SYSTEMATIC BEHAVIORAL CHANGE IN UTAH SCHOOLS

by

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STATEMENT OF DISSERTATION APPROVAL

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ABSTRACT

In an extension of research demonstrating the need for systematic behavioral change through intervention in public schools, the present study explored effects of positive behavior interventions and supports for improved student performance and reduced reactionary management for school staff. Districts participating in a statewide training initiative in Utah provided 10 target schools for study. These target schools collected data and participated in a series of training activities prior to implementation. Implementation included the establishment of a multidisciplinary team. Outcome data included office disciplinary referrals, fidelity of implementation scales, reported satisfaction, positive reinforcement, administrative time and cost, and proficiency in high-stakes testing.

The participant schools demonstrated statistically significant positive outcomes with reduced rates of reported negative student behavior, including tardies. No statistically significant differences between baseline and treatment were observed in high-stakes academic assessment measures. Recommendations for future research include the selection of more sensitive measures and disaggregated analysis.

CJW, RFW and HAW,

sources of my inspiration and validation, perfection dwells in love alone.

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CHAPTER 1

INTRODUCTION

The public expects schools to provide curriculum, instruction, and environments that enable high levels of student achievement. Many schools face behavioral challenges that create environments that hinder instructional effects (Miller, 2003). In a recent review of school reform efforts, Stewart, Benner, Martella, and Marchand-Martella (2007) found that efforts to increase student achievement in the area of reading, through intervention, were most effective when schools kept distractions to a minimum by actively addressing social climate issues. Further, minimizing distractions and dangers in the learning environment can increase student engagement (Greenwood, 1991), effectiveness of mathematics instruction (Ota & DuPaul, 2002), and results of reading instruction (DiPerna, Volpe, & Elliott, 2002). Students who are engaged in learning activities receive more opportunities to develop their skills (DiPerna et al.; Kellam, Mayer, Rebok, & Hawkins, 1998).

Over the past 20 years, violence, discipline, and substance abuse have been among the top concerns of both public and educational professionals (1998 Kappan/Gallup Poll). Recently, aggressive and violent behavior in schools has provided the public with an even greater sense of urgency to address school climate and safety. Schoolyard murders in Mississippi, Kentucky, California, Pennsylvania, Oregon, Colorado, and Virginia have

focused the nation's attention. School principals are reporting a need to address student behavior. A national survey conducted during the 2002-2003 school year reported that approximately one fourth (25.3%) of school principals believed that their options to reduce or prevent crime and support the learning environment were greatly limited (Neiman & DeVoe, 2009). A 2001 report from the U.S. General Accounting Office stated that 31% of middle school and high school level principals dealt with 10 or more incidents of serious misconduct, including weapons and assault violations, during the 1999-2000 school year. A concurrent survey to the U.S. General Accounting Office report found that schools in which a greater number of serious discipline problems occur, as defined by three or more problems, are more likely to experience a violent or serious incident than schools with fewer discipline problems (Miller, 2003). Schools have a legal duty to maintain safe and orderly learning environments by following appropriate laws and managing student behavior (Yell, 1998).

Common practices in schools to manage student behavior are often ineffective educational practices. The most common practice to manage student behavior is the use of office disciplinary referrals (ODRs). This practice has been proven ineffective through research and policy review (Ekstrom, Goertz, Pollack, & Rock, 1986; Morrison & Skiba, 2001; Tobin, Sugai, & Colvin, 1996). Suspension is another common practice that has been deemed ineffective (Raffaele Mendez, Knoff, & Ferron, 2002) and may cause harm by increasing dropout rates (Costenbader & Markson, 1998).

Student behavior problems and perceptions of the school climate affect many areas of society. For example, according to a National Education Society survey (Sautter,

1995), many students stay home from school due to fear. In 2001, Ma found that 7% of eighth-grade students stay home from school at least once a month because of being bullied and harassed. The national graduation average for 2006 was a mere 70%: 49% for Native American students, 53% for African American students, 58% for Hispanic students, 77% for Caucasian students, and 80% for Asian American students (Snyder, Dillow, & Hoffman, 2007; Swanson, 2008). It is estimated that nearly 60% of high school dropouts over the age of 25 are not participating in the workforce (Snyder, Dillow, & Hoffman, 2008).

