll, Prendergast, & Rawson, 2001; Griffith, Rowan-Szal, Roark, & Simpson, 2000).

Improved understanding about reinforcement timetables grounded in behavioral research has been validated by neuroscientific studies (Meyer, 2006). Research indicates that the effects of reinforcement seem to be exercised in regions of the brain that are part of the dopamine reward system. When anticipating rewards, adolescents exhibit increased activity in the area of the brain responsible for processing rewarding stimuli (Casey, Jones, & Hare, 2008). This condition of amplified elevation implies that immediate rewards are more salient for youth (Goldstein et al., 2016). As such, according to Dayan and Abbott (2001), neuroscientists surmise that rewards and punishments that are procured promptly after an action are more influential than

those received subsequently (as cited in Meyer, 2006, Responses Should be Delivered Immediately section).

Targeted. Behaviors that are targeted to be changed should be clearly identified and defined (Borg et al., 2013) with responses delivered for every target behavior (Meyer, 2006). Furthermore, target behaviors need to be measurable and verifiable beyond self-reports from the youth themselves (CCLP, 2016; Meyer, 2006; Yeres & Gurnell, 2012). According to Van and Hersen (1998), program-design should facilitate juveniles' experiences of success almost immediately (as cited in Goldstein et al., 2016, p. 827). Incrementally achievable proximal goals that are pursued in the short-term should precede larger distal goals (Borg et al., 2013). Acknowledging and emphasizing early successes should help fortify youths' comprehension of the link between positive behaviors and rewards and should also increase the likelihood of future success (Goldstein et al., 2016). Thereafter, the system should stress effort and improvement rather than perfection. This approach follows the basic tenets of behavior-shaping so that individuals receive reinforcement for early behaviors that resemble final target behaviors (Goldstein et al., 2016).

Another important consideration is the recommendation to adopt a multi-tiered approach to behavior management (Deitch, 2014). According to Scheuermann and Hall (2012), research demonstrates the value of using a multi-tiered framework modeled upon PBIS (as cited in Deitch, 2014, The Need for a Multi-Tiered Approach to Behavior Management section). While PBIS is most often utilized in school settings, research indicates it is effective with youth in all types of settings (Johnson et al., 2013).

Proportional. In an ideal rewards system the desired behaviors are gradually shaped by proportional incentives (Moeser, 2015). According to Roll, Higgins, and Badger (1996),

research pertaining to graduated rewards indicates that better outcomes are accomplished by individuals that receive graduated reinforcement versus participants receiving fixed reinforcement. Additionally, practitioners should determine which incentives are more appropriate for proximal accomplishments versus distal goals (CCLP, 2016). In other words, the magnitude of a reward should always be proportional to the behavior being acknowledged and to the expectations for the youth at that specific moment in the program (Yeres & Gurnell, 2012). For example, numerous agencies report that one of the largest motivators for youth compliance with terms and conditions are reductions to the duration and intensity of supervision (CCLP, 2016). While this might be an appropriate long-term goal, agencies should deliver supplemental incentive rewards proximally for positive behavior that are proportional to their behavior change progress (CCLP, 2016).

The concept of proportional can also remind practitioners of the importance of counterbalancing sanctions with positive reinforcement. According to numerous authors (Andrews & Bonta, 2010; Gendreau, 1996; Lester, Braswell, & Van Voorhis, 2004), interventions, in order to be most effective, should consist of positive reinforcements that outnumber punishments (as cited in American Probation and Parole Association et al., 2012, p. 7). The study by Wodahl and associates (2011) described earlier in this paper found that that relationship between rewards and program success was nearly two times stronger than that of sanctions. Furthermore, while incentives and sanctions worked best when deployed in tandem, delivering incentives at a ratio of four rewards to every one sanction further promoted the probability of success (Wodahl et al., 2011).

Progressive. The program should also strategically progress through stages, or phases to guide and facilitate growth toward target behaviors (Borg et al., 2013). A brief introductory

phase should provide pragmatic and procedural orientation and acclimation. Second and third phases should focus on increasing engagement, gradual behavior shaping, and skill building. The final phase is a step-down process that deliberately alters and diminishes reinforcement scheduling in anticipation of program completion (Borg et al., 2013).

Early on in the program, positive reinforcement should be frequently delivered (Bacula, 2012). Research indicates that the utilization of continuous, fixed ratio, and fixed interval reinforcement schedules are best for building new behaviors (Kazdin, 1977). However, as the individual advances through the programmatic phases, more is expected of the individual and there should be a gradual shift toward increased reliance on natural consequences (Yeres & Gurnell, 2012). Furthermore, face-to-face contacts should also be less frequent. Once the target behavior is being consistently demonstrated, positive reinforcement should be tapered-off to an intermittent or variable reinforcement schedule. According to research literature, variable reinforcement schedules are associated with maintaining behaviors upon reaching their desired standard (Kazdin, 1977).

Token economies and prize-based strategies can be effective modalities for a fading process as they respectively can facilitate delaying rewards while still providing incentives to maintain the shaped target behaviors. As a word of caution, rewards that are delivered too frequently during the later phases of the behavior change process can lose their meaning, potency, and risk having the youth become too dependent on the external reward versus beginning to internalize their prosocial attitudes and target behaviors (Bacula, 2012).

Developmentally appropriate. Another important aspect of developing a successful incentive rewards program is ensuring that it is developmentally appropriate (Moeser, 2015; Goldstein, 2016). Approaches that assess and intervene with juvenile offenders are helped by

consideration of knowledge regarding adolescent development (National Research Council, 2013). According to the National Association for the Education of Young Children (NAEYC, 1996), developmentally appropriate practices (DAP) have three core considerations that are also relevant to adolescents (as cited in Meschke, Peter, & Bartholomae, 2012, p. 90).

First, DAP suggests that workers examine physical, social, emotional, and cognitive developmental perspectives and their interplay in cultivating strategies and approaches that advance the intellectual, emotional, and social development of youth (Meschke et al., 2012). For example, an important component of a structured incentive reward program is systematically promoting the youths' understanding, appreciation, and memory of the program's procedures and expectations (Goldstein, et al. 2016). Workers should continually and consistently discuss requirements as they pertain to target behaviors and associated rewards in order to help the participant remember expectations (Goldstein, et al. 2016).

Second, according to various authors (Bredekamp 1987; Bredekamp & Shepard 1989; Shepard & Smith 1988), the expectations, content, and delivery of programs should be modified to match the unique needs of the youth (as cited in Meschke et al., 2012, p. 90). Earlier in this paper discussion highlighted findings pertaining to developmental cognitive neuroscience that underscored the variability of individuals' responses to reinforcements as influenced by the development of specific regions of the brain and neural networks. As such, an incentive reward program should shape strategies that work in concert with these findings, thereby helping determine both goals and rewards. For example, tangible incentives that are more effective with younger participants can include small toys, food, and decorative pencils or pens (Ford & Sutphen, 1996). Whereas research suggests that monetary incentives work better with teens (U.S. Department of Education, Institute of Education Sciences, 2006).

Lastly, DAP, according to NAEYC, is an ecological or contextual approach that helps insure that practices are relevant, meaningful and respectful of both youth and their families by integrating the individual's cultural and social contexts (as cited in Meschke et al., 2012, p. 90).

Individualized. The goal of an effective system is not to disregard discretion while making decisions (CCLP, 2016). Instead, the goal is to provide juvenile justice professionals a comprehensive range of options that help motivate youth to change and be successful (Trotman & Taxman, 2011). What is rewarding to one person may not have the same effect on another youth in the same program (Borg et al., 2013). As such, cultivating a degree of individualization, while also incorporating family-based incentives portends to increased motivation for change. As mentioned earlier in this paper, workers should speak with youth, family members, and other service providers to help determine the best motivators (CCLP, 2016).

