12-2016

Impact of a Positive Behavior Support System on Staff Behavior at the Boys and Girls Club

Brian Molina
Western Michigan University, bnm07d@gmail.com

Follow this and additional works at: https://scholarworks.wmich.edu/masters_theses
Part of the Applied Behavior Analysis Commons

Recommended Citation
https://scholarworks.wmich.edu/masters_theses/747

This Masters Thesis-Open Access is brought to you for free and open access by the Graduate College at ScholarWorks at WMU. It has been accepted for inclusion in Master's Theses by an authorized administrator of ScholarWorks at WMU. For more information, please contact maira.bundza@wmich.edu.
IMPACT OF A POSITIVE BEHAVIOR SUPPORT SYSTEM ON STAFF BEHAVIOR
AT THE BOYS AND GIRLS CLUB

by

Brian Molina

A thesis submitted to the Graduate College
in partial fulfillment of the requirements
for the degree of Master of Arts
Psychology
Western Michigan University
December 2016

Thesis Committee:
Heather McGee, Ph.D., Chair
Alyce Dickinson, Ph.D.
Denise Ross, Ph.D.
The present study sought to increase correct staff utilization of a positive behavior support system at the Boys and Girls Clubs of Greater Kalamazoo. The intervention consisted of implementing a new club-wide positive behavior support program. The main components of the positive behavior support program were (a) training for staff on how to use the positive behavior support system, (b) staff teaching of the positive behavior support system to members, (c) the implementation of a token economy system for reinforcing positive behavior, and (d) a data collection/feedback system to inform supervisors on the progress of members and staff.

This study aimed to contribute to an understanding of requirements needed to establish and maintain token economy and positive behavior support systems. It also aimed to shed light on two specific areas of inquiry. First, it sought to explore the extent to which the implementation of a school-wide positive behavior support based intervention could increase the correct (response-contingent) provision of reinforcers for desired member behavior. Additionally, the effect this change had on staff administration of infractions and suspensions was examined.

The results suggested that the positive behavior support guidelines were effective in teaching staff how to accurately administer token reinforcers to students. One site
showed an increase in the number of reinforcers administered daily, but two other sites were relatively unchanged. There were no observed reductions in the number of infractions or suspensions administered at any site. Measures of implementation fidelity revealed that weekly adherence to best practice guidelines (e.g. feedback delivery to staff) was challenging for supervisors at all three sites.
ACKNOWLEDGMENTS

I would like to thank my faculty advisor, Dr. Heather McGee for her continuous support throughout my graduate career. I am deeply grateful to have been given the flexibility and encouragement necessary for me to pursue my academic passions. There were several times during the course of this project that I almost felt like throwing in the towel, but together we have finally gone the distance.

I would also like to thank the other members of my thesis committee, Dr. Alyce Dickinson and Dr. Denise Ross. While at first I feared Dr. Dickinson’s infamous red pen, I have come to greatly admire her attention to detail and commitment to teaching. I would like to thank Dr. Ross for fanning the flames and intensifying my interest in the intersection of behavior analysis and urban education.

Third, I would like to thank the administration and staff of the Boys and Girls Club for working with me to implement this project. Matthew Forkin has been an unyielding champion of positive behavior support since day one. Without the countless hours and of pre-pre-planning that Matt volunteered, this project would have never been able to take off. I would also like to thank Jessica Mancino, Michael Parker, Ashley Turnage, Jill Angell, and Robert Ezelle for their help with this project and dedication to improving the lives of youth in the community.
Acknowledgments—Continued

Finally, I would like to thank the many research assistants that made data collection possible. In particular, I owe a great debt to Haley Hughes for her invaluable assistance, especially with all of the logistical aspects of the project. I would have never been able to accomplish this without her.

Brian Molina
TABLE OF CONTENTS

ACKNOWLEDGMENTS. ........................................................................................................... ii
LIST OF TABLES .................................................................................................................... vi
LIST OF FIGURES .................................................................................................................. vii
INTRODUCTION. .................................................................................................................... 1
  Youth Behavior Interventions .......................................................................................... 6
  Behavior-based Treatment Packages ........................................................................... 21
  The Current Study ......................................................................................................... 34
METHOD. ............................................................................................................................. 36
  Participants and Setting ................................................................................................. 36
  Independent Variable .................................................................................................... 38
  Dependent Variables ...................................................................................................... 40
  Experimental Design ..................................................................................................... 42
  General Procedures ........................................................................................................ 42
  Observer Training and Interobserver Agreement ....................................................... 45
  Treatment Integrity ......................................................................................................... 46
  Social Validity ................................................................................................................ 47
RESULTS. ............................................................................................................................... 47
  Staff Behavior ............................................................................................................... 47
  Treatment Integrity ......................................................................................................... 52
  Interobserver Agreement .............................................................................................. 54
Table of Contents-Continued

Social Validity ................................................................................................................. 54
DISCUSSION. ..................................................................................................................... 55
REFERENCES. .................................................................................................................. 61
APPENDICES. .................................................................................................................... 69

A. HSIRB Approval Letter ................................................................................................. 69
B. HSIRB Approval Letter Addendum................................................................................ 71
C. Informed Consent Form ................................................................................................. 73
D. BGC Buck ..................................................................................................................... 76
E. Member Privileges ........................................................................................................ 78
F. Data Sheet .................................................................................................................... 80
G. Positive Behavior Support Behavior List ...................................................................... 83
H. BGC Buck System Feedback Form .............................................................................. 85
I. BGC Buck Supervisor Feedback ................................................................................... 87
J. Feedback Form Comments ........................................................................................... 90
LIST OF TABLES

1. Fidelity of implementation measures............................................................ 52
LIST OF FIGURES

1. Average daily number of Be Great Cards/BGC Bucks administered at Lake Street, Douglas, and Spring Valley units. .......................................................... 48

2. Frequency of infractions and suspensions administered at Lake Street, Douglas, and Spring Valley units. ................................................................. 50
Introduction

The well-being of youth has long been a top priority of mainstream American culture. Evidence of this point can be seen in the structure and mission of the public education system. The system serves multiple purposes such as preparing students for college, preparing students for the workforce, and helping students fulfill their individual potential (Peifer, 2014). Approximately the first 18 years of a young person’s life are devoted to equipping him or her with the knowledge and skills necessary to lead a healthy and successful life. From birth to around 5 years of age, the responsibility for teaching these skills lies primarily with the parents or legal guardians of children. At around age 5, children enter kindergarten where the baton is passed and a large amount of educational responsibility shifts to the school system. During the ensuing 13 years of life, schools attempt to shape healthy and success-oriented youth behaviors.

The United States Department of Education (DoE) has aimed to employ a “cradle-to-career” education strategy to aid in their mission of promoting student achievement and global competitiveness. One of the DoE’s six strategic goals concerns the need to continually improve the quality of elementary and secondary education. This goal also specifies the need to provide support services that close achievement and opportunity gaps between children. The DoE identifies a number of barriers to successful implementation of their goals, one being that many students struggle with debilitating issues outside of the classroom such as trauma, community safety issues, and their own behavioral issues (U.S. Department of Education, n.d.). In order to effectively dismantle some of the many behavioral barriers to student success, it is first necessary to gain an understanding of them through measurement.
Several surveyors have measured constellations of risky youth behavior. Jessor and Jessor (1977) analyzed what they called youth “problem behavior” in a longitudinal research project that included over 400 high school youth entering the study in three cohorts, grades 7, 8, and 9. The study also included a sample of 205 college youth entering in a single annual cohort. The study tracked youth behavior over the course of four years and depicted the prevalence of various behaviors over time. Behaviors that they measured included controlled substance use, sexual intercourse, activist protest, and general deviant behavior. The latter categorization included behaviors such as lying, cheating, stealing, aggressive acts, and vandalism. Regarding the high school students, they found that males were significantly more likely to engage in deviant behavior than females. They also found a relationship between the age of the students and the deviant behavior scores. Students in the older cohorts had higher scores than students in the younger cohorts. Finally, they found a steady overall increase in general deviant behavior as students progressed through the high school years. This developmental increase was observed for both sexes in the seventh and eighth grade cohort, but not in the ninth grade cohort. In the college study, there was no evidence of an age related increase in general deviant behavior through the years. This is consistent with the perspective that general deviant behavior may steadily increase throughout youth but then reach relative stability in the later years.

Willard and Schoenborn (1995) measured similar risk factors that they called “unhealthy behaviors” - alcohol, marijuana, tobacco, and cocaine use; weapon carrying; physical fights; and sexual intercourse. They also expanded their survey to include several protective factors such as seat belt use, exercise, and consumption of healthy
foods. They found that 44.6% of youth between the ages of 12 and 21 had consumed alcohol in the past thirty days, 38.6% had engaged in a physical fight in the past year, and 14.5% carried a weapon.

Boles, Biglan, and Smolkowski (2006) studied Oregon youth to determine whether correlations exist between harmful behaviors within and between various classifications. They administered a questionnaire called the Oregon Healthy Teens Survey to 22,898 eighth grade and 15,828 eleventh grade students across two school years. Relationships among response variables were then examined to identify patterns in youth behaving. Their results indicated that there is a high degree of correlation between varying classifications of what they term “antisocial youth behavior”. Restated, if a young person exhibited one problem behavior, it was highly likely that he or she also exhibited at least one other problem behavior. For example, their research showed that young people who engage in one kind of drug use behavior, like tobacco smoking, are more likely than their non-smoking peers to engage in similar substance use, like drinking and hard drugs. Youth engaged in antisocial behaviors such as theft are also more likely than their peers to carry a weapon or be involved with a gang. Undesirable social behaviors also have a high degree of interrelation across classification types. Antisocial behavior and indicators of such behavior (being suspended from school, stealing, attacking others, and being arrested) are correlated significantly with risky sexual behavior, substance use, and depression.

One of the most intensive efforts aimed at measuring national youth behaviors is the Youth Risk Behavior Surveillance System (YRBSS). The YRBSS is a survey developed by the Centers for Disease Control and Prevention (CDC) in 1988 to monitor
and identify trends in youth behavior resulting in problems at the national, state, and local levels (Kolbe, Kann, & Collins, 1993). The survey is administered biennially to grades 9-12 youth in both public and private schools. The YRBSS consolidates the national health behavior issues into six key factors: (a) unintentional accidents and violence, (b) tobacco use, (c) alcohol and drug use, (d) risky sexual activity, (e) unhealthy dietary behavior, and (f) physical inactivity. All of these behaviors are categorized under the umbrella of “risk behaviors”. The most recent national data collected in 2013 indicate that many high school youth are engaging in these risky activities (Kann et al., 2014). About 17.9% of all high school students had carried a weapon such as a gun, knife, or club in the thirty days preceding the survey. The prevalence of having been involved in a fight on school property was 6.4% for white students and 12.8% for black students. Among Hispanic students, 9.8% did not go to school in the past thirty days because they felt unsafe.

Investigators have used several different terms to study behavior issues among youth. Terms like “antisocial behavior”, “delinquent activity”, “risk behaviors”, and “problem behaviors” have been used more or less interchangeably to classify the same general amalgamation of factors associated with serious negative individual and community outcomes. No matter the term, these behaviors are recognized by public and private institutions alike as serious threats to societal well-being.

In particular, problem behavior of a violent nature is largely regarded as a destructive social phenomenon. The Federal Bureau of Investigation reports a violent crime rate of 386.9 crimes per 100,000 inhabitants at the national level (U.S. Department of Justice, 2012). The national data, broken down by state, show Michigan with an
elevated average rate of 454.5 violent crimes per 100,000 inhabitants. The most recent figures available from the Michigan State Police indicate that there were 28,437 victims of aggravated assault in 2012. There were 681 people murdered during the same year. This represents an 8.3% increase in homicides from 2011 to 2012 (Criminal Justice Information Center, 2012).