Public education has a legal responsibility, society has increasingly high expectations, students require a myriad of supports, and common practices for behavior instruction and intervention are often ineffective. To address these needs, a national focus on prevention through the use of schoolwide discipline programs has taken root (Walker & Epstein, 2001).

Legislation and School Expectations

Twenty-six years ago the National Commission on Excellence in Education (1983) issued a report titled *A Nation at Risk* to the U.S. Secretary of Education T. H. Bell and the U.S. Department of Education. The university presidents (e.g., Dr. David P. Gardner, University of Utah), scientists (e.g., Dr. Glenn T. Seaborg, Nobel Laureate in Chemistry), policymakers (e.g., Albert H. Quie, former governor of Minnesota), and educators (e.g., Jay Sommer, National Teacher of the Year, 1981-1982), who comprised the commission, argued that U.S. education was complacent and “the educational

foundations of our society are presently being eroded by a rising tide of mediocrity that threatens our very future as a nation and a people" (p. 3). Evidence of decreased educational standards were noted in *A Nation at Risk*, including 13% of 17-year-olds were functionally illiterate, Stanford Achievement Tests were dropping, students required more remedial coursework at the college level, and business and military leaders noted that current high school graduates required more training and supports than previous generations. The report presented a picture of an educational system that required an overhaul.

To address the sobering findings outlined in the report, the National Commission on Excellence in Education (1983) outlined recommendations in the following five areas: (a) curriculum content, (b) standards and expectations of students, (c) time devoted to education, (d) teacher quality, and (e) educational leadership and resource allocation. Some recommendations were acted on quickly, some over time, and some have yet to be put into effect (U.S. Department of Education, 2008). The recommendations were comprehensive, with many components of the educational system being addressed.

In the years following, schools and districts increased graduation requirements and grappled with the implementation of standards-based education systems. In 1989, President George H. W. Bush convened a meeting of the nation's governors, which yielded an agreement to adopt national performance goals for school-age children (Goals 2000: Educate America Act of 1994). Then, in 1994, during William Jefferson Clinton's presidency, Congress passed the Improving America's Schools Act of 1994 and the Goals 2000: Educate America Act of 1994; these complementary laws provided provisions and

funding for accountability (i.e., assessment standards) in U.S. schools.

In 1994, the Clinton Administration also passed the Gun-Free Schools Act. This law was passed to address the issue of school violence. Then, 15 years after the publication of *A Nation at Risk* (National Commission on Excellence in Education, 1983), every school administrator in the United States received *Early Warning, Timely Response: A Guide to Safe Schools* (Dwyer, Osher, & Warger, 1998). The purpose of the commission's report was to help schools develop comprehensive plans to address school violence. This general education initiative, which addressed student safety and discipline, complemented the previous year's amendments to the Individuals with Disabilities Education Act of 1997, which included the following social behavior language: (a) schoolwide positive behavior interventions and supports (PBIS), (b) functional behavioral assessments, and (c) positive behavior supports.

Nearly 2 decades after *A Nation at Risk* (National Commission on Excellence in Education, 1983), the reauthorization of the Elementary and Secondary Education Act yielded the federal No Child Left Behind Act of 2001. The provisions in the No Child Left Behind Act of 2001 increased the expectations of schools related to student achievement and enforced sanctions on those schools that were not demonstrating adequate student progress, use of evidence-based instructional practices, or safe environments (U.S. Department of Education, 2002). Subsequent reauthorization of the Individuals with Disabilities Education Act in 2004 bolstered the provisions for evidence-based instructional practices and continued the behaviorally based educational approaches (i.e., schoolwide PBIS). Over the course of the past 26 years, schools have received

increasingly explicit instructions related to the curriculum, instruction, and educational environment. These instructions have required schools to act deliberately and to provide academic and social behavioral supports.