To undergird a plan's individualization, workers should use a behavioral contract as a mechanism to tailor target behaviors and incentives while also upholding fairness and consistency with all youth (Yeres & Gurnell, 2012). An important key to ensuring fair and consistent responses is actively engaging the youth in determining their respective target behaviors and appropriate responses (Yeres & Gurnell, 2012).

Importantly, methods, or how the worker presents and facilitates the incentive reward process are very important (Yeres & Gurnell, 2012). In fact, the way a response is delivered is as important as the response itself (Meyer, 2006). If the youth believes that the process is unfair they will likely be defiant (Andreoni, Harbaugh, & Vesterlund, 2003). As such, certain communication styles that demonstrate interpersonal skills, empathy, and enthusiasm during interactions with program participants result in more positive outcomes (Meyer, 2006).

Specifically, motivational interviewing has been demonstrated to be successful in effectively communicating with program participants (Meyer, 2006).

Another important caveat is that rewards, while individualized, do not necessarily have to be something tangible in order to be effective in motivating behavior change (Meyer, 2006). Some of the most effective reinforcers include recognition, approval, praise, and negative reinforcement (Yeres & Gurnell, 2012). For example, praise is very effective when given immediately and continuously for demonstrating a target behavior (Deci & Koestner, 1999). Furthermore, praise is the most effective way of elevating an individual's intrinsic motivation (Deci & Koestner, 1999).

Since praise can be an effective tool for the practitioner it is perhaps beneficial to provide additional guidance on how to deliver praise. According to Loveless (1997), individuals giving praise should use the "I-Feed-V" mnemonic for guidance, whereas I = immediate, F = frequent, E = enthusiastic, E = eye contact, D = describe the behavior, and V = variety (as cited in Vanderbilt University, 2017, Praise section).

Certain. If an individual is assured that they will definitely receive a reward for conducting themselves in a certain way, they are more likely to practice positive behaviors (Harrell & Roman, 2001). Resentment, frustration, and distrust are the products of failing to deliver an incentive as expected and will ultimately undermine an individual's motivation to be successful in the program (CCLP, 2016).

The certainty principle asserts the importance of every positive or negative behavior, being addressed (Cary et al., 2011). Incorrectly providing positive reinforcement for negative behaviors or neglecting to recognize positive behaviors dilutes program credibility, constrains the opportunity to shape behavior as well as appropriate supervision. Certainty, when applied to

positive reinforcement, is typically articulated as a ratio of achievements to rewards. Research findings pertaining to initiating a new behavior are explicit that the smaller the ratio, the better the effects (Cary et al., 2011).

Adaptive. The final component of an effective incentive reward program is the capacity to be adaptive when addressing target behaviors and rewards. To these ends, responses need to evolve as behaviors change (Moeser, 2015). Individuals come from diverse circumstances and vary in their opinions about what constitutes a reward (Bacula, 2012). Moreover, these opinions can change over time, depending on each person's respective situation. As such, it is important to make sure that incentive reward plans are dynamic in nature and able to be modified as the needs, circumstances, or perceptions of the youth change (Bacula, 2012).

In a broader sense, practitioners should use collected data to evaluate the effectiveness of their program and make subsequent adjustments as appropriate (Borg et al., 2013). Gathering feedback from youth and family members is an important way to inform changes to enhance the system (CCLP, 2016). Surveys, exit interviews, or focus groups are effective methods that workers can obtain this information. In order to get a more accurate representation of the program, practitioners should solicit feedback from youth who were successful and those that were not as successful while under supervision (CCLP, 2016). Ultimately, an incentive reward program's effectiveness is contingent on the quality of the overall program (Yeres & Gurnell, 2012).

Word on Punishment

Research strongly suggests that the most effective way to change behavior is to use both rewards and sanctions (APPA et al., 2012; CCLP, 2016; Goldstein et al., 2016; Wodahl, 2013). While delivering punishment often leads to a suppression or reduction of particular negative

behaviors, this modality only inhibits undesired conduct; it does not substitute them with preferred positive behaviors (Bandura, 1962). Furthermore, according to Altschuler (2005), the effectiveness of punishment typically fades over time, as individuals become acclimated to the negative experiences (as cited in Goldstein et al., 2016, p. 820-821). In fact, new negative behaviors can unintentionally be provoked in response to situations that sanctions are overly punitive (Mendel & Annie E. Casey Foundation, 2011).

Punishment has historically had a significant, if not leading role in juvenile justice (Goldstein et al., 2016), and as such, this paper deliberately excludes elaborating on punishment in order to focus attention on positive reinforcement. Therefore, with the exception of punishment's theoretical underpinnings as they relate to operant conditioning, and punishment's application in broader descriptions of program archetypes, minimal discussion of punishment occurs in this paper. However, it is worth noting that many of the aforementioned strategies that are appropriate for designing and delivering effective positive reinforcements, are also applicable to the use of punishment. For example, the principles of swiftness, certainty, severity/proportionality are commonly recommended practices pertaining to sanctions and punishment (APPA et al., 2012).

Ineffective or Detrimental Program Components and Practices

There are a number of cautionary considerations to designing, implementing, and maintaining an incentive reward program. The practitioner that neglects the consistent application of the aforementioned components and strategies will jeopardize both the program's meta-goals as well as the individual outcomes of youth. In general, this paper underscores the importance of creating and following a coherent set of principles and procedures that guide the development, implementation, and evaluation of an incentive reward program. For example,

establishing procedures specific to monitoring practices of target behaviors insures that an individual's changes to positive and negative behaviors are not neglected (Cooper, 2003). Among other issues, ad hoc programs that lack structure sabotage efforts to be consistent and fair (Cooper, 2003). However, beyond this and previously described principles, strategies, and components, there are additional caveats and considerations that can derail an effective incentive reward program.

Unintended side effects. A number of mistakes made in incentive reward programs can be typified as unintended side effects. For example, approaches that are confrontational and lecturing-oriented (Meyer, 2006; Yeres & Gurnell, 2012) or punitive-centric (Lipsey et al., 2010) tend to result in less favorable outcomes. Moreover, even programs using rewards can have deleterious effects. For example, according to Higgins and Silverman (1999), the delivery of positive reinforcements can have unexpected negative consequences, as demonstrated by a drug abstinence program in which the inclusion of bonus payments to a progressive pay schedule actually decreased abstinence (as cited in Meyer, 2006, Responses May Have Unintentional Side Effects section).

Research also strongly indicates that a behavior that is already intrinsically motivated that is subsequently targeted with extrinsic rewards can diminish the motivation to continue that behavior (Deci & Koestner, 1999). For example, providing a bonus economic reward to an individual who intrinsically enjoys their work can have the unintended effect of reducing that person's desire to work (Deci & Koestner, 1999). This phenomenon underscores the importance of taking time to carefully evaluate target behaviors and their locus of causality in order to ascertain whether the behavior can be effectively extrinsically motivated.

An economic perspective on incentives sheds valuable insight into when incentives do and do not work. According to Gneezy, Meier, and Rey-Biel (2011), extrinsic incentives, and especially those that are monetary, can have a crowding-out effect on intrinsic or other motivations for completing certain tasks. For example, offering incentives for improved academic achievement may signal the student that the task is not enjoyable, that the student is not competent to be successful, or that the student's intrinsic motivation is untrusted. Each respectively signal negative connotations to the student that can reduce the individual's intrinsic motivation (Gneezy et al., 2011).

While research suggests that incentives are effective at increasing school attendance and enrollment, when it comes to academic performance they are not consistently effective across all subjects (Gneezy et al., 2011). For example, studies indicate that incentives work better with concrete concepts, such as math, and that they do not work as well with more abstract or conceptual subjects, such as social sciences and reading. Economists suggest that the individual's ability to control their efforts seems to be an important factor in these differences (Gneezy et al., 2011).