The prevalence of violent youth behavior varies among different regions of Michigan. In the most recently published data for Kalamazoo County, the number of juvenile court referrals for aggravated assault, armed robbery, unarmed robbery, and forcible rape taken together more than doubled between 2002 and 2004, rising from sixteen to thirty-eight (Kalamazoo County Government Health and Community Services Department, 2005). The number of court referrals for assaultive crimes committed by juveniles in Kalamazoo showed an alarming 63.1% increase between 2000 and 2004, rising from 478 to 757. Fatalities resulting from violent behavior disproportionally affect members of the black community. Kalamazoo County statistics reflected a homicide rate of 1.5 deaths per 100,000 population for white individuals compared to 11.3 for black individuals. Fortunately, none of the homicides in Kalamazoo County involved youth as victims. The racial imbalance between black and white homicide rates holds true at the state level, with the homicide rate among blacks being over fourteen times higher than among whites for the overall population (Kalamazoo County Government Health and Community Services Department, 2006). The state level data specifically regarding youth homicides for those between the ages of 10 and 24 reveal a homicide rate of 2.1 deaths per 100,000 for white males and 79.4 deaths per 100,000 for black males (Centers for Disease Control and Prevention, 2013).
Youth Behavior Interventions

A broad array of intervention approaches has emerged to address youth violence and overall risky behavior. The range of available intervention strategies reflects the many complex determinants of youth risky behaviors. In particular, approaches can vary widely with regards to when during the development span they are applied. Some programs seek to immediately address problem behavior as it occurs. These efforts may include punitive measures or rehabilitation programs and are all generally applied in late adolescence or adulthood. Other programs take a more preventive approach and can be applied as early as preschool. Programs can also vary greatly in their targeted population. Some focus on working directly with youth while others seek to target parents, teachers, and educational staff.

Remedial interventions. Some of the most salient interventions aimed at combating youth problem behavior are applied during adolescence and young adulthood in an attempt to correct or reduce problem behavior. It is typically during these phases in the lifespan that individuals are physically capable of offending in a way that is both prominent and destructive. A high incidence of problem behavior may have been present in earlier childhood, but expressed in a less alarming manner. For example, behavioral issues may be restricted to talking back to teachers and schoolyard bullying at a very young age. As the individual grows, there are increasing opportunities to behave antisocially. Physical altercations become more likely to cause serious harm, access to weapons increases, and drugs become more readily available.
**Probation/imprisonment.** The American criminal justice system can be conceptualized as a country wide attempt at intervention on problem behavior. Individuals convicted of engaging in illegal, socially undesired behavior are subject to a number of potential consequences from a written warning or fine all the way to capital punishment, the ultimate way of ensuring behavior does not reoccur. The intent of the federal government to act as an intervening agent on problem behavior is reflected in the United States Department of Justice (2014) strategic plan for 2014-2018. Strategic goal two is to “Prevent crime, protect the rights of the American people, and enforce federal law” (p. 1). Objective 2.1 tied to that goal is to “Combat the threat, incidence, and prevalence of violent crime by leveraging strategic partnerships to investigate, arrest, and prosecute violent offenders and illegal firearms traffickers” (p. 10). These goals and objectives express the intent of the federal government to use arrest and prosecution as a means to decrease certain illegal or “problem” behaviors.

Each of the fifty states, the District of Columbia, and the federal government have separate systems for dealing with adults and juveniles that commit criminal offenses (Ziedenberg, 2011). The Office of Juvenile Justice and Delinquency Prevention reports that there were 1.2 million juvenile delinquency cases handled by the courts in 2011 (Hockenberry & Puzzanchera, 2014). Although it is common for cases to contain several different types of offenses, property offenses such as burglary and larceny-theft were the most likely to be listed as the most serious reason the juvenile was being referred to court. Other leading referral reasons in order of most common to least common were public order offenses (318,000 cases), person offenses (317,500 cases), and drug law
violations (152,600 cases). A slight majority (53%) of all cases involved a juvenile younger than the age of sixteen when the court referral was filed.

The process of moving through the juvenile system begins with a decision at intake. It is there that authorities must decide whether to handle the case informally, or file a formal petition. If a formal petition is not filed, the case is either dismissed or the juvenile agrees to some sort of probation or voluntary sanction. If a formal petition is filed, the case proceeds to an adjudication hearing. Pending the outcome of the hearing, the juvenile may be ordered into residential placement, placed on probation, given other sanctions, or dismissed of charges. In some instances, the courts may decide to waive juvenile jurisdiction and transfer the case to the adult criminal court system. The latest available data from 2011 indicate that there were 5,400 instances in which juvenile cases were waived (Hockenberry & Puzzanchera, 2014). Although reports regarding the number of youth in adult facilities are inconsistent, some estimates indicate that the proportion of juveniles admitted into an adult prison or jail is about 1 in 10 (Mulvey & Schubert, 2012).

At any point within the movement of a case through the system, the juvenile may spend time at a detention facility while awaiting adjudication, disposition, or placement elsewhere. The most recent data available from the Office of Juvenile Justice and Delinquency Prevention (Hockenberry, Sickmund, & Sladky, 2013) indicated that there were 66,322 juveniles housed in both public and private facilities in 2010. These youth were housed in a total of 2,111 facilities spread across the nation. Though the overall population of juvenile offenders in facilities experienced an 18% decrease from 2008 to 2010, overcrowding continues to be a serious concern. About 20% of facilities reported
being at or over capacity. Two percent of facilities reported having more juveniles than standard beds, and relied on makeshift beds to bridge the gap.

*Limitations of probation/imprisonment.* Although it is certainly necessary to have interventions aimed at reducing problem behavior in older/offending populations, there are several limitations associated with this approach. A Pew Center on the States report (2011) surveyed recidivism rates across the nation as a key indicator of the effectiveness of the prison system in creating behavior change. Recidivism refers to the reengaging in a criminal offense after a person has already been convicted and sentenced for a crime. The report examined two cohorts of prisoners released from state facilities to determine how many returned to prison within three years of release. The first cohort consisted of prisoners released in 1999 based on data reported by thirty-three states. Forty-one states then provided data for cohort two, which comprised state prisoners released in 2004. There was a wide range of variability between states, with recidivism rates ranging from 61.2% in Minnesota to 24.8% in Wyoming. The data, compiled nationally, revealed a recidivism rate of 45.4% for cohort one and 43.3% for cohort two. With such high rates and so much regional variability, it is clear that there exist a multitude of factors that can and do confound the effectiveness of this approach.

There are significant risks associated with attempting to punish or rehabilitate youth through the criminal justice system. Myers (2003) conducted a quasi-experimental analysis of violent youth in Pennsylvania. The sample consisted of 494 male juvenile offenders that had been arrested for robbery or aggravated assault involving a deadly weapon. Of the total sample, 79 offenders were waived to adult court while 415 remained in the juvenile system. Of the entire group, 31% were rearrested following disposition.
Thirty-eight percent of youth who had been treated as adults later reoffended, compared to 29% of those that remained in juvenile court. A comparison of the outcome data for the two groups revealed a positive significant relationship between transfer to adult court and re-arrest ($b = 1.793, p < .05$). Overall, odds ratios indicated that being waived to the adult system more than doubled the simple odds of a subsequent arrest. Data from the CDC (2007) corroborate these findings. A report on recommendations from the Task Force on Community Preventive Services indicated that juveniles transferred to the adult justice system were 39% more likely to be rearrested than their peers who remained in the juvenile system.

Ellis (1991) conducted a conceptual analysis that may help explain why prison environments often perpetuate, rather than remediate, deviant behavior. Ellis points out that important leadership roles within these institutions are often filled based on political factors, not necessarily ability of the individual to lead. For example, the state governor either appoints or has substantial sway over the appointment of the state director of corrections. The person holding this office is thus subject to the ebb and flow of political power. This can result in leadership disruptions and the appointment of inexperienced individuals to positions of power. The hiring of staff to fill guard roles is also subject to political and economic factors. Many urban areas contain citizenry that actively oppose the construction of new prisons due to their unattractiveness to businesses and consumers. Rural areas, on the other hand, often welcome the construction of prisons as an opportunity to create jobs in areas that lack economic prosperity. The hiring pool for guard positions then tends to be local, white, high school graduates. These individuals typically do not possess the necessary training and education to contribute to the
rehabilitation of inmates. Instead, they often view initiatives to reinforce positive behavior as giving bribes for inmates to engage in behavior that they should be naturally doing anyway. Furthermore, guards are subject to stressful job environments and often have limited alternative employment options. The resulting aversive conditions experienced by guards may serve to increase the reinforcing value of their own aggressive behavior. Aggression can be considered a distinctive motivational state that arises under the presence of aversive stimulation, similar to thirst or hunger (Azrin, Hutchinson, & McLaughlin, 1965). This may make harsh punishment a more attractive option for guards in an environment that already offers scarce opportunities for the reinforcement of positive behavior. Prisoners subjected to mainly aversive punishment during the term of their incarceration may therefore also be more likely to seek aggression reinforcers while imprisoned or upon release, contributing to a cycle of reoffending.

**Community violence reduction programs.** Another approach to violence reduction is community-based violence intervention. These programs are often implemented in reaction to increased violence within urban communities. The Ceasefire intervention program is one such example. Operation Ceasefire was formed in Chicago, Illinois with the intent of applying a medical model of infectious disease to criminal activity (Skogan et al., 2008). Ceasefire’s approach conceptualized violent behavior as a disease that had the possibility of spreading from person to person if the individuals were not swiftly identified, isolated, and treated. The program, like most violence interventions, consisted of a treatment package containing several elements. Client outreach was one of the largest components of the intervention. Clients were identified by
outreach workers on a one by one basis on the streets. Outreach workers did not have scripted roles to play. Rather, they informally conversed with prospective clients to assess whether they demonstrated key risk factors such as having a substantial arrest history and gang involvement. Clients were able to request and receive assistance with tasks such as obtaining identification documents, job hunting, and navigating the legal system. The second major component of the intervention was the direct interruption of street violence. The program hired staff with extensive street connections to identify volatile community conflicts and intervene before they resulted in killings. For example, if a shooting did occur in the community, it was the task of the violence interrupter to make contact with the family and friends of the victim and attempt to prevent retaliatory shootings through informal discussion and mediation. The impact of the Ceasefire intervention was assessed by measuring the effect of the introduction of the program on the frequency of shootings and killings. Their results indicated a statistically significant decline in the number of actual and attempted shootings that ranged from 17% to 24% in four out of seven observed sites (Skogan et al., 2008).

Limitations of community violence reduction programs. The community violence intervention model exemplified by the Ceasefire intervention program also carries unique limitations (Skogan et al., 2008). Several of the problems arising revolve around the cost of administering the intervention and the relative scarcity of funding. Funding for individual sites was typically appropriated by the state legislature, and thus highly subject to annual fluctuations. This instability resulted in the somewhat spontaneous opening and closing of sites which interrupted the provision of services to those in need. Budgetary
shortages also resulted in the inability for sites to offer health or retirement benefits which undermined long-term job commitment and resulted in high staff turnover.

The hiring and management of employees for the violence interruption function of the program offered more challenges. Violence interrupters needed to have extensive street knowledge and connections, and thus were often themselves former gang members with criminal histories. Substantial resources, such as background checks, frequent drug testing, credential checks, and multi-member hiring panels, were expended to ensure that violence interruption staff were extracted from former gang affiliation and any illegal activity.

**Preventive youth development programs.** Preventive youth development is perhaps both the most promising and overlooked approach for reducing youth problem behavior. Preventive development refers to making large scale investments in children as early as possible, well before the emergence of behavioral issues, or before behavioral issues can escalate to criminal status. One possible advantage of intervening early is the opportunity for a greater public return on investment. To illustrate this idea, Cunha, Heckman, Lochner, and Masterov (2005) developed a model comparing different investment strategies for disadvantaged children. In order to achieve results comparable to ideal early intervention programs, their projections indicated a substantial increase in investment costs would be required. Heckman (2008) later examined policies and supplemental programs aimed at supporting disadvantaged youth. He found that intervention approaches such as welfare, probation, and conviction were 35 to 50% more costly, on average, then earlier childhood interventions. In summation, "late remediation strategies designed to compensate for early disadvantage such as job training programs,
high school classroom size reductions, GED programs, convict rehabilitation programs, and adult literacy programs are not effective, at least as currently constituted” (Heckman, 2008, p. 314). By intervening early, it is possible to maximize the likelihood of creating behavior change where skills compound and maintain themselves after the intervention has ceased.