Academic and Behavior Connections

The link between poor academic achievement and the types of student behavior that threaten school safety has gone largely ignored in school safety policy (Kauffman, 1997). In 2000, Caprara, Barbaranelli, Pastorelli, Bandura, and Zimbardo reported that children's academic achievement in the eighth grade is better predicted by their social abilities in the third grade than their academic achievement. In 2006, McIntosh, Horner, Chard, and Good demonstrated that behavioral issues in the early grades are strong predictors of behavioral issues in the upper grades. Reading competence in kindergarten was also reported to be highly predictive of behavior issues in the lower and upper grades (e.g., below benchmark dynamic indicators of basic early literacy skills phoneme segmentation fluency scores in spring of kindergarten predictive of multiple-behavior issues in the fifth grade). This connection between academic achievement and social behavior is present in research at both the elementary and secondary levels. Lassen, Steele, and Sailor (2006) reported that students with multiple behavior issues in the sixth grade are likely to have lower standardized scores in reading and mathematics. In addition, students with a record of behavior issues in the sixth grade are likely to have lower grade point averages in the high school setting.

With regard to academic skill and behavior competence, Scott, Nelson, and

Liaupsin (2001) proposed that a sequence of factors converge to increase the likelihood that students will experience failure in the school setting as follows: (a) poverty and cultures of violence, (b) academic failure, and (c) social and academic failures across the life span.

Poverty and Cultures of Violence

The earliest and most predictive indicators of future academic failure are home and family related (Patterson, Reid, & Dishion, 1992). Examples of predictive indicators or risk factors related to the home are poverty, low parental education, lack of modeling of academic skill, substance abuse, family upheaval (e.g., divorce), and abuse (e.g., physical, sexual, and emotional; Patterson et al.). In 1988, Adams reported that children come to school with varying average levels of exposure to print material (i.e., high income = 1,000 hours; low income = 40 hours). Hart and Risley (1995) found that in addition to disparities in early exposure to print, children from low-income homes typically experienced less verbal interactions and more negative adult-to-child interactions than their middle- and high-income peers.

Academic Failure

Evidence for the connection between low achievement and behavior problems is strong and growing (Walker, Colvin, & Ramsey, 1995). Maguin and Loeber (1996) conducted a meta-analysis and identified three strong relationships for academic and behavior skill development. First, they found that level of academic performance is

conversely related to level of behavioral disruption in both boys and girls; for example, high academic skill yielded higher resistance to acting out behaviorally. Second, cognitive deficits and attention problems are strongly associated with low academic achievement and high levels of behavioral disruption. Third, interventions that improve academic achievement are associated with lower rates of behavioral disruption.

Students who exhibit challenging behaviors in the classroom are typically less academically skilled than their peers (Scott et al., 2001). Students with challenging behaviors or academic skill deficits are more likely to experience negative interactions with their teachers regardless of their behavior (Gunter, Jack, DePaepe, Reed, & Harrison, 1994) and less instructional attention from teachers (Carr, Taylor, & Robinson, 1991; Johns, 2000). This aversive connection to academic tasks and the learning environment leads students to seek more appealing activities, including physical labor (Juel, 1988).

The use of functional behavioral assessment has demonstrated that students seek reinforcement (O'Neill et al., 1997). When academic tasks are not reinforcing and teachers behave in a manner that is punitive, it is not surprising that students learn to behave in a manner that warrants removal from the learning environment. Carr et al. (1991) explained that when a student is not reinforced by academic achievement and the teacher views the student as needy or difficult, removal from the instructional environment constitutes a negative reinforcement for both student and teacher because it leads to termination of an aversive situation.

Social and Academic Failures Across the Life Span

Walker et al. (1995) observed the following: "If an antisocial behavior pattern is not changed by the end of grade 3, it should be treated as a chronic condition, much like diabetes" (p. 6). Similarly, Juel (1988) noted that children who do not read by the fourth grade have a .88 probability of never learning to read.