This leads to meaningful considerations of the youth's levels of self-determination and self-efficacy when selecting specific target behaviors and incentives. Self-determination, or autonomy, describes an individual's experiences of choice and volition, while controlled motivation describes the experiences of being coerced or pressured (Vansteenkiste, Lens, & Deci, 2006). In simple terms, autonomy is the extent to which an individual exercises self-governance or freedom of choice. Self-efficacy, as described earlier, is a person's beliefs about their ability to affect positive outcomes in their life (Bandura, 1994). As such, both autonomy

and self-efficacy are important considerations that should help guide the selection of target behaviors and their shaping.

For example, if an individual lacks an appropriate level of self-efficacy to complete an introductory behavior, the target has not been appropriately matched to the individual's beliefs about their abilities and the shaping process will likely stall (Bandura & Locke, 2003).

Similarly, if the individual has not been an active decisional agent in helping determine target behaviors and rewards, the process could be waylaid with acedia, resistance, or even rebellion (Yeres & Gurnell, 2012). According to SDT, the maintenance and enhancement of intrinsic motivation are promoted when the context is more autonomy-supportive (Vansteenkiste et al., 2006). Moreover, an autonomy-supportive milieu also helps facilitate the internalization and integration of extrinsic motivation (Vansteenkiste et al., 2006).

Another unintended effect that can complicate incentive reward programs is learned helplessness. According to Maier and Seligman (1976), learned helplessness happens when a person is subjected to situations that are out of their control and they resultingly learn that their response is not associated with or does not impact the outcome. As a result, the individual may demonstrate aggressiveness, withdrawal, and/or despondency due to vague communication about target behaviors, expectations, and responses (Marlowe & Kirby, 1999) or due to practices such as providing "second chances" or free passes that foster a disconnect between the individual's actions and their consequences (Yeres & Gurnell, 2012, p. 18).

In fact, the disconnect that results from affording second chances can make it more challenging for individuals to take responsibility for making changes to their lives (Yeres & Gurnell, 2012). If a practitioner is repeatedly inclined to grant second chances, it could indicate that something is wrong with the plan and/or program. These important signals should prompt

revisions so that plans can be followed consistently, instead of repeated accommodations via second chances (Yeres & Gurnell, 2012).

Other shortcomings. There are a number of other issues that typify misguided interventions. According to an analysis of a broad sample of 107 juvenile offender programs by Pealer and Latessa (2004), the most common shortcomings are:

Atheoretical programs. A lack of consideration for empirical research regarding effective programs and their application to specific offender populations.

Standardized assessments. A lack of objective assessment of participants' characteristics of risk, need, and responsivity as associated with delinquent behaviors. Researchers frequently found that even when appropriate assessments were utilized, recipients still received the same services.

Attention to responsivity. Analysis found limited evidence of programs acknowledging youths' characteristics, such as intelligence, anxiety, and motivation, that might thwart their capacity to learn or engage in the program.

Matching interventions, staff, and programs. Evidence indicated minimal consideration to appropriately pair youths to interventions, youths and staff, and staff and programs.

Family involvement. Families were typically not included in the program process.

Staff training. Programs typically indicated insufficient staff training and a wide range of staff quality.

Rewards and punishment. Programs used too few rewards and too many punishments. Furthermore, researchers rarely found programs that effectively utilized rewards and punishments.

Performance measurement. The study found limited measures of program performance. Moreover, the majority of programs had no concept of the extent to which individuals were learning skills and behaviors.

Evaluation. A small number of programs conducted formal evaluations and programs rarely tracked youth outcomes after program completion.

Lastly, incentive reward programs for juvenile offenders risk net widening, causing more youth who would otherwise not be under court supervision to be put into the system because families, teachers, or judges believe they will reap benefits from the program's services (Goldstein et al., 2016). While a program using incentive rewards may provide a mechanism for positive intervention in the lives of youth, these intercessions should not supplant supports from families, schools, and communities (Goldstein et al., 2016).

Incentives versus bribes. It is not uncommon for people to confuse the differences between incentives and bribes. Bribery and reinforcement can be confused because the way that they can be implemented may appear to be similar (Lattal, 2017). There are several important distinctions between reinforcements and bribes. First, according to Woolf (1980), bribery is defined as an "inducement to engage in illegal or inappropriate behavior" (as cited in Akin-Little, Eckert, Lovett, & Little, 2004, p. 359). As such, bribes have an inherent quality of being unethical or illegal in nature (Lattal, 2017). Therefore, intentions are important. Bribery seeks to corrupt an individual's behavior, whereas providing a reinforcer as part of a designed intervention incorporates careful efforts to establish prosocial behavior. While reinforcement can have negative unintended side effects on outcomes, such as augmenting a pattern of undesired behavior, that doesn't equate positive reinforcements with bribery. Another important distinction is that bribery provides a tangible item, typically something monetary, to an

individual either after or before the behavior occurs, whereas incentives, in the form of positive reinforcement, only occur after the behavior has been demonstrated (Lattal, 2017).

For all of the reasons outlined above, incentives and positive reinforcements used in professional interventions do not meet the definition of bribery (Lattal, 2017). Furthermore, it is factually erroneous to equate the two. Doing so undermines the many constructive and positive changes in individuals' lives that are facilitated by the thoughtful utilization of reinforcement by skilled and trained practitioners (Lattal, 2017).

Section V: Other Recommendations

An increasing number of juvenile justice departments across the U.S. are implementing developmentally informed programs that utilize incentive rewards to promote behavior change (Goldstein et al., 2016). The growth of these frameworks has driven policymakers to establish program development and implementation guidelines to aid agencies that are in the process of generating their own systems (e.g., Bacula, 2012; CCLP, 2016; Borg et al., 2013; Yeres & Gurnell, 2012). The following recommendations expand upon or introduce additional ideas pertaining to incentive reward programs including incentive costs, the use of technology, and areas needing more research.

The Cost of Incentive Rewards

Incentives do not have to be expensive or elaborate to be effective (Yeres & Gurnell, 2012). Praise, approval, and negative reinforcement are some of the best reinforcers and cost nothing. Furthermore, departments can produce nonmonetary incentives such as awards ceremonies, certificates of recognition, curfew extensions, and reductions of supervision constraints if funding is not available for particular tangible incentives (CCLP, 2016).

Additional cost-cutting measures include acquiring donations from community partners and using prize-based “fishbowl” strategies for larger ticket items (Yeres & Gurnell, 2012). Businesses and sports teams are typically willing to contribute certificates or free tickets. Coupon books are occasionally offered at a discounted price. A variety of scholarships for enrichment activities such as music lessons, art classes, and other opportunities can be solicited from community service organizations (Yeres & Gurnell, 2012). In addition to importantly seeking ideas from youth and families, there are a number of resources available on the internet that describe a variety of incentives (e.g., National Association of Drug Court Professionals & National Drug Court Institute, n.d.; Szanyi, n.d.).

Technology

A wide-breadth of literature exists about advances in juvenile justice assessment technologies that are designed to aid decision making (Young, Moline, Farrell, & Bierie, 2006). However, the literature regarding the role of technology in monitoring on-going case management of a program using incentive rewards is notably lacking. Advances in information technology have increased the availability of juvenile justice data (National Research Council, 2013). However, the approaches and modalities for collecting and tracking specific program outcomes vary and are often lacking altogether (CCLP, 2016).

Many departments have strived to automate the process wherever feasible (CCLP, 2016). For example, in Santa Cruz, California, juvenile justice workers utilize custom-made screens to document goals, benchmarks, behaviors, and the corresponding responses delivered. Another example comes from Maryland. While modifications to the statewide case management system occurred, juvenile services workers piloted a new system that required staff to use paper to document actions and outcomes until the updated system was back online. Administrators used

this interim period to evaluate and inform adjustments to the program and case management system. Software engineers at the agency were able to implement systematic accommodations that streamlined workflow. Regardless of the data collecting and tracking modality that the respective agency uses, it is important to mitigate adverse impact on existing business processes and workflows, thereby minimizing worker burden (CCLP, 2016).