*Preschool age interventions.* Preschool interventions are one type of early childhood intervention. Although most of these programs share the unifying goal of improving student outcomes, the specific interventions may be aimed at targeting different populations such as parents, teachers, or students. The Family Check-Up intervention demonstrated some possible results of intervening with parents of at risk youth to prevent the development of behavioral problems (Dishion et al., 2008). In this study, 731 mother/child pairs were recruited from a list of Women, Infants, and Children program participants. All children accepted were 2-year-olds who met socioeconomic, family, or child screening criteria for being considered at risk for behavioral problems. Subjects underwent assessor blinded random assignment to treatment and control groups. Families in the treatment condition received a positive behavior support intervention which consisted of three parts: an assessment, an initial review, and a feedback session.

The assessment consisted of a 2.5 hr home visit from trained social service workers. The visit was broken down into several segments, including but not limited to: a 15 min free play task, 5 min clean up task, multiple 3 min teaching tasks, and a 20 min meal preparation and lunch task. Parents were video-recorded interacting with their child throughout this process. The videos were later coded to yield scores on parent involvement, positive behavior support, engaged parent-child interaction time, and
proactive parenting. Surveys were also administered during the assessment consisting of a demographics questionnaire, maternal depression measure, and early childhood problem behavior checklist. The initial interview component of the intervention consisted of a parent interview where service workers sought information regarding parent concerns and matters within the family that may affect the well-being of the child. Finally, the feedback session consisted of service workers delivering a summary of the results of the assessment to parents using motivational interviewing strategies. Unfortunately, the exact procedures and script for the motivational interviewing strategies were not described. Overall measurements from the questionnaires and direct observation of parent-child interactions revealed that the treatment was successful in reducing the emergence of problem behaviors within a two-year period. Although the effect sizes were moderate to small (\( d = .33 \) positive behavior support; \( d = .23 \) problem behavior), the findings suggested that a relatively brief and inexpensive positive behavior support intervention may be able to positively impact families at risk for behavioral problems.

Another example of a successful parent targeted intervention can be seen in assessments of the Mother-Child Home Program (Levenstein, 1992). Evaluations took place over the course of 16 years and comprised 10 cohorts of mother-child subject pairs. Mothers with children 2 years of age were recruited from three separate low-income housing projects. The treatment strategy included home play sessions where parents were trained to engage their children verbally and provide praise for good performance. Short-term effects of the intervention revealed a mean increase in IQ for every treatment cohort when compared to control or placebo cohorts. The children’s classroom behavior was
later measured using the Child Behavior Traits (CBT) assessment in the first grade. This instrument was developed by the Verbal Interaction Project and unfortunately, validity and reliability data were not reported. The results of the assessment showed a positive correlation between scores on maternal verbal interactions and functional classroom outcomes as measured by the CBT.

The Perry Preschool Project serves as one of the most powerful examples of problem behavior interventions at the preschool level (Belfield, Nores, Barnett, & Schweinhart, 2006). The experimenters recruited economically disadvantaged children to take part in an intensive preschool initiative. Participants were randomly assigned to either a control or experimental condition. The experimental group underwent comprehensive preschool exposure. Components of the intervention included 2.5 hrs per day of center-based programming for each weekday, home visitation for 1.5 hrs per weekday, and group meetings of parents.

Forty years after the treatment, participants were examined on a number of different outcome variables. Results showed a significant decrease in arrests, increased graduation rates, and increases in reported lifetime earnings for the treatment group when compared to the non-intervention control group. A cost/benefit analysis showcased the efficiency early age interventions may offer. The analysis projected a $12.90 return per every $1.00 invested. This translates into a total financial return of $180,455 per participant, with the largest benefit resulting from reduced crime costs (Belfield et al., 2006). A separate analysis of the data showed statistically significant increases in overall health by the age of 40, as measured by any number of variables such as mortalities,
cessation of work due to health issues, and traffic safety behavior (Muennig, Schweinhart, Montie, & Neidell, 2009).

**School age interventions.** When preventive youth development at the preschool age is unavailable or ineffective, there still exist opportunities to foster positive outcomes in adulthood. These efforts typically appear in the form of programs administered among school age children that attempt to correct problem behavior that is already occurring. Similar to early interventions, school age interventions may target the parent, teacher, or child directly. Interventions at this stage may also attempt to prevent the escalation of misbehavior into full-blown criminal activity as an adult.

One example of this type of intervention is the Seattle Social Development Project (Hawkins et al., 1992). This longitudinal study involved 919 first grade though fourth grade students from 18 Seattle public schools. Thirty-eight percent of the sample were of low socioeconomic status as measured by eligibility for free or reduced lunch/breakfast at the beginning of the fifth grade. The intervention was targeted at teachers, students, and parents. It thus consisted of classroom management, child skills, and parent training components.

The classroom management component consisted of three elements: proactive classroom management, interactive teaching, and cooperative learning. Proactive classroom management was an attempt to create an environment that was greatly conducive to learning and not supportive of misbehavior. This involved the teachers establishing clear performance expectations before the start of classes. Teachers were also taught to provide contingent reinforcement for the desired behaviors or close approximations of the behaviors. Interactive teaching focused on the structure of
academic content delivery. A large aspect was the derivation of learning objectives and the requirement that the student demonstrate mastery of prerequisite skills before proceeding to more advanced content. Frequent monitoring of student progress was also emphasized. The final component, cooperative learning, had teachers divide students into teams of diverse abilities and backgrounds. Students were then given the opportunity to complete work and gain group incentives for satisfactory performance. Group scores were calculated based on each student’s improvement over his or her previous performance, allowing students of various skills levels to contribute more equally to overall group performance.

The child skills training component was administered to all intervention group children in the first grade. The training was aimed at teaching students how to appropriately respond to conflicts as a means of increasing social competence. The specific skills targeted were communication, decision-making, negotiation, and conflict resolution. The training sought to provide protection against the development of early conduct disorders, peer rejection, and continuous involvement with antisocial peers by developing socially acceptable alternatives to problem behavior.

Parent training programs were offered to intervention families on a voluntary basis. The main goals of the programs were to improve family management practices and decrease family conflicts, academic failure, and low commitment to schooling. Parents enrolled in the curriculum were trained in three stages. First, they were taught to clearly define the desirable and undesirable behavior exhibited by their children, and then measure those behaviors. Once relevant behaviors were clearly identified, parents were assisted with teaching those behavioral expectations to children. Parents were then guided
through the process of providing contingent reinforcement of desired behavior and predictable aversive consequences for undesired behavior. The parent training course as a whole was delivered using modeling of skills, role play, feedback, and the opportunity to practice new skills.

The results of the intervention indicated significant differences between control and intervention groups on several student self-report measures. Students in the intervention group reported better family management activities by parents, perceived school as more rewarding, and expressed more commitment to school. Intervention students also reported less alcohol and delinquency initiation than their control group peers. No significant improvements were observed on standardized test scores. One important limitation of this experiment was the reliance on self-report data for assessing the outcome of the intervention. Self-report measures when taken alone may be subject to reporting bias and inaccuracies when compared with objectively observed and recorded data.

The Montreal Experimental Longitudinal Study sought to examine the effects of a 2-year intervention on the emergence of delinquent behavior later in life for 1,034 white male children from low socioeconomic families (Tremblay et al., 1992). The treatment comprised two major components – parent training and a social skills training program for children. The parent training intervention program focused on teaching parents to manage their children’s behavior though measurement, reinforcement of positive behaviors, and non-abusive punishment contingent on undesired behaviors. The social skills training intervention was conducted in small peer groups. Students were given instruction on how to respond to aversive situations as well as how to behave kindly
toward one another. Unfortunately, the precise nature of the training and whether it included modeling or practice sessions was not reported.

The students were then periodically measured until the end of primary school, when most had reached 12 years of age. Student outcomes were measured using a variety of techniques including teacher and mother ratings, subject and peer assessments, and achievement in school. Results showed that significantly more boys from the intervention group were in their age appropriate grade when compared to the control group. Teacher ratings also reflected lower levels of fighting in the sixth grade for boys exposed to the treatment. Boys in the intervention group reported lower levels of early onset delinquent behaviors such as trespassing and stealing (Tremblay et al., 1992).

*Overall limitations to preventive youth development programs.* The previously described studies illustrate the ability of childhood intervention programs to produce, in many cases, enduring pro-social effects in young people. There are, however, several limitations to the current body of research. Regarding violence prevention initiatives, Mattaini and McGuire (2006) wrote, “Still, no single approach has either proven universally acceptable across cultures and communities, or clearly demonstrated the power to substantially reduce the incidence of violence within a population over an extended period” (p. 188).

The need to test interventions among populations of different cultures is demonstrated by Forehand and Kotchick (1996). They examined several cultural backgrounds and described the implications those differences might have on treatment efficacy in parent training intervention programs. The authors identified cultural values and common parenting practice beliefs for African American, Asian American, Latino,
and Native American families. They reasoned that cultural differences between these groups would impact the efficacy of a “one size fits all” parent training program. For example, definitions of early problem behaviors such as aggression and noncompliance differ culturally. Cultural differences also exist surrounding the perceived acceptability of parenting strategies such as ignoring unwanted behavior. Given these differences, it is reasonable to assume that compliance would likely be low for parents expected to use techniques they do not agree with to modify behaviors that they do not identify as problematic. The authors concluded that there is a need for increased research in culturally diverse populations in order for behavior therapists to most effectively impact youth problem behavior.

Another limitation of many of the youth interventions described earlier is the large amount of resources required to implement them. For example, the estimated dollar cost of running the Perry Preschool Program was about $15,166 per child (Belfield et al., 2006). Although the net benefits were eventually $180,455 per child, few organizations possess the capital to make such investments upfront. Additionally, the return on investment would likely only be positive if implemented using public funds. Private organizations do not bear the same costs associated with later criminal behavior, and therefore would not realize the same benefits over time. Other necessary resources such as time and the recruitment of staff with the training necessary to implement complex interventions further inflate this figure. These resources are likely to be unavailable in settings with very limited financial wealth, which are often the same settings that correlate highly with increased levels of youth problem behavior.

**Behavior-based Treatment Packages**
Empirically supported strategies are available for institutions lacking the necessary resources to implement such rigorous family inclusive programs. Intervention packages containing a number of key underlying components have proven more effective at producing enduring positive outcomes than other strategies (Embry & Biglan, 2008). Embry (2004) defined these key underlying components (referred to by the author as “evidence-based kernels”) as any indivisible procedure shown through experimental evaluation to produce reliable effects on behavior. As the definition implies, kernels have two defining features. First, the technique must be irreducible in the sense that removing any part of the intervention would render it ineffective. Second, its ability to generate behavior change must be widely replicable in carefully controlled studies. Embry and Biglan (2008) likened kernels to active ingredients in pharmaceutical products. For example, a wide array of products is available on the market for common ailments. Many of these products attribute their effectiveness to a few active ingredients. Although active ingredients can be compounded with other ingredients to produce varying results, they have still been proven effective in their own right. Similarly, there are several programs aimed at reducing youth problem behavior that may appear different, but owe their effectiveness to a few active behavior change ingredients, or kernels. The identification of the active ingredients in a behavior change program is more difficult than in medicine because there is currently no widely accepted taxonomy of evidence-based kernels.