Although the connection between behavior and academic skill is sobering, it is also important to note the positive connections and opportunities for success in both areas when interventions are implemented in the school setting. For example, Sutherland and Wehby (2001) reported that if academic opportunities to respond increase in the classroom setting, problem behavior decreases. Of commonly used school-based interventions, focused academic interventions coupled with behavioral instruction show the highest effect in preventing school dropout or nonattendance (Lehr, Hansen, Sinclair, & Christenson, 2003) and adolescent drug and alcohol use (Wilson, Gottfredson, & Najaka, 2001). Although early skill deficits and disadvantages strongly affect a student's predictable success, Fleming, Harachi, Cortes, Abbott, and Catalano (2004) found that students who increase their reading proficiency in grades three through six, regardless of their ranking in the class, are significantly less likely to exhibit problem behavior in the seventh grade, which is hopeful.

Common Discipline Practices in Schools

Schools are concerned about antisocial and violent behavior in children (Sprague et al., 2002). In fact, the U.S. Department of Education (2002) reported the following:

> Two priorities have emerged for public schools in recent years. One is for schools to demonstrate that all children are meeting high academic standards as measured by state assessments. The other is for schools to create an environment that is free of violence and other crimes. These are not separate missions. Children need safe and orderly schools in order to learn. (p. 1)

Skiba, Peterson, and Williams (1997) reported that the most common practice used to manage student behavior and restore order in schools is the use of ODRs.

An ODR occurs when a teacher, paraprofessional, or other school staff member formally acknowledges, by referring the student to administration, that a student's behavior is beyond his or her ability, capacity, or desire to manage. At first glance, this system of disciplinary referrals appears to present a systematic continuum of responsibility from individual teacher or staff member to whole school responsibility through administrative intervention. However, for this type of system to work, the principle of reasonableness, including fit to educative circumstances, must be consistently applied.

According to Landon and Mesinger (1989), teachers vary greatly in their tolerance for behavioral problems in the school setting. Some teachers and school staff issue ODRs exclusively for major behavioral problems such as aggression, possession of weapons, and possession of drugs or alcohol. In a large-scale study of midwestern middle schools, behaviors that most frequently led to ODRs included minor behavior violations such as disrespect, disruption (e.g., inappropriate language), and attendance issues (e.g., tardy and truant behavior; Skiba et al., 1997). Certain classrooms were more likely to be responsible for a disproportionate share of ODRs (Skiba et al.), resulting in students referred for varying degrees of behavior problems that included relatively trivial matters.

Unfortunately, agreement between severity of student behavioral problems and intensity of administratively delivered consequences is also inconsistent (Skiba et al., 1997). Following receipt of ODRs, regardless of the student's behavior problem, removal from the learning environment through suspension and detention is the most frequent administrator action (Morrison & Skiba, 2001). In a recent study of an urban, low-income school, 94% of the ODRs resulted in detention or suspension (Atkins et al., 2002).

From a theoretical standpoint, the intent of suspension and detention is to decrease the chance that a student will engage in problematic behavior upon returning to the learning environment. However, studies focusing on suspension and detention have consistently documented that a high proportion of students removed from the learning environment engage in the same problematic behaviors upon return (Costenbader & Markson, 1998; Skiba et al., 1997). This high number of repeat offenders following intervention suggests that suspension and detention consequences may worsen students' disruptive and inappropriate behaviors because such actions lessen academic requirements on students by removing them from the instructional environment and increased attention from both adults and peers (Skiba & Peterson, 2003; Tobin et al., 1996). In addition, Tobin et al. concluded that more students are reinforced by removal from the learning environment than are punished.

In addition to the immediate effect of possibly reinforcing students for disruptive behavior, the frequent use of suspension and detention does not make a positive contribution to the safety and order of the learning environment (Skiba & Peterson, 2003). Schools with higher rates of exclusion from the learning environment consistently

have higher student-to-teacher ratios and lower levels of academic achievement and quality (Hellman & Beaton, 1986; Skiba & Knesting, 2001). Ekstrom et al. (1986) found that school suspension is associated with higher rates of school dropout and negatively affects academic achievement (Scott et al., 2001). Dunbar and Villarrule (2002) found that suspensions might lead to juvenile delinquency.