In a world that's both technologically innovative and increasingly connected, it seems reasonable that computerized/app enhancements exist, or can be reasonably developed, that will better support juvenile justice programs. In many instances, technology could assist in addressing important needs of an incentive reward program, such as timely responses to target behaviors, immediate access to individualized plans, and prompt and personalized communication. There are a number of applications that already exist that attempt to enhance behavior change processes, most notably in the fields of ABA and PBIS, as well as other teacher and parenting tools (e.g., Hero, 2017; Lee, 2013; LiveSchool, 2016; Prupas, 2011),

Recently a grant was awarded by the National Science Foundation for a project to plan and develop the next generation of electronic monitoring that will use smartphones, sensor technology, an array of apps, and emerging technologies to promote and reward constructive behaviors of offenders (Webster, 2017). According to one of the grantees, the project is considering unique methods to promote positive behavior, such as reminding offenders about job opportunities and treatment appointments, and subsequently delivering positive reinforcement messages when individuals follow through (Webster, 2017). This is a novel concept that has potential implications beyond the traditional purposes of electronic monitoring that may integrate with and enhance an incentive reward program for juvenile offenders.

Research Needed

While there is an extensive body of literature that indicates the efficacy of a variety of modalities that use incentive rewards, more enquiry is still needed. For example, research is needed pertaining to the types of rewards that are most effective in promoting and shaping behavior and whether these incentives are applicable to all youth participants, and if particular positive reinforcements might be affected by cultural subtleties, risk-level, gender, or the type of offense.

Additionally, the attributes of typical adolescent brain development that escalate the inclination toward risky behaviors are often exacerbated by mental health symptoms and learning disabilities, which are widespread issues among justice-involved youth (Goldstein et al., 2016). In particular, research estimates that approximately 75 to 93% of youth that annually enter the juvenile justice system in the U.S. have experienced some level of trauma (Adams, 2010). An increasing amount of developmental neuroscience research has revealed the pervasive deleterious effects of traumatic stress on the developing brain. As such, more research is needed on the interactions of trauma on operant conditioning through the lens of applied behavior analysis and neuroscience (Adams, 2010).

Regarding theory, this paper applied several conjectural viewpoints to augment a subject matter that is typically monoperspective (i.e., operant conditioning). However, the theoretical landscape still holds nuances that can further enhance the means and methods of incentive reward programs. For example, the transtheoretical model of change (TMC) could offer additional insight into appropriately identifying stage-specific modalities, activities, and responses utilized in an incentive reward program. According to Prochaska and DiClemente

(1993), one of the most significant indications of TMC is the need to assess the stage of an individual's readiness for change in order to accordingly tailor interventions.

Section VI: Summary and Conclusion

A growing body of research indicates that the best way to advance positive behavior is to apply incentives for good behavior combined with sanctions for misbehavior (CCLP, 2016). As such, this paper presents a set of best practices and guidelines pertaining to the use of community-based incentive rewards with juvenile offenders. The theories of operant learning, self-efficacy, self-determination, cognitive evaluation, and organismic integration, as well as a developmental cognitive neuroscience perspective, frame the theoretical lens by which incentive rewards are used to instill and modify behaviors. Empirical examples of behavioral management interventions using incentive rewards, such as contingency management, token economies, graduated responses, and PBIS, specify the application of operant conditioning principles in practice.

There is a wide breadth of general and specific principles, components, and strategies of effective juvenile interventions and incentive reward programs. An effective incentive reward program for juvenile offenders ultimately aims to reduce delinquency and improve the chances of the individual thriving as a productive member of society. The program itself should be community-based and use highly structured strategies and responses that are timely, targeted, proportional, progressive, developmentally appropriate, individualized, certain, and adaptive. Furthermore, it uses strength and evidence-based approaches, is cognizant of fairness and committed to consistency. The number of rewards delivered should at least match the number of sanctions, with some research indicating a 4:1 positive reinforcement to punishment ratio. The juvenile justice worker that neglects the consistent application of these components and

strategies risks both the program's meta-goals as well as the outcomes of individual youth. Additionally, a number of ineffective program components, practices, and shortcomings can elicit unintended deleterious side effects.

There are a number of recommendations for making an incentive reward program fit budgetary constraints, including using nontangible positive reinforcements such as praise and tangible reward strategies such as prize-based modalities. The use of technology is an important consideration and recent innovations in computer applications and smartphones can potentially be leveraged to enhance program monitoring and communication. Lastly, research is needed to determine specific rewards' efficacy, correlations to demographic, delinquency, and assessment characteristics, the effects of trauma on program processes and outcomes, and theoretical expansions including consideration of the transtheoretical model and implications on an incentive reward program's planning and progress.

In conclusion, juvenile delinquents are different from adult offenders (National Research Council, 2013). Understanding the unique developmental characteristics of adolescence has pivotal ramifications for juvenile justice policy and supports a framework that is both fair and effective in promoting youth prosocial behaviors and crime reduction. However, integrating the utilization of reinforcements into community-based offender management in a purposeful way will likely necessitate more than general policy changes— it will require an archetypal shift in philosophy (Wodahl, 2011). Altering the behaviors of justice-involved youth requires course correcting away from a system that only aims to restrain, or briefly contain, disagreeable behaviors toward a more robust, sustainably-driven plan of action that encourages the growth of behaviors and skills that last well beyond the end of formal probation/supervision and ultimately prepare youth to be successful, positive contributors to communities (Moeser, 2015).

References

- Akin-Little, K. A., Eckert, T. L., Lovett, B. J., & Little, S. G. (2004). Extrinsic reinforcement in the classroom: Bribery or best practice. *School Psychology Review, 33*(3), 344-662.
- Alberto, P. A., & Troutman, A. C. (2013). *Applied behavior analysis for teachers* (9th ed.). Upper Saddle River, NJ: Prentice-Hall.
- American Probation and Parole Association, National Center for State Courts, and The Pew Charitable Trusts. (2012). *Effective Responses to Offender Behavior: Lessons Learned for Probation and Parole Supervision*. Retrieved from <http://www.appa-net.org/eWeb/docs/APPA/pubs/EROBLLPPS-Report.pdf>
- Ansari, D., König, J., Leask, M., & Tokuhamas-Espinosa, T. (2017). Developmental cognitive neuroscience: Implications for teachers' pedagogical knowledge. In *Pedagogical Knowledge and the Changing Nature of the Teaching Profession*, OECD Publishing, Paris. Retrieved from <http://dx.doi.org/10.1787/9789264270695-11-en>
- Andreoni, J., Harbaugh, W., & Vesterlund, L. (2003). The carrot or the stick: Rewards, punishments, and cooperation. *American Economic Review, 93*(3), 893-902.
- Andrews, D., & Bonta, J. (2006). *The psychology of criminal conduct* (4th ed.). Cincinnati, OH: Anderson Publishing.
- Andrews, D., Zinger, I., Hoge, R., Bonta, J., Gendreau, P., & Cullen, F. (1990). Does correctional treatment work? A clinically relevant and psychologically informed meta-analysis. *Criminology, 28*, 369-404.
- Bacula, M. (2012). *Rewards and Sanctions* (2nd Ed.). Carey Group Publishing.
- Baer, D. M., Wolf, M. M., & Risley, T. R. (1968). Some current dimensions of applied behavior analysis. *Journal of Applied Behavior Analysis, 1*(1), 91-97.