One example of a kernel that Embry and Biglan (2008) discussed is timeout. The timeout procedure consists of the response contingent removal of access to reinforcers (Wolery, Bailey, & Sugai, 1988). Timeout in this most basic form cannot be further reduced while still remaining effective. The procedure has also shown to be effective in
reducing a range of problem behaviors (White, Nielsen, & Johnson, 1972), thus satisfying both criteria for being considered a kernel. Other examples of documented kernels include verbal praise (spoken recognition for engagement in desired behavior), principal lotteries (positive behavior results in rewards from a person of status), and public posting of feedback of a targeted behavior (a display of performance is made available to all). Many of these key kernels are commonly blended with other elements to produce more complex behavior management systems, such as the token economy.

**Token economy.** One of the most prominent systems for low-cost management of group behavior is the token economy. Malott (2008) defined a token economy as “a system of generalized learned reinforcers in which the organism that receives those generalized reinforcers can save them and exchange them for a variety of backup reinforcers later on” (p. 470). In other words, desirable “backup prizes” are paired with simple and easily administered tokens that then acquire the reinforcing properties of those prizes. It then becomes possible to modify behavior using mainly those tokens and only the periodic presentation of prizes. Token economies can be structured in many different ways, but typically include five key elements: (a) the identification of specific target behaviors, (b) the identification of tokens for conditioned reinforcement, (c) the development of a menu of backup reinforcement options to reward appropriate behavior, (d) the creation of an explicit protocol for exchanging conditioned reinforcers for backup reinforcers, and (e) the development of procedures for fading the use of the token economy system (Wolery et al., 1988).

**Token economy research.** A number of studies have successfully used token economies to modify the behavior of at-risk or delinquent youth. In a multi-experiment
study, Phillips, Phillips, Fixsen, and Wolf (1971) demonstrated the effectiveness of a token economy with youth at the Achievement Place, a community-based behavior modification center for youth considered by the judicial system to be at risk for becoming habitual law breakers. The Achievement Place token economy used 3x5 inch index cards that each boy carried around with him to record his daily points. Points were earned for engaging in appropriate behaviors and were deducted for inappropriate behaviors. The system initially required boys to accumulate points over the course of a week before having the opportunity to exchange them for back up reinforcers, but was later expanded to include daily exchange of points. Some examples of items able to be earned with points were materials for hobbies and games, snacks, television, and permission to leave the facility for events. Experiment one examined the effect of the token economy on increasing promptness in arriving to evening meal among four adolescent boys. One hundred token points were deducted from each boy for every minute he was late. During baseline conditions, the last boy seated at the table was about ten minutes late. At the conclusion of the token economy condition, all boys arrived within sixty seconds of dinner being announced.

Experiment two sought to improve upon another enduring problem within the facility, maintaining room cleanliness. Before awarding or deducting any points, “cleanliness” was first clearly defined so that specific behaviors could be targeted. This resulted in cleanliness being broken down into 10 major areas: dirty clothes, bed, floor, closet, shades and windows, doors and drawers, furniture, desk, surface tops, and baskets. For each area, criteria were created to signal success or failure such as “All clothes not neatly placed in the wardrobe, dresser, or closet should be in the dirty clothes hamper (in
the utility room). There should be no clothes visible without opening doors or drawers.”

After specifying all the criteria that needed to be met to satisfy facility standards of “room cleanliness”, staff began awarding points to boys contingent on cleaning behavior. The results showed a dramatic increase in the number of cleaning items completed when the boys received token points. During the reversal phase, the number of cleaning items completed dropped by nearly 50% in some sessions. Cleaning behavior returned to peak levels when the token system was reinstated. A fading procedure was then introduced where the percentage of days on which points could be earned was steadily decreased from 100% to 8%. Satisfactory levels of room cleaning were still observed throughout the fading process. This same process of incentivizing desired behavior via the awarding and deduction of points was used to improve both money saving and listening comprehension behavior at the Achievement Place.

Token economies have also been used to aid in the acquisition of academic skills. Wolf, Giles, and Hall (1968) showed the usefulness of token economies in bolstering the level of academic achievement in remedial classrooms. Participants in their research included low achieving fifth and sixth grade students in a low income, urban area. Students had the opportunity to earn tokens resembling colored trading stamps for successful completion of regular school work, homework and remedial work, and good report card grades. Token stamps were redeemable for a variety of prizes depending on their color. For example, blue stamps were traded in for weekly prizes such as field trips or movie privileges, and green stamps were traded in for daily prizes like snacks. Researchers attempted to increase the rate of students completing sections of a reading and comprehension practice workbook. The total number of stamps they could be
awarded for completing a section was manipulated. Measurements revealed that students completed substantially more sections when they had the opportunity to gain a greater number of token reinforcers. Their cumulative results showed an average gain of a full year’s advancement in achievement level as a result of token reinforcement.

Similar successes with token economies are well documented within the literature. Staats and Butterfield (1965) used a token reinforcement system to increase academic achievement in a 14-year old delinquent boy. The researchers were interested in increasing behaviors across a range of literacy components such as vocabulary presentation, oral reading, silent reading and comprehensive questions, vocabulary review, achievement tests, and training sessions. Specific responses the subject needed to engage in to acquire tokens were then established for each subject area. The token system allowed the subject to earn blue, white, and red tokens with the token color corresponding to differing values. The tokens could then be used to purchase backup reinforcers from a menu of the subject’s own choosing. Examples of items the subject purchased were shoes, ice cream, a ticket to a school function, and money to send to his brother. During the course of the 4.5-month treatment phase, his reading level increased from a second grade to over a fourth grade level. His number of school misbehaviors also decreased to zero.

Kazdin (1973) examined the effects of a token reinforcement program on on-task classroom behavior. Classroom attentiveness was operationalized to include behaviors such as sitting in seats, raising hands to talk, and facing forward in the seats. The classroom teachers administered tokens to the students by punching holes in individual cards kept by each student at his or her desk. At the end of each day, students were able
to redeem their punches for prizes such as candies, toys, books, and various trinkets. Findings indicated that contingent reinforcement resulted in improvements in on-task behavior in all of the examined classroom settings.

**Overall limitations in token economy research.** The aforementioned body of research strongly suggests that the implementation of token economies can be very effective in reducing delinquent behavior while also increasing academic performance. However, despite the history of token economies in improving many different types of behavior among many different populations, continued research is necessary. The previously described research has largely focused on the efficacy of token economies in creating behavior change. Showing that token economies can work is necessary but not sufficient if these systems are to be used as a practical tool in many different settings. Two important issues to consider are (a) whether token economy research is viewed as socially valid and reliable by educational authorities, and (b) whether there are adequate training resources available for organizations wishing to adopt token economies.

**Barriers to widespread adoption.** The need for evidence-based practice within educational settings is growing (U.S. Department of Education, 2003). The What Works Clearinghouse (WWC), funded by the Institute for Education Sciences at the U.S. DoE, was established in 2002 to evaluate education programs, products, practices, and policies. The WWC reviews and recommendations are disseminated as tools to help inform the decisions of educators and policymakers. In a review of token economies, WWC standards were applied to determine whether token economies meet criteria for “evidence-based best practice” (Maggin, Chafoules, Goddard, & Johnson, 2011). These standards cover three main areas: the degree of internal validity and strength of the
research design; the strength of the evidence through visual analysis; and the degree to
which the results can be replicated across different cases, settings, and researchers. The
review examined 24 studies that used token economies as the independent variable. The
assessment concluded that there was not enough evidence to classify token economies as
best practice procedures. The authors reported that this finding was due largely to
insufficient levels of methodological soundness in experimental design and reporting of
methods. One specific methodological concern was the lack of measures of treatment
integrity within the selected studies. Only two of the 24 studies reported treatment
integrity measures at all. The two that did report treatment integrity reported on different
aspects of the token system, one focusing on the administration of tokens, the other on
the exchange of tokens for backup reinforcers. A second methodological weakness cited
was the infrequent reporting of interobserver agreement (IOA). Less than half of the
studies reviewed reported the number of sessions during which IOA was taken to be at
least 20%, and several failed to report the percentage of sessions in which IOA was taken
at all. More research with a focus on documenting and reporting the precise components
of the intervention is needed if token economies are to be included among other
evidence-based practices recommended to education professionals.

**Barriers to effective implementation.** Another often overlooked area in the
literature is research on the components necessary to train and maintain an effective
token economy among organizational staff. This issue was addressed by Marr, Lilliston,
and Zelhart (1974) when attempting to teach token economy procedures to a prison staff.
The staff training procedure had two main goals: to teach the token economy in a
minimal length of time and to teach the principles to a staff that was hostile towards the
program. Their approach was to use the token economy itself to teach the token economy. The multi-day training occurred at a motel where staff could gain tokens and exchange them for various privileges and motel room amenities. Two broad goals of the token economy training were to improve attitudes related to acceptance of the token economy within the prison system and to increase knowledge of the system procedures and potential applications. The researchers reported “highly visible” changes in participant attitudes and knowledge; however, no formal data supporting these claims were actually taken. Plans to implement the token economy within the prison were suspended due to shifting leadership within the organization, further reducing the ability to measure the effectiveness of this type of token economy training approach.

Investigations of token economy training methods have also been conducted in school-based settings. Metzler, Biglan, Rusby, and Sprague (2001) used a model called the Effective Behavior Support (EBS) approach to attempt to correct a broken token economy system and decrease problem behavior in a middle school (grades 6-8).

Effective Behavior Support is a collaborative approach where researchers, consultants, teachers, and administrative staff jointly work to improve school behavior by (a) clearly defining rules, (b) teaching expected behavior, (c) providing reinforcement for desired behavior, (d) consistently measuring behavior, and (e) using measurement data to guide further intervention approaches. Prior to the beginning of the investigation, the token economy was failing on several fronts. Behavioral guidelines were vague, tokens were not being administered consistently, and prize drawing stopped being conducted. To begin the intervention, an EBS team was formed consisting of three teachers, one school counselor, the vice-principal, research staff, and two experts on EBS. The team met
monthly for approximately two hours throughout the entire academic year to develop the intervention plan. One of the first tasks of the EBS team was to clearly define the behaviors that students were expected to engage in. For example, the first rule originally in place was “Be respectful”. The rule was broken down by the team into three behaviors that could more easily be observed: (a) use appropriate language; (b) roles and responsibilities of students and teachers; and (c) respect others’ space and belongings. After all the main school-wide rules had been broken down in this manner, the team instituted a system to provide reinforcement for following the rules. One way they did this was to revise the “Tiger Ticket” system, a token economy that was being used ineffectively by staff and thereby failing to control student behavior. There were five main changes to the existing system: (a) tokens were handed out contingent on the more specific behaviors previously derived from the school rules; (b) allowed teachers, administrators, school staff, and students to administer tokens; (c) solicited donations from local business to act as backup reinforcers; (d) held weekly prize drawings; and (e) developed a tracking system to monitor the delivery and receipt of tokens. After implementation of the changes to the token system recommended by the EBS team, measurements reflected an increase in the amount of reinforcers administered for desired behavior, especially among sixth graders. The changes also lowered unwanted aggressive behavior in seventh grade students, as measured by the number of discipline referrals and school climate surveys.

Effective Behavior Support has since evolved into School-wide Positive Behavior Support (SWPBS). School-wide Positive Behavior Support is a “systems approach to establishing the social culture and behavioral supports needed for all children in a school
to achieve both social and academic success” (p. 1) (Technical Assistance Center on Positive Behavioral Interventions and Supports, 2009). Rather than being an approach specifically designed to teach a particular behavior management strategy, SWPBS is a framework that highlights several elements believed to be critical to creating a school culture that supports student social and academic success (Dunlap, Goodman, McEvoy, & Paris, 2010). The approach is broken down into three prevention tiers corresponding with approaches to responding to increasing levels of student problem behavior. Tier one, the level concerned with items affecting all students, consists of the following elements: defining behavioral expectations, teaching behavioral expectations, reward systems for appropriate behavior, a continuum of consequences for problem behavior, and continuous collection and use of data for decision-making. Tier two is concerned with developing targeted interventions for individuals that do not respond to the universal tier one behavior support system. Examples of tier two interventions are appointing student mentors or establishing individual behavior contracts with students. Tier three interventions are reserved for students who still exhibit chronic behavioral problems after previously being exposed to interventions in tiers one and two. Tier three consists of completing a functional behavior assessment that identifies the variables that reliably predict and maintain problem behavior. An individualized behavioral support plan is developed based on the assessment results and is carried out with the collaboration of teachers, parents, administrators, and other professionals.