Bowditch (1993) suggested that some schools use suspension and detention as a pressure valve, effectively releasing schools or teachers of the responsibility and stress involved with educating difficult students. Brophy and McCaslin (1992) reported that teachers treat students differently when disciplining, further articulating concerns related to behavior management. For example, when an internalizing behavior was disciplined, teachers tended to use neutral or supportive strategies, but when an externalizing behavior was disciplined, the teacher chose more punitive and controlling strategies. The reported use of suspension and detention as the primary consequence for problem behavior misses the point of public education. Schools are responsible for actively developing social and academic skills through teaching (Alberto & Troutman, 1999).

Studies of school discipline have consistently demonstrated the overrepresentation of certain groups of students in school punishment records (Skiba, Michael, Nardo, & Peterson, 2002). There is extensive documentation of the existence of racial, socioeconomic, gender, and disability disparities related to student discipline. For example, in 1975, the Children's Defense Fund reported that rates of school suspension for Black students exceeded those for White students. Gordon, Della-Piana, and Keleher (2000) found that in many settings Latino students receive a disproportionately high

degree of suspension and detention. Gender also presents some interesting evidence related to school punishment: Boys are more than four times as likely as girls to be referred to the office, suspended, or subjected to corporal punishment (Bain & MacPherson, 1990). In 1986, Taylor and Foster reported that at both the junior and senior high school levels a consistent ordering was found in the likelihood of suspension from most to least: minority males, White males, minority females, White females. Wu, Pink, Crain, and Moles (1982) found that students whose fathers did not have a full-time job were significantly more likely to be punished at school than those whose fathers were employed full time. Brantlinger (1991) found that students from both high- and low-income residential areas agreed that low-income students were unfairly targeted to receive ODRs and the accompanying punishments in schools. Further, students reported that low-income students were more likely to receive severe consequences and humiliation (e.g., being yelled at in front of the class) than high-income students who reported mild consequences (e.g., seat change).

Policy and Practice: Zero Tolerance

School administrators have the legal responsibility to respond to behavior problems. According to Sugai and Horner (2002), most schools have conduct codes and discipline policies that detail consequences for disruptive and inappropriate student behavior, stating that the intent is to "teach" (p. 25) appropriate behavior. However, when problem behaviors increase or get the attention of teachers and administrators, schools take the following five common actions: (a) increase monitoring and surveillance to

"catch" (p. 25) future occurrences of problem behavior, (b) restate and reemphasize rules and sanctions for problem behaviors, (c) extend offerings for punishment and consequences, (d) increase training and effort to consistently "react" (p. 25) to antisocial behavior, and (e) establish consequences that are the "bottom-line" (p. 25). In agreement with Sugai and Horner, the U.S. Department of Health and Human Services (2001) reported that when significant acts of violence are experienced, governing bodies tend to focus on the following actions: (a) establish zero-tolerance policies, (b) hire security personnel, (c) add surveillance cameras and metal detectors, (d) adopt stringent dress code policies, (e) use administrative leave options, and (f) establish alternative services options.

Reactive and punitive actions do not include sound teaching components but are consistent with the Goals 2000: Educate America Act of 1994 language that states that all school campuses will be safe and free of violence or drugs and that zero-tolerance policies should enforce mandatory expulsions for students who bring a firearm to school (Gold & Chamberlin, 1996). Axman (2005) reported that, following this bottom-line approach in the Goals 2000: Educate America Act of 1994, school zero-tolerance policies quickly extended to behaviors beyond those included in the language of the law (i.e., firearms), with schools adding swearing, truancy, insubordination, disrespect, and dress-code violations to the list of mandatorily punishable offenses.