- Bandura, A. (1962). Punishment revisited. *Journal of Consulting Psychology*, 26298-301.
- Bandura, A. (1971). *Social Learning Theory*. New York: General Learning Press. Retrieved from http://www.jku.at/org/content/e54521/e54528/e54529/e178059/Bandura_SocialLearningTheory_ger.pdf
- Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review*, 84 (2): 191–215. doi:10.1037/0033-295x.84.2.191. Retrieved from <https://www.uky.edu/~eushe2/Bandura/Bandura1977PR.pdf>
- Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory*. Englewood Cliffs, N.J: Prentice-Hall.
- Bandura, A. (1994). Self-efficacy. In V. S. Ramachandran (Ed.), *Encyclopedia of Human Behavior* (Vol. 4, pp. 71-81). New York: Academic Press. (Reprinted in H. Friedman [Ed.], *Encyclopedia of Mental Health*. San Diego: Academic Press, 1998). Retrieved from <https://www.uky.edu/~eushe2/Bandura/Bandura1994EHB.pdf>
- Bandura, A. (2001). Social cognitive theory: an agentic perspective. *Annual Review Of Psychology*, 521-26.
- Bandura, A., & Locke, E. A. (2003). Negative Self-Efficacy and Goal Effects Revisited. *Journal of Applied Psychology*, 88(1), 87-99. doi:10.1037/0021-9010.88.1.87
- Bandura, A., Ross, D., & Ross, S. A. (1963). Imitation of film-mediated aggressive models. *The Journal of Abnormal and Social Psychology*, 66(1), 3–11.
- Bartol, C. R. & Bartol, A. M. (2011). *Criminal behavior: A psychological approach* (9th Ed.). Upper Saddle River; NJ: Prentice Hall.
- Benishek, L. A., Dugosh, K. L., Kirby, K. C., Matejkowski, J., Clements, N. T., Seymour, B. L.,

- & Festinger, D. S. (2014). Prize-based contingency management for the treatment of substance abusers: a meta-analysis. *Addiction, 109*(9), 1426-1436.
doi:10.1111/add.12589
- Bigelow G., Silverman K. (1999). Theoretical and empirical foundations of contingency management treatments for drug abuse. In: Higgins S. T., Silverman K., editors. *Motivating Behavior Change among Illicit-Drug Abusers: Research on Contingency Management Interventions*. Washington, DC: American Psychological Association; pp. 15–31.
- Bigelow, G. E., Stitzer, M. L., Griffiths, R. R., & Liebson, I. A. (1981). Contingency management approaches to drug self-administration and drug abuse: efficacy and limitations. *Addictive Behaviors, 6*(3), 241-252.
- Bontrager Ryon, S., Winokur Early, K., Hand, G., & Chapman, S. (2013). Juvenile justice interventions: System escalation and effective alternatives to residential placement. *Journal of Offender Rehabilitation, 52*(5), 358-375. doi:10.1080/10509674.2013.801385
- Borg, M.L., Foster, S., James-Andrews, S., Pearce, J. M., Schiller, W. L., Thomas III, J., . . . Van Wormer, J. (2013). *Practical Tips to Help Juvenile Drug Court Teams Implement the 16 Strategies in Practice*. Reno, NV: National Council of Juvenile and Family Court Judges.
- Bradshaw, C. P., Koth, C. W., Thornton, L. A., & Leaf, P. J. (2009). Altering school climate through school-wide positive behavioral interventions and supports: Findings from a group-randomized effectiveness trial. *Prevention Science, 10*(2), 100-115.
doi:10.1007/s11121-008-0114-9
- Branson, C. E., Barbuti, A. M., Clemmey, P., Herman, L., & Bhutia, P. (2012). A pilot study of

- low-cost contingency management to increase attendance in an adolescent substance abuse program. *American Journal on Addictions*, 21(2), 126-129. doi:10.1111/j.1521-0391.2011.00204.x
- Burdon, W. M., Roll, J. M., Prendergast, M. L., & Rawson, R. A. (2001). Drug courts and contingency management. *Journal of Drug Issues*, 31(1), 73-90.
- Caldarella, P., Shatzer, R. H., Gray, K. M., Young, K. R., & Young, E. L. (2011). The effects of school-wide positive behavior support on middle school climate and student outcomes. *RMLE Online: Research in Middle Level Education*, 35(4), 1-14.
- Cary, P. L., Fox, C. L., Freeman-Wilson, K., Hanson, S., Harberts, H., Hardin, C., . . . Tauber, J. (2011, February). *The Drug Court Judicial Benchbook*. D. B. Marlowe & W. G. Meyer (Eds.), National Drug Court Institute. Retrieved from http://ndcrc.org/sites/default/files/14146_ndci_benchbook_v6.pdf
- Casey, B., Getz, S., & Galvan, A. (2008). The adolescent brain. *Developmental Review*, 28(1), 62-77. doi:10.1016/j.dr.2007.08.003
- Casey, B. J., Jones, R. M., & Hare, T. A. (2008). The Adolescent Brain. *Annals of the New York Academy of Sciences*, 1124, 111–126. <http://doi.org/10.1196/annals.1440.010>
- Center for Children’s Law & Policy. (2012). *Developing a System of Graduated Responses for Youth Supervised by the Juvenile Justice System*. Washington DC. Retrieved from <http://www.modelsforchange.net/publications/540>.
- Center for Children’s Law and Policy. (2016). *Graduated Responses Toolkit: New Resources and Insights to Help Youth Succeed on Probation*. Washington, DC. Retrieved from [http://www.jdaihelpdesk.org/specialtech/Graduated%20Responses%20Toolkit%20\(CCLP,%202016\).pdf](http://www.jdaihelpdesk.org/specialtech/Graduated%20Responses%20Toolkit%20(CCLP,%202016).pdf)

- Cohen, Mark A. and Piquero, Alex R. (December 2007). *New Evidence on the Monetary Value of Saving a High Risk Youth*. Vanderbilt Law and Economics Research Paper No. 08-07, Retrieved from <http://ssrn.com/abstract=1077214>
- Comer, R. J. (2014). *Abnormal psychology*. 8th Edition. New York, NY: Worth.
- Cooper, S. (2003). The carrot and the stick. *Michigan Bar Journal*, 82(1), 20-24.
- Dayan, P., & Abbott, L. F. (2001). *Theoretical Neuroscience*. MIT Press, Cambridge, MA.
- deCharms, R. (1968). *Personal Causation*. New York: Academic Press.
- Deci, E. L. (1975). *Intrinsic Motivation*. New York: Plenum.
- Deci, E. L. & Koestner, R. (1999). A meta-analytic review of experiments examining the effects of extrinsic rewards on intrinsic... *Psychological Bulletin*, 125(6), 627.
- Deci, E. L., & Ryan, R. M. (1985). *Intrinsic Motivation and Self-Determination in Human Behavior*. New York: Plenum.
- Deitch, M. (2014). Behavior management. In *Desktop Guide to Quality Practice for Working with Youth in Confinement*. National Partnership for Juvenile Services and Office of Juvenile Justice and Delinquency Prevention. Retrieved from <https://info.nicic.gov/dtg/node/21>
- Diamond, G. D., Da Fonte, M. A., & Boesch, M. M. (2016). I am working for ____: Successfully using token reward systems. *Journal of the International Association of Special Education*, (1), 73-76.
- Doll, C., F. McLaughlin, T. F., & Barretto, A. (2013). The Token Economy: A Recent Review and Evaluation. *International Journal of Basic and Applied Science*, Vol. 02, No. 01, July 2013, pp. 131-149. Retrieved from [http://insikapub.com/Vol-02/No-01/12IJBAS\(2\)\(1\).pdf](http://insikapub.com/Vol-02/No-01/12IJBAS(2)(1).pdf)