Implementation of SWPBS has been associated with positive outcomes in several respects. A study of SWPBS was conducted by researchers examining the effects of intervention in 30 elementary schools located in both Illinois and Hawaii (Horner et al.,
The intervention schools received comprehensive SWPBS training, while 23 control group schools were placed on a wait list. Training for the intervention group was conducted over a three-year period by state personnel with formal SWPBS training. Teams from each school were sent to attend three to four multi-day training events per year, over the course of two years. Unfortunately, the researchers did not provide a detailed report on what specific instruction was delivered at these training sessions. In addition, state SWPBS trainers met with school teams to establish local “coaches” tasked with providing each school team with monthly support. After the three year intervention period, treatment and control schools were assessed using the School Safety Survey (Sprague, Colvin, & Irvin, 1995). The survey provides a score based on risk and protective factors as perceived by school employees. The data revealed statistically significant evidence that schools receiving the training were perceived as overall safer environments than schools not receiving training.

Many of these elements of SWPBS bear a close resemblance to the characteristics of effective token systems, including the clear definition of target behaviors, a means by which desired behavior is measured, and a process for rewarding desired behavior. The school-wide positive behavior support model also aligns well with best practice standards for general program effectiveness. Metzler et al. (2001) identified a number of characteristics of generally effective behavior management interventions. These characteristics were later consolidated into several key factors by Mattaini and McGuire (2006). They include an emphasis on increasing positive reinforcement for appropriate social behavior, active teaching of appropriate social behavior, clear communication of a
small number of rules, consistent provision of corrective consequences for rule violation, and ongoing monitoring of data to provide feedback for program development.

Given these key similarities to effective behavior intervention approaches and coupled with the emphasis of staff collaboration in designing intervention procedures, SWPBS guidelines may prove effective in teaching token economies to those with limited exposure to behavioral technology given that they can be implemented in a way that is not cost-prohibitive for organizations with already limited budgets. Research devoted to investigating the utility of the SWPBS framework in teaching smaller, specific behavior modification programs like the token economy could prove valuable for several reasons. First, it could offer the potential for developing a more complete understanding of how to teach token economies and maintain treatment fidelity over a period of time. With the inability to demonstrate strong treatment fidelity being a major deficit in the token economy literature base (Maggin et al., 2011), research that addresses the training component may help garner recognition of this valuable technology as “evidence-based” by prominent educational institutions like the What Works Clearinghouse.

Another potential benefit relates to developing an understanding of the components necessary to produce effective positive behavior support programs within organizations. As mentioned earlier, the availability of resources to implement intensive trainings or interventions may pose an obstacle for many organizations. Official training in SWPBS requires multi-day commitments and travel throughout the course of years to complete (Bradshaw, Mitchell, & Leaf, 2010). Small or underfunded institutions may simply lack the funding or staff flexibility to be able to complete training. Furthermore,
organizations suffering from high rates of employee turnover may lack the incentive to invest in training individuals whose tenure with the organization may be short lived.

**The Current Study**

The present study was conducted at multiple units (sites) of the Boys and Girls Club (BGC) of Kalamazoo. The BGC network consists of 1,140 independent chapters and one national organization. Boys and Girls Clubs seek to enable young people to reach their full potential as productive, caring, responsible citizens through the provision of safe areas to grow and several youth development programs (Boys and Girls Clubs of America, 2012). Each BGC unit contains youth development programs that focus on three key outcome areas: (a) academic success, (b) good character and citizenship, and (c) healthy lifestyles. The organization as a whole reports having reached out to over four million children and teens in 2012.

The BGC of Kalamazoo units had a token system in place, however leadership expressed that the existing system was ineffective and that they would like to create a more sustainable and successful token economy system (J. Mancino, personal communication, 2015). The existing system, known as the “Be Great” system, identified five qualities that warrant the administration of rewards. Students were expected to be responsible, respectful, individual, understanding, and encouraging. The tokens available to students at the time were 3x6 inch slips of paper. The procedure for administering a token was to circle the characteristic the student was being rewarded for exhibiting and then fill out the student’s name, date, and precise reason for getting the token. The information was recorded once on a slip to give to the student, and then again on a slip to
be kept by the staff member. Each Friday, a store was supposed to be available where students could exchange their tokens for backup reinforcers. In practice, the store was rarely made available. The menu of backup items consisted of various toys and trinkets such as pencils, bracelets, candy, and temporary tattoos.

There was no explicit protocol for exchanging tokens for backup reinforcers. The pricing of items and the procedure by which they were exchanged depended on the staff member that was running the store at that time. Given that, the exact procedures being followed, and the supervisory encouragement of using the system differed slightly among all three sites. For example, one site supervisor had stopped stressing the importance of handing out tokens at all. Another supervisor still encouraged handing out the tokens but did not hold the weekly store. Thus, although the previously described system was the official protocol, the exact procedures followed were marked by general inconsistency.

Given the ineffectiveness of the existing token economy system at the Kalamazoo BGC units, the present study aimed to shed light on two specific areas on inquiry. First, it sought to explore the extent to which the implementation of an SWPBS-based positive behavior support intervention, which included an on-site, low-cost staff training component, which could increase correct staff utilization of a revised token economy program. A second goal of the current study was to assess whether the new token system would impact the number of infractions and suspensions administered by staff on a daily basis.
Method

Participants and Setting

The participants were the youth development professional (YDP) staff members at three different units of the Boys and Girls Club (BGC). Staff turnover rates were generally high, so it was difficult to provide stable demographic information on staff members. There were approximately 15 staff members who worked consistently with club members at the Lake Street unit on any given day. Douglas and Spring Valley had approximately four YDP staff each. The number of male and female staff members was generally equal. Ages and experience among staff varied broadly. All YDPs were paid Boys and Girls Club employees.

YDP staff were the front line service providers to members of the Boys and Girls Club. They were responsible for planning, implementing, and supervising member activities throughout the club. During these activities, they were responsible for rewarding appropriate behavior and enforcing club rules. The YDP staff were also responsible for completing and filing any necessary paperwork such as accident reports, incident reports, infraction sheets, and suspension forms. The YDPs served a member base composed of male and female youth ranging from about 5 to about 12 years of age. Any children/youth were eligible for club membership provided that they were also enrolled in school. Based on current membership data, the predicted number of members likely to attend a BGC site on any given day was approximately 180. The Lake Street unit experienced an attendance of 77-137 members on any given day. The Northeastern and Douglas units experienced a range of 2-79 members daily.
Unit specific race and ethnicity data for youth members were unavailable, however data from the national annual report shows that 31% of members are White, 29% are Black or African-American, and 23% are Hispanic or Latino (Boys and Girls Clubs of America, 2012). Sixty-four percent of members qualified for free or reduced-price school lunches.

Prior to the collection of data, HSIRB approval and informed consent were obtained (see Appendices A and B). The units are referred to as the Lake Street, Northeastern, and Douglas units (the Northeastern unit changed locations during the course of the study and was then called the Spring Valley unit). Each BGC unit was typically divided into several different areas and rooms where daily activities occurred. Each unit typically had a games room, all purpose room, gym, and cafeteria although they may be referred to by different names (e.g., games room vs. rec room). The Lake Street unit was the parent location for BGC clubs in Kalamazoo and provided an example of what a typical unit looked like.

The Lake Street games room was the centrally located, open area of the building. On the entrance facing edge of the room was a large bench where members gather to hear the daily announcements. Proceeding inwards was a ping pong table and three pool tables. Mounted on the wall was a TV where members had access to play either the Nintendo Wii or Xbox. Youth development professional (YDP) staff supervised members as they freely played, ensuring the appropriate use of materials and mediating any disputes that arose. Occasionally, YDPs facilitated organized group activities. The nature of the activities varied from events such as a ping pong tournament to a mini golf activity.
The all purpose room was divided into two areas. The first area contained four school cafeteria tables, and was the only area in the club where members may eat and consume non-water beverages. The room contained a closet from which the members could request access to various board games, card games, and arts and craft activities. The room also contained a wall mounted TV where members viewed cable programming. YDPs supervised activities, gathered and dispersed supplies from the employee closet, and ensured that all eating areas were left clean once members had finished their snacks.

The gym was a large, indoor basketball court. It contained six basketball hoops and an equipment closet from which students were able to request other materials. Students had access to dodgeballs, soccer balls, footballs, hula hoops, and other various items. YDP staff were responsible for procuring materials from the employee storage closet, supervising activities, and refereeing games. They also taught new sports activities to members such as how to correctly dribble a basketball.

**Independent Variable**

The independent variable in this experiment was the introduction of a new positive behavior support system created based on SWPBS guidelines. Previously, the researcher (also in his role as a volunteer with BGC) worked with the BGC supervisory staff to review the relevant research in order to identify the critical components of effective positive behavior support interventions, and what this would look like if implemented within the Kalamazoo BGC. This resulted in the design of a new positive behavior support system. Based on the recommended procedures for designing effective behavioral interventions for youth (Mattaini & McGuire, 2006), the four major components targeted were: (a) training for staff on how to use the positive behavior
support system, (b) staff teaching of the positive behavior support system to members, (c) the implementation of a token economy system for reinforcing positive behavior, and (d) a data collection/feedback system to inform supervisors on the progress of members and staff. See the general procedures section for a detailed description of each step.

Under the new system, the existing “Be Great Cards” were modified by BGC supervisory staff to resemble United States currency (see Appendix D) and were renamed “BGC Bucks”. The existing menu of backup reinforcers was modified to include only privileges and no tangible toys or prizes. The shift away from tangibles was a result of difficulties finding adequate storage area, keeping items secure from theft, costs associated with continually purchasing prizes, and a club-wide initiative to decrease the pairing of candy and material items with achievement. Various privileges were made available in the “Be Great store” for which students could exchange their earned points. Examples of some privileges included special time with a chosen staff member, extra computer room time, taking a special certificate of achievement home to parents, and leading the daily pledge (see Appendix E for a complete list of privileges). The privileges were selected based on member interviews. An interview method was chosen to conduct this preference assessment instead of a written questionnaire due to the highly varied literacy levels of the BGC population. Volunteer staff interviewed youth at each BGC unit and recorded suggestions of privileges that they would be willing to work towards in the club. Supervisory staff then reviewed the list of suggested privileges and approved viable suggestions, removed unavailable suggestions, and added new ideas for privileges that they would be willing to provide. The revised list was taken to each of the three local club units where volunteer staff again interviewed members and recorded the number of
students that reported a willingness to work towards obtaining each privilege. Results of the preference assessment were presented to each unit coordinator who then finalized a menu of privileges to be included in their unit’s store before the implementation of the intervention. Each unit’s menu was based off of this preference assessment, but exact items differed slightly due to differing resources at each of the units.

**Dependent Variables**

The primary dependent variable examined was staff behavior of providing Be Great Cards/BGC Bucks to members, and whether administrations were contingent or not contingent on desired behavior. This was measured using direct observation of staff behavior. Interval recording was used to determine the frequency with which staff provided token reinforcers to members. Club members typically rotated through different rooms in the club during the course of the day, spending about one hour in each room. Staff members were observed daily in three 30-minute blocks of time in their respective rooms. Blocks were further divided into thirty, one-minute observation periods. Observations near the beginning or end of the day were avoided because these were times when members were either arriving or leaving the club. Observing during these times could have resulted in decreased stability of measurements due to the rapidly fluctuating numbers of attending members. All observations occurred Monday through Friday between 1:00 P.M. and 7:00 P.M. Data collectors were undergraduate psychology students. Most data collectors earned course credit for their work, but some volunteered their time. Data collectors were given a data sheet containing observation instructions and an area in which to record data (see Appendix F). The sheet was used to record each
administration of a token and determine whether it was delivered contingent on desired member behavior or whether it was not delivered contingent on desired behavior.

The secondary dependent variables being examined were staff instances of writing infractions/suspensions and the number of times the store was held from which members could exchange tokens for backup reinforcers. Incidences of writing infractions and suspensions were measured and presented anonymously using data already being collected by the BGC. There were two ways the club recorded misbehavior. First, students were given written infractions for poor behavior. Infractions were written for many reasons including not following directions, using inappropriate language, running indoors, and misuse of equipment. Different kinds of infractions were worth differing point values; more serious infractions corresponded with more points. Second, students received suspensions from the club for accumulating 10 infraction points in one week or for engaging in more serious misbehavior. Behaviors like bullying and physically fighting warranted an automatic suspension. All records of member infractions and suspensions were kept in an office filing cabinet and electronic database. Past data and data gathered during the duration of the study were included in analyses. The data were presented in terms of club-wide infractions and suspensions, and did not include the presentation or collection of any individual identifying information. The researchers received the anonymous group data from the BGC staff at the conclusion of summer programming, after staff observations had ceased. The data were organized by undergraduate data collectors and double checked for accuracy by the data collection team leader and student investigator.
The number of times the club store was held was also measured. One pitfall of the old system was that over time, staff members ceased to hold the store regularly. The number of times that the store was held after the implementation of the new system was therefore measured as an indicator of the success of the new system. Boys and Girls Club supervisors kept a log recording the time and date of each time the store was held. This information was shared with the researchers.

**Experimental Design**

The investigation was carried out using a multiple baseline design across BGC units. Baseline measurements took place for three to nine weeks, depending on the unit (three weeks at Lake Street, six weeks at Northeastern, and nine weeks at Douglas sites). Following the first two weeks of baseline measurements, there was a two-week hiatus during which no data were collected. This break occurred during a period in which all units were closed for training and preparation for summer programming. The intervention remained in place at each site and data were collected for three to nine weeks, depending on the unit (nine weeks at Lake Street, six weeks at Northeastern, and three weeks at Douglas). Results were analyzed using single-subjects visual inspection criteria. Data were displayed graphically and examined for changes in responding from pre-to-post intervention using visual inspection.

**General Procedures**

Baseline measurements of staff and member behavior were taken while the existing “Be Great Card” system was in place. Members had the opportunity to earn cards that they could later exchange for prizes. This closely resembled an attempt at a positive behavior support system, but fell short for a number of reasons. There were no
consistent or explicit criteria by which members could earn cards. The cards that members did earn were seldom exchanged for backup reinforcers. It was common for several months to elapse with no opportunity to exchange points for prizes. Prizes to be purchased were selected arbitrarily and did not necessarily appeal to the entire range of member demographics. Incoming staff received little to no training on how to use the “Be Great Card” system. Staff were essentially given a stack of cards and told to fill them out and pass them out whenever the situation seemed appropriate. Finally, there was no data collection or feedback system to gauge progress and guide future action. Baseline observations were conducted concurrently at the Lake Street, Northeastern, and Douglas units. During baseline, staff members implemented the existing token economy as usual. Data collectors recorded the number of instances in which the Be Great Cards were administered by staff members both contingent and non-contingent on desired behavior as specified by supervisors in the results of their goal analysis procedure (see Appendix G). The number of times the “Be Great store” (store in which members can exchange cards for reinforcers) was held was recorded during baseline by having supervisors keep a log detailing when the store was held. The number of member behavior infractions was tracked by counting the number of infraction sheets that were filled out at the conclusion of each day. Suspensions were also measured by counting the number of suspension forms that were filled out at the conclusion of each day.

Immediately preceding the introduction of the intervention at the Lake Street unit, staff from all units were taught the new behavioral expectations during a mandatory all-staff week-long training. The week-long training session was typically done each year to prepare incoming staff for summer programs at the BGC and covered several topics such
as how to establish positive relationships with youth and ideas for planning daily activities. This year, training on how to run the new positive behavior support system was incorporated into the normal training. The additions consisted of three modules: a general information module, a procedures module, and a practice module. During the general information module, the new expectations were explained by the researcher and discussed. Staff members received a full written list of behavioral expectations that they were able to reference when necessary. The procedures module consisted of a detailed explanation of the new procedures for actually administering tokens to members and the procedures for counting and exchanging tokens. In the practice module, each staff member had an opportunity to practice administering tokens in mock scenarios. Corrective feedback was administered to staff by the trainer for any errors that occurred. This feedback was delivered in the form of verbal instructions and modeling of the appropriate performance.

After the YDP staff were trained in the new token economy system, they implemented the new system, beginning with a week-long token system introduction to familiarize club members with the new behavior expectations. The introduction occurred during the regularly scheduled after school operating hours of the club. Each day of the week was devoted to teaching one set of behavior expectations derived from the five initial qualities (responsible, respectful, individual, understanding, and encouraging). The introduction sessions included YDP staff providing descriptions of the desired behaviors, modeling performance, and providing opportunities for members to practice the behaviors. Visual displays of the new expectations (behavior lists) were displayed across the club for members to refer to at their leisure. At this time, YDP staff also introduced
the new system for administering reinforcers and allow members to practice using it. Additional procedures that pertained to other necessary aspects of the system’s operation, such as the token cost of specific privileges and reviewing the menu of available privileges were also covered.

Once the revised token system was introduced to club members, the YDP staff implemented the token economy as part of normal operations. As in baseline, research assistants recorded the number of instances in which the Be Great Bucks (formerly Be Great Cards) were administered by staff members contingent and non-contingent on desired behavior. Additionally, the number of member behavior infractions and suspensions were tracked by recording the daily number of forms filled out for each type of incident.

The data collection and feedback component of the intervention first consisted of BGC supervisors identifying an individual (paid or volunteer) to be responsible for collecting data and preparing reports. This individual then learned the proper procedure for conducting these tasks from the researcher during the intervention phase. A weekly report was prepared and delivered to BGC supervisory staff, who then were encouraged to share the information with YDP staff. Supervisors met once every two weeks to collectively review the employee performance data and use it to plan further decision making.

**Observer Training and Interobserver Agreement**

Observations were conducted by the researcher and undergraduate student research assistants recruited from Western Michigan University. Observer training occurred in three phases. Phase one consisted of a session where a trainer showed
observers the data sheet, procedure for recording data, and definitions of terms. The trainer explained and modeled the correct usage of these materials and answered any questions the trainees had. Phase two was a practice session where observers were taken on site and asked to record mock data. Verbal corrective feedback was provided on the spot for any errors made during the practice sessions. Practice continued until the data collector felt confident enough to proceed to the final testing phase. The final phase consisted of three, 30-minute test sessions. Observers recorded mock data on site without the aid of coaching or feedback from the trainer. Performance was scored as satisfactory when each of the three observations reached 90% agreement with a trainer’s observations. If performance did not meet passing criteria, phases one and two of the training process were reviewed before testing would occur again.

**Treatment Integrity**

Even though numerous studies exist demonstrating the effectiveness of token economies in improving behavior (Kazdin, 1973; Staats & Butterfield, 1965; Wolf et al., 1968), there are still shortcomings in the literature body. This was pointed out when the What Works Clearinghouse was unable to conclude that token economies were evidence based interventions (Maggin et al., 2011). The main reason cited was a lack of methodological rigor in token economy research. Specifically, the reviewers found that many studies failed to consistently report measures of treatment integrity, such as how tokens are actually being administered and how they are being exchanged for backup reinforcers. They also cited the infrequent reporting of interobserver agreement on dependent variable measurements as a substantial weakness. The current study sought to address each of these three methodological weaknesses.
Social Validity

Staff perspectives and satisfaction with the system were assessed by use of a questionnaire (see Appendix H) given to staff at the conclusion of data collection. Statements about the positive behavior support system were ranked on a 5-point scale, ranging from 1 (disagree) to 5 (strongly agree). All responses were collected anonymously in order to avoid potential bias.

Results

Staff Behavior

The primary dependent variable in this experiment was staff behavior of providing Be Great Cards/BGC Bucks (reinforcers) to members. These administrations were divided into two categories by observers, response contingent and non-contingent. The results are displayed in Figure 1. The x-axis contains the dates during which observations occurred and the y-axis represents the number of Be Great Cards/BGC Bucks delivered by staff. Values plotted with a circle marker represent tokens that were administered contingent on behaviors appearing on the behavior list, and values plotted with an X marker represent non-contingent delivery of tokens (delivered not immediately following a behavior on the behavior list). During baseline, the average number of contingent cards administered per 1.5 hr observation session at Lake Street, Douglas, and Spring Valley were 0, 2, and 1.9, respectively. During intervention, the average number of bucks delivered rose to 7.4, 2.2, and 2.3. The average number of non-contingent cards administered per 1.5 hr observation
session during baseline at Lake Street, Douglas, and Spring Valley were 0, 1.4, and 0.9, respectively. During intervention, the averages were 0.7, 0.1, and 0.1.
Figure 1. Average daily number of Be Great Cards/BGC Bucks administered at Lake Street, Douglas, and Spring Valley units.
The secondary dependent variable measured was staff instances of administering infractions and suspensions (punishers) to members. These results are displayed in Figure 2. The x-axis displays the dates during which observations occurred and the y-axis displays the number of punishers administered. Values plotted with a circle represent infractions and values plotted with an X represent suspensions. During baseline, the average number of infractions administered per 1.5 hr observation session at Lake Street, Douglas, and Spring Valley was 5.3, 0.8, and 3, respectively. During intervention, the averages were 9.6, 0.7, and 0.7. During baseline, and average number of suspensions administered 1.5 hr observation session at Lake Street, Douglas, and Spring Valley were 1.5, 0.1, and 0.3, respectively. During intervention, the averages were 1.8, 0, and 0.2.
Figure 2. Frequency of infractions and suspensions administered at Lake Street, Douglas, and Spring Valley units.
Treatment Integrity

The integrity with which the crucial elements of the new system were implemented was measured using a log that supervisors were asked to keep. They were asked to record how often the BGC buck store was held, whether lists of new behavior expectations were posted on the walls, whether new behavior expectations were explicitly taught to club members, and how often graphic performance was shared with staff members. Each supervisor delivered their unit’s log to the researchers at the conclusion of data collection. Results of the treatment integrity measures are displayed in Table 1. Taken together, these measurements addressed the major shortcomings of the token economy literature base and provided a strong indication of the treatment integrity of the new system.

Table 1

Fidelity of Implementation Measures

<table>
<thead>
<tr>
<th>Fidelity Measure</th>
<th>Baseline</th>
<th>Intervention</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lake Street</td>
<td></td>
<td></td>
</tr>
<tr>
<td>% of time the store was open</td>
<td>0%</td>
<td>66.70%</td>
</tr>
<tr>
<td>% of time performance feedback was shared with staff</td>
<td>0%</td>
<td>22.20%</td>
</tr>
<tr>
<td>Behavior expectations posted on walls</td>
<td>N/A</td>
<td>Two weeks after intervention</td>
</tr>
<tr>
<td>Behavior expectations taught to members</td>
<td>N/A</td>
<td>Yes</td>
</tr>
<tr>
<td>Douglas</td>
<td></td>
<td></td>
</tr>
<tr>
<td>% of time the store was open</td>
<td>0%</td>
<td>66.70%</td>
</tr>
<tr>
<td>% of time performance feedback was shared with staff</td>
<td>0%</td>
<td>16.70%</td>
</tr>
<tr>
<td>Behavior expectations posted on walls</td>
<td>N/A</td>
<td>Beginning of intervention</td>
</tr>
<tr>
<td>Behavior expectations taught to members</td>
<td>N/A</td>
<td>Yes</td>
</tr>
<tr>
<td>Spring Valley</td>
<td></td>
<td></td>
</tr>
<tr>
<td>% of time the store was open</td>
<td>0%</td>
<td>66.70%</td>
</tr>
<tr>
<td>% of time performance feedback was shared with staff</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>Behavior expectations posted on walls</td>
<td>N/A</td>
<td>Two weeks before intervention</td>
</tr>
<tr>
<td>Behavior expectations taught to members</td>
<td>N/A</td>
<td>Yes</td>
</tr>
</tbody>
</table>
**BGC buck store.** During the baseline phase, there were no instances of a reinforcer exchange store being run at any unit. After the introduction of the intervention, each unit held the store 66.7% of the time. This number was calculated by dividing the number of times the store was run by the number of opportunities the unit had to run the store, and multiplied by 100.