- Dowden, C., & Andrews, D. (2004). The importance of staff practice in delivering effective correctional treatment: A meta-analytic review of core correctional practice. *International Journal of Offender Therapy & Comparative Criminology*, 48(2), 203-214.
doi:10.1177/0306624X03257765
- Doyle, J. J. (2013). Causal effects of foster care: An instrumental-variables approach. *Children & Youth Services Review*, 35(7), 1143-1151. doi:10.1016/j.childyouth.2011.03.014
- DuPaul, G. J., & Eckert, T. L. (1997). The effects of school-based interventions for attention deficit hyperactivity disorder: a meta-analysis. *School Psychology Review*, 26(1), 5-27.
- Farkas, M. S., Simonsen, B., Migdole, S., Donovan, M. E., Clemens, K., & Cicchese, V. (2012). Schoolwide positive behavior support in an alternative school setting: An evaluation of fidelity, outcomes, and social validity of tier 1 implementation. *Journal of Emotional & Behavioral Disorders*, 20(4), 275-288. doi:10.1177/1063426610389615
- Federal Bureau of Investigation (September 2016). *Crime in the United States, 2015*. Washington, DC: U.S. Dept. of Justice. Retrieved from <https://ucr.fbi.gov/crime-in-the-u.s/2015/crime-in-the-u.s.-2015/tables/table-38>
- Flannery, K. B., Frank, J. L., McGrath Kato, M., Doren, B., & Fenning, P. (2013). Implementing schoolwide positive behavior support in high school settings: Analysis of eight high schools. *High School Journal*, 96(4), 267.
- Ford, J., & Sutphen, R. D. (1996). Early intervention to improve attendance in elementary school for at-risk children: A pilot program. *Social Work in Education*, 18(2), 95-102.
- Gatti, U., Tremblay, R. E., & Vitaro, F. (2009). Iatrogenic effect of juvenile justice. *Journal of Child Psychology & Psychiatry*, 50(8), 991-998. doi:10.1111/j.1469-7610.2008.02057.x
- Goldstein, N. S., NeMoyer, A., Gale-Bentz, E., Levick, M., & Feierman, J. (2016). "You're on

- the right track!" Using graduated response systems to address immaturity of judgement and enhance youth's capacities to successfully complete probation. *Temple Law Review*, 88(4), 803-836.
- Greenwood, P. W. (2004). Cost-effective violence prevention through targeted family interventions. *Annals of The New York Academy of Sciences*, 1036201-214.
- Griffith, J. D., Rowan-Szal, G. A., Roark, R. R., & Simpson, D. D. (2000). Contingency management in outpatient methadone treatment: a meta-analysis. *Drug and Alcohol Dependence*, 58(1-2), 55-66.
- Guerra, N. G., Kim, T. E., & Boxer, P. (2008). What works best: Practices with juvenile offenders. In R. D. Hoge, N. G. Guerra, & P. Boxer (Eds.), *Treating the Juvenile Offender* (79-102). Guilford Publications. Retrieved from http://ace.ucr.edu/people/nancy_guerra/nancy_pdfs/principles%20of%20best%20practice.pdf
- Haar, S. (n. d.). Innovation, improvement, or institutionalization of policy/practice: Model activities. *New Jersey Juvenile Detention Alternatives Initiative*. Retrieved from [http://www.jdaihelpdesk.org/jersey/Monmouth%20County%20New%20Jersey%20-%20Community%20Coaches%20Program%20\(Model%20Activity\).pdf](http://www.jdaihelpdesk.org/jersey/Monmouth%20County%20New%20Jersey%20-%20Community%20Coaches%20Program%20(Model%20Activity).pdf)
- Hackenberg, T. D. (2009). Token reinforcement: A review and analysis. *Journal of the Experimental Analysis of Behavior*, 91(2), 257–286. <http://doi.org/10.1901/jeab.2009.91-257>.
- Harrell, A., & Roman, J. (2001). Reducing drug use and crime among offenders: The impact of graduated sanctions. *Journal of Drug Issues*, 31(1), 207-231.
- Hassan, T., & Aderanti, R. A. (2012). Differential effectiveness of self-management and token

- reinforcement in the treatment of adolescents' disorderliness. *IFE Psychologia*, 20(1), 134-151.
- Hidi, S. (2016). Revisiting the role of rewards in motivation and learning: Implications of neuroscientific research. *Educational Psychology Review*, 28(1), 61-93.
- Higgins, S. T. (1997). The influence of alternative reinforcers on cocaine use and abuse: a brief review. *Pharmacology, Biochemistry, and Behavior*, 57(3), 419-427.
- Horner, R. H., Sugai, G., Smolkowski, K., Eber, L., Nakasato, J., Todd, A. W., & Esperanza, J. (2009). A randomized, wait-list controlled effectiveness trial assessing school-wide positive behavior support in elementary schools. *Journal of Positive Behavior Interventions*, 11(3), 133-144.
- Hulac, D., Benson, N., Nesmith, M. C., & Wollersheim Shervey, S. (2016). Using variable interval reinforcement schedules to support students in the classroom: An introduction with illustrative examples. *Journal of Educational Research and Practice*, 6(1), 90-96.
- Introduction to Psychology*. (2015). University of Minnesota Libraries Publishing edition, 2015. This edition adapted from a work originally produced in 2010 by a publisher who has requested that it not receive attribution. Retrieved from <http://open.lib.umn.edu/intropsyc/>
- Izzo, R. L., & Ross, R. R. (1990). Meta-analysis of rehabilitation programs for juvenile delinquents: a brief report. *Criminal Justice & Behavior*, 17(1), 134-142.
- Jeffery, C. R. (1965). Criminal behavior and learning theory. *Journal of Criminal Law, Criminology & Police Science*, 56(3), 294-300.
- Johnson, L. E., Wang, E. W., Gilinsky, N., He, Z., Carpenter, C., Nelson, C. M., &

- Scheuermann, B. K. (2013). Youth outcomes following implementation of universal SW-PBIS strategies in a Texas secure juvenile facility. *Education & Treatment of Children, 36*(3), 135-145.
- Justice Policy Institute. (2014, December). *Sticker Shock: Calculating the Full Price Tag for Youth Incarceration*. Retrieved from http://www.justicepolicy.org/uploads/justicepolicy/documents/sticker_shock_final_v2.pdf
- Juvenile Detention Alternatives Initiative, (2007). *Detention Reform Brief 1: Detention Reform: A Cost-Saving Approach*. Annie E. Casey Foundation. Retrieved from <http://www.aecf.org/m/resourceimg/aecf-DetentionReform1CostSavingApproach-2007.pdf>
- Kazdin, A. E. (1977). *The token economy: A review and evaluation*. New York: Plenum Press.
- Killeen, P. R. (2014). Pavlov + Skinner = Premack. *International Journal of Comparative Psychology, 27*(4), 544-568.
- Kurlychek, M., Torbet, P., & Bozynski, M. (1999, August). Focus on accountability: Best practices for juvenile court and probation. *JAIBG Bulletin*. Retrieved from <https://www.ojjdp.gov/pubs/jaibgbulletin/keyel.html>
- Lassen, S. R., Steele, M. M., & Sailor, W. (2006). The relationship of school-wide Positive Behavior Support to academic achievement in an urban middle school. *Psychology in The Schools, 43*(6), 701-712. doi:10.1002/pits.20177
- Lattal, A. (2017). From the field: Why reinforcement isn't bribery. *The Aubrey Daniels Institute*. Retrieved from <https://www.aubreydaniels.com/institute/from-the-field/why-reinforcement-isn%E2%80%99t-bribery>
- Lawrence, C., Carlson, E., & Egeland, B. (2006). The impact of foster care on development. *Development and Psychopathology, 18*. 57-76. 10.1017/S0954579406060044.
- Lee, M. (2013). 14 Teacher-Recommended Classroom Management Apps. Teachthought.

Retrieved from <https://www.teachthought.com/technology/14-teacher-recommended-classroom-management-apps/>

Lencioni, P. (2002). *The Five Dysfunctions of a Team: A Leadership Fable*. San Francisco, CA: Jossey-Bass.

Lester, D., Braswell, M., & Van Voorhis, P. (2004). Radical behavioral interventions. In P. Van Voorhis, M. Braswell, & D. Lester (Eds.), *Correctional counseling & rehabilitation* (5th ed.), (pp. 61-82). New York: Matthew Bender & Company, Inc.

Lindquist, C. H., Krebs, C. P., & Lattimore, P. K. (2006). Sanctions and rewards in drug court programs: Implementation, perceived efficacy, and decision making. *Journal of Drug Issues*, *36*(1), 119-145.

Lipsey, M. W. (1999). Can intervention rehabilitate serious delinquents? *Annals of The American Academy of Political & Social Science*, *564*142-166.

Lipsey, M. W. (2009). The primary factors that characterize effective interventions with juvenile offenders: A meta-analytic overview. *Victims & Offenders*, *4*(2), 124-147.

doi:10.1080/15564880802612573

Lipsey, M. W., Howell, J. C., Kelly, M. R., Chapman, G., & Carver, D. (2010, December).

Improving the Effectiveness of Juvenile Justice Programs A New Perspective on

Evidence-Based Practice. Center for Juvenile Justice Reform. Washington D.C.:

Georgetown University. Retrieved from [http://cjjr.georgetown.edu/wp-](http://cjjr.georgetown.edu/wp-content/uploads/2015/03/ImprovingEffectiveness_December2010.pdf)

[content/uploads/2015/03/ImprovingEffectiveness_December2010.pdf](http://cjjr.georgetown.edu/wp-content/uploads/2015/03/ImprovingEffectiveness_December2010.pdf)

LiveSchool. (2016). Track, Reward, & Improve Behavior. Retrieved from

<https://www.whyliveschool.com/>

Maier, S. F., & Seligman, M. P. (1976). *Learned Helplessness: Theory and Evidence*. *Journal of*

Experimental Psychology: General.

Marlowe, D., & Kirby, K. (1999). Effective use of sanctions in drug courts.

National Drug Court Institute Review, 2, 1-31.

McKee, E. C., & Rapp, L. (2014). The current status of evidence-based practice in juvenile justice. *Journal of Evidence-Based Social Work*, 11(4), 308-317.

doi:10.1080/10911359.2014.897099

McLaughlin, T. F. (1975). The applicability of token reinforcement systems in public school systems. *Psychology in the Schools*, 12, 84–89.

McLaughlin T.F., Williams R.L. (1988) The Token Economy. In: Witt J.C., Elliot S.N., Gresham F.M. (Eds.) *Handbook of Behavior Therapy in Education*. Springer, Boston, MA

Mendel, R. A., & Annie E. Casey Foundation. (2011). *No Place for Kids: The Case for Reducing Juvenile Incarceration*.

Meschke, L., Peter, C., & Bartholomae, S. (2012). Developmentally Appropriate Practice to Promote Healthy Adolescent Development: Integrating Research and Practice. *Child & Youth Care Forum*, 41(1), 89-108. doi:10.1007/s10566-011-9153-7

Meyer, W. (2006). Ten science-based principles of changing behavior through the use of reinforcement and punishment. *New York State Adult Drug Treatment Courts: Recommended Practices*. New York, NY. Retrieved from <https://jpo.wrlc.org/bitstream/handle/11204/2415/Ten%20Science-Based%20Principles%20of%20Changing%20Behavior%20through%20the%20Use%20of%20Reinforcement%20and%20Punishment.pdf?sequence=3&isAllowed=y>

Miller-Perrin, C. L. & Perrin, R. D. (2007). *Child maltreatment: an introduction* (2nd Ed.). Thousand Oaks, CA: Sage Publications, Inc.

Miller v. Alabama, 67 U. S. ____, 1 (2012).

Moeser, J. (2015). Incentives that work for youth in the justice system. *National Council on Crime & Delinquency*. Retrieved from <http://www.nccdglobal.org/newsroom/nccd-blog/incentives-work-youth-justice-system>

Muscott, H.S., Mann, E.L., & LeBrun, M.R. (2008). Positive behavioral interventions and supports in New Hampshire: Effects of large-scale implementation of schoolwide positive behavior support on student discipline and academic achievement, *Journal of Positive Behavior Interventions* 10, 190-205.

National Association for the Education of Young Children. (1996). Developmentally appropriate practice in early childhood programs serving children from birth through age 8: A position statement of the National Association for the Education of Young Children.

National Center on Intensive Supervision (n. d.). Behavioral intervention tools: Token economy. *American Institutes for Research*. Retrieved from <http://www.intensiveintervention.org/chart/behavioral-intervention-chart/13569>

National Association of Drug Court Professionals & National Drug Court Institute. (n.d.). List Incentives and Sanctions. Retrieved from http://ndcrc.org/sites/default/files/sanctions_and_incentives_ndci_annotated_document.pdf

National Research Council. (2013). *Reforming Juvenile Justice: A Developmental Approach*. Committee on Assessing Juvenile Justice Reform, Richard J. Bonnie, Robert L. Johnson, Betty M. Chemers, and Julie A. Schuck, Eds. Committee on Law and Justice, Division of Behavioral and Social Sciences and Education. Washington, DC: The National Academies Press.

NIDA. (2014, April 18). Principles of Drug Abuse Treatment for Criminal Justice Populations –

- A Research-Based Guide. Retrieved from <https://www.drugabuse.gov/publications/principles-drug-abuse-treatment-criminal-justice-populations-research-based-guide> on 2017, October 28
- Nugent, P. (2013, April 7). Behavior modification. *PsychologyDictionary.org*. Retrieved from <https://psychologydictionary.org/behavior-modification/>
- Office of Juvenile Justice and Delinquency Prevention Statistical Briefing Book (2017a, March 27). Retrieved from <http://www.ojjdp.gov/ojstatbb/crime/qa05101.as> Underwood, L.A., Office of Juvenile Justice and Delinquency Prevention Statistical Briefing Book. Online. (2017b, June 1). Retrieved from <https://www.ojjdp.gov/ojstatbb/corrections/qa08201.asp?qaDate=2015>
- Ohio Juvenile Justice Association (2015, March). *Juvenile Justice Fact Sheet Series: Crossover Youth*. Retrieved from <http://www.cdfohio.org/research-library/2015/crossover-youth-fact-sheet.pdf>
- O’Leary, K. D., Drabman, R. S. (1971). Token reinforcement programs in the classroom: A review. *Psychological Bulletin*, 75, 379–398.
- OSEP Technical Assistance Center on Positive Behavioral Interventions and Supports (2015, October). *Positive Behavioral Interventions and Supports (PBIS) Implementation Blueprint: Part 1 – Foundations and Supporting Information*. Eugene, OR: University of Oregon. Retrieved from www.pbis.org.
- Paris, N. A., & Glynn, S. M. (2004). Elaborate analogies in science text: Tools for enhancing preservice teachers’ knowledge and attitudes. *Contemporary Educational Psychology*, 29, 230-247.
- Pealer, J. A., & Latessa, E. J. (2004). Applying the principles of effective intervention

- to juvenile correctional programs. *Corrections Today*, 66 (7).
- Petry, N. M. (2000). A comprehensive guide to the application of contingency management procedures in clinical settings. *Drug and Alcohol Dependence*, 58(1-2), 9-25.
- Petry N. M. & Stitzer M. L. (2002). Contingency management: Using motivational incentives to improve drug abuse treatment. *Training Series No. 6*. West Haven, CT: Yale University Psychotherapy Development Center. Retrieved from http://pdc.yale.edu/manuals_videos/ContingencyManagement_tcm678-176454_tcm678-284-32.pdf
- Pope, K., Luna, B., & Thomas, C. (2012). The role of developmental neuroscience in the disposition of juvenile offenders. *Brown University Child & Adolescent Behavior Letter*, 28(6), 8.
- Premack, D. (1962). Reversibility of the reinforcement relation. *Science (New York, N.Y.)*, 136(3512), 255-257.
- Prochaska, J., DiClemente, C., & Norcross, J. (1993). In search of how people change: applications to addictive behaviors. *Addictions Nursing Network*, 5(1), 2-16.
- Prupas, A. (2011). Part 10: Apps for behavior management and intervention. *Assistive Technology, Augmentative Communication Tools, There's A Special App for That*. Inov8 Educational Consulting. Retrieved from <https://www.inov8-ed.com/2011/10/theres-a-special-app-for-that-part-10-apps-for-behavioral-management-and-intervention/>
- Roll, J. M., Higgins, S. T., & Badger, G. J. (1996). An experimental comparison of three different schedules of reinforcement of drug abstinence using cigarette smoking as an exemplar. *Journal of Applied Behavior Analysis*, 29(4), 495-505.