**Behavior expectations posted.** Each unit posted the behavior expectations on their walls, however, there were some variations in when the posting occurred. The expectations were posted at Lake Street two weeks after the official beginning of the intervention. Expectations were posted at Douglas upon the official adoption of the intervention. Expectations were posted at Spring Valley two weeks before the official beginning of intervention.

**Behavior expectations taught to members.** Each unit reported that they explicitly taught members the new behavior expectations during the first week of intervention. The exact method by which behavior expectations were taught may have varied at each unit, as there was no standardized protocol for teaching the expectations.

**Supervisor and staff feedback.** Unit supervisors were presented with weekly graphic feedback regarding how many contingent and non-contingent BGC Bucks were observed to be distributed by staff. See Appendix I for an example. Supervisors were verbally encouraged to share this performance feedback with staff members at the beginning of the intervention phase. At Lake Street, feedback was shared with staff members 22.2% of the time. At Douglas, feedback was shared with staff members 16.7% of the time. At Spring Valley, feedback was shared with staff 0% of the time.
Interobserver Agreement

Interobserver agreement (IOA) was recorded for 58% of sessions. IOA was calculated by dividing the total number agreements by the total number of agreements plus disagreements and multiplying by one hundred. Agreement was defined as both observers recording the same number of response contingent and non-contingent token deliveries during each minute-long interval. IOA was calculated for the three, 30-minute sessions, and the three percentages were averaged to determine the total IOA for the day. The mean agreement across all IOA sessions was 99.5% (range 94.4% -100%).

Social Validity

Twenty-three staff members completed and returned a social validity questionnaire. Regarding the ease of use of the new system, the average ranking given by staff across all three locations was “agree” ($M = 4.09$). Staff ranked the amount of performance feedback given by management at the clubs as “somewhat agree” ($M = 3.56$). Staff also rated the impact of the intervention on the children’s behavior as slightly above “somewhat agree” ($M = 3.50$). Finally, the staff reported that they agreed that they knew how to properly use the new system ($M = 4.34$).

Qualitative data were reported in a free-response section of the questionnaire. Staff generally reported that the new system was clearer, less time consuming, and easier to use. Comments addressing limitations and suggestions for improvement to the new system noted how frequently the bucks were lost, dropped, and stolen. Additional comments were related to the items available to members in exchange for BGC Bucks, such as a noted preference of toys and trinkets that were formerly available over the newly available privileges. A full list of comments is displayed in Appendix J.
Discussion

The results of the study indicate that a positive behavior support model was somewhat effective in teaching staff how to correctly use a token economy. There were two components of interest when observing YDP use of the system: the frequency with which they administered tokens and whether or not each administration was contingent on desired behavior. During baseline, Lake Street staff were never observed administering any tokens to student members. During intervention, there was an immediate increase in responding that fluctuated in value but maintained throughout the course of the study. There were no immediate or dramatic changes in frequency of responses at either the Douglas or Spring Valley units. The failure for staff behavior to dramatically increase at Douglas and Spring Valley may be due to the fact that their use of the original Be Great Card system had not deteriorated to the extent that it did at Lake Street. There were zero observed administrations of reinforcers during baseline at Lake Street, and observers reported that staff members typically did not even have the bucks on hand to administer. This situation can be contrasted with the baseline conditions at both Douglas and Spring Valley, where the system was still being used to some degree. When Lake Street entered the intervention phase, staff members were retrained, given the necessary materials, and were expected to administer reinforcers. When Douglas and Spring Valley entered the intervention phase, the BGC Buck system may have functioned as a near identical substitute for the Be Great Card system, which staff members continued to administer at roughly the same rate as during baseline.

While staff at Douglas and Spring Valley did not administer reinforcers with significantly greater frequency, there is evidence that they did administer them with
greater accuracy. The mean number of non-contingent reinforcers delivered per 1.5 hr observation session declined during both intervention phases by 90% and 87.5%, respectively. It should be noted that the frequency of non-contingent reinforcers was very low to begin with (1.41 and 0.88), but fell to near zero levels (0.14 and 0.11) during the intervention phase. There was no opportunity to measure the effect the intervention had on the accuracy of Lake Street staff members because no reinforcers, contingent or otherwise, were delivered during baseline.

Contrary to the results that were anticipated, there was no visible decline in the rate of punisher administration at any of the three units. There did appear to be a slight increase in the frequency of infractions administered at Lake Street. This may have been due to an overall increase in the number of students in daily attendance as Lake Street transitioned over to their summer programming during the beginning of the intervention (see Limitations and Future Research section for a further discussion of attendance). The failure of the intervention to produce a reduction in the number of punishers administered could be due to is the fact that member misbehavior that warranted an infraction or suspension may have remained stable or even increased throughout the course of the study. In other words, it could be the case that the intervention failed to reduce member misbehavior so staff responded accordingly.

If the intervention failed to produce significant changes in member behavior, this is most readily explained by the weak degree of fidelity with which the system was implemented. For instance, the BGC Buck store was reported to only have occurred 66.7% of the times during which it was scheduled to run. Furthermore, the graphic feedback received by unit supervisors was very seldom shared with the YDP staff.
Supervisors were initially asked to share feedback with staff at the end of each week, but in practice seldom did (see Table 1). It should also be noted that not every unit placed their behavior lists (see Appendix G) up on the club walls at the onset of intervention, as intended. With such low measures of implementation fidelity, it is not surprising that staff behavior did not change predictably at each unit.

Due to the low implementation fidelity, it is not possible to truly know what effect the BGC buck system would have had on staff behavior. The most valuable information garnered might rather be the degree of implementation fidelity one could expect to see, given the intervention package that was administered. The observed decline of non-contingent reinforcer administrations to near zero levels lends support to the notion that the positive behavior support framework is effective at teaching staff to administer tokens with a great degree of accuracy, but not necessarily increased frequency. It is also evident that additional contingencies should be arranged to ensure that the exchange store is consistently run and that staff members receive performance feedback.

**Limitations and Future Research**

There were several limitations associated with this study. The major limitation is that direct observation of student behavior was not conducted. This intervention was primarily focused on changing the behavior of staff with the expectation that staff behavior changes would drive member behavior changes. In truth there is a reciprocal relationship between staff and youth members, where the behavior of one group directly influences the behavior of the other. The lack of data regarding member behavior represents an unknown variable that may have helped explain some of the unexpected behavior of staff.
There were some limitations associated with the positive behavior support training given to staff. During the course of the experiment, informal comments from BGC staff to research staff revealed that some staff were uncertain of how often they should provide reinforcers to youth members. This suggests that staff could have possibly benefited from more explicit instructions regarding the frequency with which they should have administered BGC Bucks. Best practice strategies vary by organization, but it is typically recommended that staff should follow a 4 to 1 ratio rule, where students receive four instances of positive attention for every one correction of problem behavior (Dunlap et al., 2010). Staff members did not explicitly receive these instructions during their training.

Another limitation of this study was the relatively small window of time during which observations occurred. Each unit received about 1.5 hours of staff observation time out of the typical 4-6 hours of operation time. Observers attempted to avoid the beginning and end of operating hours, but scheduling constraints did not always permit consistency. Observations at Lake Street occurred from 1:00 pm – 7:00 pm. The average daily arrival time was 4:00 pm during baseline and 2:15 during intervention. Observations at Douglas occurred between 3:00 pm – 6:45 pm. The average daily arrival time was 3:30 pm during baseline and 4:15 during baseline. Observations at Spring Valley occurred between 1:00 pm – 7:00 pm. The average daily arrival time was 5:00 pm during baseline and 2:30 during intervention. Observers also remarked that staff members tended to use more reinforcers during specific times, such as during transitions between activities. If observers were present during transition time, there was a higher chance they would witness the administration of a reinforcer compared with observations made while
members were engaged in an activity. Finally, there were far fewer observations taken at the Spring Valley unit due to their operating hours being changed to Monday through Thursday. Spring Valley was also unfortunately the last unit to enter the intervention phase, so their staff and members received considerably less exposure to the intervention than was initially planned.

The instability of member attendance throughout the study is another limitation worth noting. The Lake Street unit experienced an increase in average daily attendance between baseline and intervention, rising from 92 to 115 members (20% increase). Both Douglas and Spring Valley experienced decreases in student attendance moving from baseline to intervention. Douglas attendance fell from 44 to 36 (18.2% decrease) and Spring Valley fell from 32 to 23 (28.1% decrease). Daily attendance was not observed to correlate with the daily frequency of reinforcers (contingent/non-contingent tokens) or punishers (infractions/suspensions) administered. Although attendance did not seem to influence the results on a molecular level, there may have been broader influences that were not captured by the dependent variables measured. For example, it is likely that the overall difficulty of managing behavior at a given site is positively correlated with the number of members in attendance. As attendance and member management difficulty rise, the degree to which site supervisors and staff value and leverage a new behavior management tool may also rise. On the other hand, as attendance and management difficulty decrease, staff and supervisors may place less value on behavior management tools like PBS, instead defaulting to more simple or familiar methods like verbal prompts. Future research could directly measure the links between attendance/staffing ratios, site management difficulty, and valuation/use of positive behavior support.
Future research on token economies should continue to gather and report strong measures of implementation fidelity and interobserver agreement. These measures are essential to understanding why a particular system might not have changed behavior as expected and making the necessary modifications to achieve the desired outcome. If the token economy does produce large behavior changes, these measures are essential to ensuring successful replications and gaining widespread support for similar interventions in the education community.

Future research in the area of positive behavior support systems should focus on obtaining direct observations of student behavior. Much of the existing research (this study included) has measured student behavior via some secondary source such as discipline referrals. Making direct student observations could allow subsequent researchers to acquire a better understanding of the interaction between staff and student behavior instead of assuming a direct correlation. It was discovered that one site experienced significantly more change than the others. Additional research should also be expanded to include an analysis of the antecedent conditions necessary at each site to increase the likelihood of successful implementation of a positive behavior support system.
References


Appendix A

HSIRB Approval Letter
Date: May 19, 2015

To: Heather McGee, Principal Investigator
   Brian Molina, Student Investigator for thesis

From: Amy Naugle, Ph.D., Chair

Re: HSIRB Project Number 15-05-12

This letter will serve as confirmation that your research project titled “Impact of a Positive Behavior Support System on Staff Behavior at the Boy’s and Girl’s Club” has been approved under the exempt category of review by the Human Subjects Institutional Review Board. The conditions and duration of this approval are specified in the Policies of Western Michigan University. You may now begin to implement the research as described in the application.

Please note: This research may only be conducted exactly in the form it was approved. You must seek specific board approval for any changes in this project (e.g., you must request a post approval change to enroll subjects beyond the number stated in your application under “Number of subjects you want to complete the study.” Failure to obtain approval for changes will result in a protocol deviation. In addition, if there are any unanticipated adverse reactions or unanticipated events associated with the conduct of this research, you should immediately suspend the project and contact the Chair of the HSIRB for consultation.

Reapproval of the project is required if it extends beyond the termination date stated below.

The Board wishes you success in the pursuit of your research goals.