- Ryan, R. M. (1995). Psychological needs and the facilitation of integrative processes. *Journal of Personality, 63*(3), 397-427.
- Ryan, R. M., & Deci, E. L. (2000). Intrinsic and extrinsic motivations: Classic definitions and new directions. *Contemporary Educational Psychology, 25*(1), 54-67.
- Sandor von Dresner, K., & Philips, A.L. (2006). Community treatment programs for juveniles: A best-evidence summary. *International Journal of Behavioral Consultation and Therapy, 2*(2), 286-304. doi:10.1037/h0100783p?qaDate=2015
- Scheuermann, B., & Hall, J. A. (2012). *Positive behavioral supports for the classroom*. Boston: Pearson.
- Seligman, M. (1975). *Helplessness: On Depression, Development, and Death*. San Francisco: W. H. Freeman.
- Sharp, W. W. (2015, May). The human, social, and economic cost of aging out of foster care. In M. Lindsey & C. Johnson (Eds.), *Adoption Advocate*, No. 83. National Council for Adoption. Retrieved from <https://www.adoptioncouncil.org/files/large/c29246a29debe09>
- Skinner, B. F. (1953). *Science and Human Behavior*. New York: Macmillan. Retrieved from http://www.appstate.edu/~steelekm/classes/psy3214/Documents/Skinner1953_Operant.pdf
- Somerville, L. H., & Casey, B. (2010). Developmental neurobiology of cognitive control and motivational systems. *Current Opinion in Neurobiology, 20*(2), 236–241.
<http://doi.org/10.1016/j.conb.2010.01.006>
- Szanyi, J. (n.d.). Master list of incentives. *Center for Children's Law and Policy*. Retrieved from <https://www.dropbox.com/s/c6ytjxb3in7o967/Master%20List%20of%20Incentives.docx?dl=0>
- Steinberg, L. (2008). A social neuroscience perspective on adolescent risk-taking. *Developmental Review: DR, 28*(1), 78–106.
<http://doi.org/10.1016/j.dr.2007.08.002>

- Swain, J. C., & McLaughlin, T. F. (1998). The effects of bonus contingencies in a classwide token program on math accuracy with middle-school students with behavioral disorders. *Behavioral Interventions*, *13*(1), 11-19.
- Tevyaw, T. O., Gwaltney, C., Tidey, J. W., Colby, S. M., Kahler, C. W., Miranda, R., & ... Monti, P. M. (2007). Contingency Management for Adolescent Smokers: An Exploratory Study. *Journal of Child & Adolescent Substance Abuse*, *16*(4), 23-44.
- Thorndike, E. I. (1998). Animal intelligence: an experimental study of the associate processes in animals. *American Psychologist*, *53*(10), 1125-1127.
- Tibbetts, S. G., & Hemmens, C., (2010). *Criminological Theory: A Text/Reader*. Thousand Oaks, CA: Sage Publications, Inc.
- Treagust, D. F. (2007). General instructional methods and strategies. In S. K. Abell & N. G. Lederman (Eds.), *Handbook of research in science education* (pp. 373-391). Mahwah, NJ: Erlbaum and Associates.
- Trotman, A. J., & Taxman, F. S. (2011). Implementation of a contingency management-based intervention in a community supervision setting: Clinical issues and recommendations. *Journal of Offender Rehabilitation*, *50*(5), 235–251.
<http://doi.org/10.1080/10509674.2011.585924>
- U.S. Code 18 U.S.C. § 5031 Definitions: Juvenile (2017, October 18). Retrieved from <http://uscode.house.gov/view.xhtml?req=granuleid:USC-prelim-title18-section5031&num=0&edition=prelim>
- U.S. Department of Education, Institute of Education Sciences. (2006). *What Works Clearinghouse: Financial incentives for teen parents to stay in school*. Retrieved from https://ies.ed.gov/ncee/wwc/Docs/InterventionReports/WWC_Financial_Incentives_122106.pdf

- U.S. Department of Health and Human Services, Administration for Children and Families, Administration on Children, Youth and Families, Children's Bureau. (2016, June 30). *The AFCARS Report #23*. Retrieved from <https://www.acf.hhs.gov/sites/default/files/cb/afcarsreport23.pdf>
- Van, H. V. B., & Hersen, M. (1998). *Handbook of psychological treatment protocols for children and adolescents*. Mahwah, N.J: Erlbaum.
- Vanderbilt University. (2017). Tip sheet: Positive reinforcement strategies. *Special Education Induction: Behavior Management*. Retrieved from <https://my.vanderbilt.edu/specialeducationinduction/files/2013/07/Tip-Sheet-Positive-Reinforcement-Strategies.pdf>
- Vansteenkiste, M., Lens, W., & Deci, E. L. (2006). Intrinsic versus extrinsic goal contents in self-determination theory: Another Look at the Quality of Academic Motivation. *Educational Psychologist, 41*(1), 19-31. doi:10.1207/s15326985ep4101_4
- Warren, J. S., Bohanon-Edmonson, H. M., Turnbull, A. P., Sailor, W., Wickham, D., Griggs, P., & Beech, S. E. (2006). School-wide positive behavior support: Addressing behavior problems that impede student learning. *Educational Psychology Review, 18*(2), 187-198.
- Webster, K. (2017, October 17). Professors win grant for next-gen electronic monitoring. *Umass Lowell*. Retrieved from <https://www.uml.edu/News/stories/2017/PattavinaGrant.aspx>
- Wodahl, E. J., Garland, B., Culhane, S. E., & McCarty, W. P. (2011). Utilizing behavioral interventions to improve supervision outcomes. *Criminal Justice and Behavior, 38* (4), 386-405. Retrieved from http://www.pbpp.pa.gov/research_statistics/Documents/Behavioral%20Interventions%20to%20improve%20outcomes%20in%20community%20corrections%20Feb%202011.pdf

- Woolf, H. B. (1980). *Webster's new collegiate dictionary*. Springfield, MA: G. & C. Merriam Company.
- Yeres, S. A., & Gurnell, F. C. (2012). Making sense of incentives and sanctions in working with the substance-abusing youth: Answers to frequently asked questions. *Juvenile and Family Justice Today*, 14-19. Retrieved from <http://www.ncjfcj.org/sites/default/files/Today%20Magazine%20I%20%26%20S%20Article%20Spring%202012.pdf>
- Ylvisaker, M., Feeney, T., & Hibbard, M. (2007a, November). Mini-tutorial: Behavior management: Contingency management. *LEARNet*. Retrieved from http://www.projectlearn.net/tutorials/behavior_management_contingency_man.html
- Ylvisaker, M., Turkstra, L., Coehlo, C., Yorkston, K., Kennedy, M., Sohlberg, M. M., & Avery, J. (2007b). Behavioural interventions for children and adults with behaviour disorders after TBI: a systematic review of the evidence. *Brain Injury*, 21(8), 769-805.
- Young, D., Moline, K., Farrell, J., & Bierie, D. (2006). Best implementation practices: Disseminating new assessment technologies in a juvenile justice agency. *Crime & Delinquency*, 52(1), 135-158.
- Zill, N. (2011, May 1). Better prospects, lower cost: The case for increasing foster care Adoption. *Adoption Advocate*, No. 35. Retrieved from www.adoptioncouncil.org/publications/2011/05/adoption-advocate-no-35
- Harmful effects of incarceration and foster care