Approval Termination: May 18, 2016
Appendix B

HSIRB Approval Letter Addendum
Date: August 11, 2015

To: Heather McGuie, Principal Investigator
   Brian Molina, Student Investigator for thesis

From: Amy Naugle, Ph.D., Chair

Re: HSIRB Project Number 15-05-12

This letter will serve as confirmation that the changes to your research project titled “Impact of a Positive Behavior Support System on Staff Behavior at the Boy’s and Girl’s Club” requested in your memo received August 10, 2015 (to add feedback form as part of data collection and to revise consent document to reflect this change) have been approved by the Human Subjects Institutional Review Board.

The conditions and the duration of this approval are specified in the Policies of Western Michigan University.

Please note that you may only conduct this research exactly in the form it was approved. You must seek specific board approval for any changes in this project. You must also seek reapproval if the project extends beyond the termination date noted below. In addition if there are any unanticipated adverse reactions or unanticipated events associated with the conduct of this research, you should immediately suspend the project and contact the Chair of the HSIRB for consultation.

The Board wishes you success in the pursuit of your research goals.

Approval Termination: May 18, 2016
Appendix C

Informed Consent Form
Informed Consent
Western Michigan University
Psychology Department

Principal Investigator: Dr. Heather McGee
Student Investigator: Brian Molina
Title of Study: Impact of a Positive Behavior Support System of Staff Behavior at the Boys and Girls Club

You have been invited to participate in a research project titled "Impact of a Positive Behavior Support System of Staff Behavior at the Boys and Girls Club." This project will serve as Brian Molina's thesis for the requirements of the IOBM Master's Degree. This consent document will explain the purpose of this research project and will go over all of the time commitments, the procedures used in the study, and the risks and benefits of participating in this research project. Please read this consent form carefully and completely and please ask any questions if you need more clarification.

What are we trying to find out in this study?
The purpose of this study is to evaluate the new "Club Way" positive behavior support system. We are trying to see whether the new system is better than the old system. We are interested in finding out whether the new system has an effect on how Be Great Cards/BGC Bucks are used and whether it has an effect on the number of infractions and suspensions at the club.

Who can participate in this study?
Any Youth Development Professional staff members may participate in this study.

Where will this study take place?
This study will take place at the Lake Street, Northeastern, and Douglas Boy's and Girl's Club Units.

What is the time commitment for participating in this study?
There are no time commitments for participation. We will collect all of the information we need during regular work time. We will be collecting data all throughout the summer Boy's and Girl's Club program.

What will you be asked to do if you choose to participate in this study?
Throughout the duration of the summer programming, you will be asked to continue work as usual and to allow your data to be used for research purposes. At the end of summer programming, you will be asked to fill out a five-item feedback form to indicate some of your thoughts and experiences using the BGC Buck system. All information will be collected anonymously unless you wish to identify yourself.

What information is being measured during the study?
We will be measuring anonymously how many Be Great Cards/BGC Bucks are being given to members for appropriate behavior. We will also be measuring how often the Be Great/Club Way store is held, and how many infractions and suspensions there are at each unit. At the end of the summer, we will measure how you felt about the BGC Buck system and allow you to share any questions, concerns, or comments you may have.

What are the risks of participating in this study and how will these risks be minimized?
There are no foreseeable risks for participating in this study. All data will be collected anonymously and will not be traceable to any particular staff member. Data will be presented in terms of unit-wide performance. Since we are not requiring any action aside from normal work activity, there are no additional risks for participation.
What are the benefits of participating in this study?
There are no direct individual benefits for participating in this study. Knowing how well the new system works could help the Boy's and Girl's Club to move in a direction that supports positive member behavior as much as possible. This could potentially make work a more enjoyable environment in the future.

Are there any costs associated with participating in this study?
There are no costs associated with participating in this study.

Is there any compensation for participating in this study?
There is no compensation for participating in this study.

Who will have access to the information collected during this study?
The information collected during this study will be shared with the Western Michigan University Psychology Department and Boy's and Girl's Club supervisors. It may also be presented at conferences or submitted for publication. The identity of each participant will be completely anonymous because data collected will not be linked to a particular staff member in any way.

What if you want to stop participating in this study?
You can choose to stop participating in the study at any time for any reason. You will not suffer any prejudice or penalty by your decision to stop your participation. You will experience NO consequences either professionally or personally if you choose to withdraw from this study. The investigator can also decide to stop your participation in the study without your consent.

Should you have any questions prior to or during the study, you can contact the primary investigator, Dr. Heather McGee, Ph.D. at heather.mgee@wmich.edu or the student investigator at brian.molinag@wmich.edu. You may also contact the Chair, Human Subjects Institutional Review Board at 269-387-9293 or the Vice President for Research at 269-387-9298 if questions arise during the course of the study.

This consent document has been approved for use for one year by the Human Subjects Institutional Review Board (HSIRB) as indicated by the stamped date and signature of the board chair in the upper right corner. Do not participate in this study if the stamped date is older than one year.

I have read this informed consent document. The risks and benefits have been explained to me. I agree to take part in this study.

Please Print Your Name

Participant's signature Date
Appendix D

BGC Buck
Boys and Girls Clubs of Greater Kalamazoo

Five Points

Responsible
Appendix E

Member Privileges
Member Privileges

POSITIVE BEHAVIOR SUPPORT PRIVILEGES
Overview: The new Positive Behavior Support system at the Boys & Girls Club is focused on rewarding members for behaviors that we as staff would like to see replicated. A big difference between the old and new positive behavior support system is that the reward for obtaining “BGC Bucks” is centered around privileges at the Boys & Girls Club opposed to physical or material items. The following lists contain privileges that have been suggested by both members and staff.

Privileges for Kindergarten through 6th grade:
- Choose activity in their program area during their rotation
- Coordinator for a day
- Dinner helper
- Gym time with teen basketball
- ½ hour of time with favorite staff
- ½ hour or computer time with member and friend
- Snack or Dinner with staff of choice
- Jump to the front of the video game line
- First in line for dinner/snack
- Lead the pledge at announcements
- Extra video game time
- Design a bulletin board
- Able to use special pool stick or ping pong paddle
- Help intake staff sign members in/out
- Free pass into the club (5th & 6th)

Privileges for Teens:
- Free pass into club
- Extra gym time
- Private gym time with 3 friends
- Extra video game time
- Coordinator for a day
- Assist a staff member in room of choice
- Pick music in teen center
- Bus tokens
Appendix F

Data Sheet
Data Collection Form Side One

Data sheet usage instructions:

1) Upon entering the site, use the randomization procedure to select the staff member to observe.
   If you are observing with a partner, use the procedure once so that you are both observing the same staff member.
2) Fill out the data sheet with your name, the site at which you are observing, and the date.
3) Find a location in the room close enough to hear verbal interactions between the staff member and the children.
4) When you are ready to begin collection, place in your headphones (optional) and begin the timer.
5) When you hear the “minute one” prompt, begin observing the staff member and recording instances of Be Great Card/BGC Buck administrations.
6) Each time a card/buck is administered, determine whether it was given for one of the behaviors on the behavior list.
   If so, record a tally in the “Contingent” row.
7) If a card/buck was administered for any behavior not on the list, mark a tally in the "Non-contingent" row.
6) When you hear the “minute two” prompt, begin recording tally marks in the second column.
   Complete this procedure in one uninterrupted take until minute 30 has been completed.
7) Count the number of marks in each columns and write the total numbers in the “total” box for each minute.
8) Once completed, return the data sheet to the designated folder/envelope in the control room.

Tips and FAQs
a. Only observe staff members that are supervising grades K-6. Do not observe staff supervising teens.
b. If there are fewer than three different staff members working with K-6, randomly select one of the staff members to observe twice.
c. If there is only one staff member working with K-6, observe that staff member three times.
d. Staff members should be verbally acknowledging why they are administering a card/buck to a member.
   If there is no clear acknowledgement or rationale for the administration, mark it as non-contingent.
e. If a staff member you are observing leaves the children for any reason (e.g. bathroom break), continue observing
   whichever staff member has taken their place supervising children. When the staff member returns, refocus attention
   and continue taking data on the initial staff member.
## Data Collection Sheet Side Two

<table>
<thead>
<tr>
<th></th>
<th>Minutes</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
</tr>
<tr>
<td><strong>Contingent</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Non-contingent</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>16</td>
</tr>
<tr>
<td><strong>Contingent</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Non-contingent</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
</tr>
</tbody>
</table>

Total contingent:
Total non-contingent:
Appendix G

Positive Behavior Support Behavior List
Positive Behavior Support Behavior List

Respectful
- Does what is asked after the first request. If a member does not understand the direction, they politely ask for clarification.
- Delivers an apology when they are wrong or made a mistake without being prompted.
- Says please, thank you, and you’re welcome without being prompted.

Responsible
- Cleans up after themselves or others.
- Positively intervenes in a negative situation (stepping in to stop bulling, notifying staff of an issue, attempting to mediate a conflict.)

Individual
- Completes or contributes to activities designed by programming staff.
- Tries a new, positive activity for the first time (stepping out of their comfort zone).

Encouraging
- Gives unprompted compliments others.
- Cheers on or encourages the positive behavior of other students.

Understanding
- Waits their turn patiently while following all rules and not complaining.
- Accepts an apology from a peer and agrees to move forward agreeably.
Appendix H

BCG Buck System Feedback Form
BCG Buck System Feedback Form

Please circle the response that most closely resembles your level of agreement with the following statements.

The new BGC Buck system is easier to use than the old Be Great Card system.
Disagree ........ Somewhat Disagree ........ Somewhat Agree ........... Agree ............ Strongly Agree
1 2 3 4 5

I get adequate feedback on my unit’s performance of handing out bucks under the BGC Buck system.
Disagree .... Somewhat Disagree ........ Somewhat Agree ........... Agree ............ Strongly Agree
1 2 3 4 5

I noticed an improvement in member behavior after switching over to the BGC Buck system.
Disagree .... Somewhat Disagree ........ Somewhat Agree ........... Agree ............ Strongly Agree
1 2 3 4 5

I feel confident that I know how to properly use the new BGC Buck system.
Disagree .... Somewhat Disagree ........ Somewhat Agree ........... Agree ............ Strongly Agree
1 2 3 4 5

Please share any other comments, questions, or concerns that you have regarding the BGC Buck System. Your feedback is important for helping us improve the system and the Boys and Girls Club!

______________________________________________________________________________________
______________________________________________________________________________________
______________________________________________________________________________________
______________________________________________________________________________________
______________________________________________________________________________________
______________________________________________________________________________________
Appendix I

BGC Buck Supervisor Feedback
Solid line – Bucks given for behaviors on the behavior list
Dashed line – Bucks given for any behaviors not on the behavior list
Solid line – Bucks given for behaviors on the behavior list
Dashed line – Bucks given for any behaviors not on the behavior list
Appendix J

Feedback Form Comments
Great system, the kids love it

The BGC Buck system works well for the youth and also seems to make the kids more eager to display good behavior to earn them.

Clear, announcement to the kids about the people coming in and observing. Also mentioning the prize system and how it works in an assembly type of environment. This gives them a more clear understanding and goal to reach for.

Nice improvements to the expectations

Brian is awesome!!

I started at BGC in June and never used Be Great Card system, so I do not know whether the bucks are working better. However, I think the "bucks" system has some drawbacks. They are frequently lost and dropped and sometimes stolen. The fact that members are allowed to keep bucks they find on the floor, in my opinion, decreases the incentive of good behavior. I frequently see members with large fistfulls of bucks that I know they did not earn. Also, only the members with the most bucks at the end of the week earn reward, so that some earn bucks yet never see rewards for them, so the bucks become insignificant. Sometimes I have offered them to students and they say they dont want one. However, I talked to some students who told me that they prefer the bucks system because it is simpler than the cards and easier to keep track of them. They like the bucks but prefer going to the store to buy toys and trinkets over earning privileges. My senior colleague feels the two systems are interchangeable, neither better or worse.

Some staff give out cards without an explanation on why they got a BGC Buck. Some use as a reward for winning games. Much easier than Be Great Cards.

The BGC Buck system is much easier to use than the Be Great Card system.

Save time not having to write names and etc. on the other be great cards. Maybe have a few more small prizes with big prizes.