It is logical to assume that with the proliferation of zero-tolerance approaches the evidence base for punishment and bottom-line approaches has increased from what Mayer (1995) reported: Punitive actions often increase problem behavior intensity and

frequency. However, Skiba and Peterson (2000) indicated that they were able to locate only six empirical studies that evaluated security measures and none that addressed the use of zero tolerance. Careful review of the literature on zero tolerance in U.S. schools yields a number of anecdotal and testimonial reports from schools but no empirical studies with objective evaluation and proper experimental controls (Skiba & Peterson). Cassidy (2005) reported that the only data on the effectiveness of zero tolerance indicate an increase in the number of days students have been suspended from school. These data are presented and questioned as to the effects of removing students from a place where they have positive role models (i.e., school) and reducing their opportunities for appropriate education (Cassidy). For the reasons mentioned, the American Bar Association positions that zero-tolerance policies should be discontinued in schools (Henault, 2001).

In 2006, the American Psychological Association convened a task force to review the effects of zero-tolerance and punitive-disciplinary systems in schools. This task force reported the following related to school discipline:

> Zero-tolerance policies are related to student shame, alienation, rejection, and breaking of healthy adult bonds. There are a number of reasons to be concerned that such policies may create, enhance, or accelerate negative mental health outcomes for youth. Similarly, little research has been done documenting the effects of zero tolerance on families or the community; no reports were found by this review indicating that the policies themselves have assisted parents in the difficult challenges of parenting or that family units have been strengthened through their use. (p. 10)

In addition, in 2008, the National Association of School Psychologists stated the following:

> Suspension and expulsion may set individuals who already display

> antisocial behavior on an accelerated course to delinquency by putting them in a situation in which there is a lack of parental supervision and a greater opportunity to socialize with other deviant peers. (p. 2)

Both the American Psychological Association and the National Association of School Psychologists advocate for a preventive approach to student discipline and argue that exclusionary practices are costly and decrease a student's opportunities to achieve academically (Greenwood, Horton, & Utley, 2002).

Prevention in Schools

In response to reactive disciplinary policies that are ineffective, several sources have advocated for the implementation of proactive and preventive practices (e.g., American Psychological Association, Center on Effective Collaboration and Practice, National Association of School Psychologists, Office of Safe and Drug Free Schools, Office of Special Education Programs, Office of U.S. Surgeon General, and U.S. Department of Health and Human Services). Researchers have also advocated for a prevention-oriented approach to student behavior problems (Gottfredson, 1987; Skiba & Deno, 1991; Sugai, 2003; Walker, 2003). Behavior management strategies that support a preventive approach to school discipline have been reported in the research literature for more than 40 years (Becker, Madson, Arnold, & Thomas, 1967).

In 1957, the Commission on Chronic Illness proposed a process to manage resources and to address a public health epidemic. The outcome established the following levels of support: (a) Primary prevention for the largest proportion of the U.S. population was to decrease new cases of a disorder or illness, (b) secondary prevention was to

decrease the rate of established cases of a disorder, and (c) tertiary prevention was to decrease the amount of disability associated with an existing disorder. Seven years after the Commission on Chronic Illness proposed a process to manage resources and to address a public health epidemic Caplan (1964) included a three-tiered model of supports in his seminal text, *Principles of Preventive Psychology*. This proposed model was aimed at combating mental health issues emerging in the public perception of 1960s America. In 1987, Gordon introduced a risk-benefit perspective to the model of prevention. Then, in 1992, a subcommittee of the Institute of Medicine prepared a report on the levels of prevention that included the following three approaches: (a) universal intervention for the general public or large groups, (b) selective interventions for targeted individuals and subgroups who presented a higher than average level of risk, and (c) targeted interventions for high-risk individuals (Mrazek & Haggerty, 1994).

In 1996, Walker et al. suggested a model for schools, which utilized the public health model, to address challenging student behavior. This model provided for support to all students in a particular school, including those judged to be at risk. The model included the following four assumptions: First, students who are at risk for developing antisocial patterns of behavior and their correlated negative outcomes are more likely to be punished and excluded than to have their problems addressed in a positive and inclusionary manner. Second, to achieve maximum efficacy, school interventions need to incorporate constructive, schoolwide features that address the needs of all students as well as specific features that address the individual needs of students who do not respond to the schoolwide intervention. Third, intervention responses for students with severe

problem behaviors tend to be developed and implemented by individual teachers rather than by a team of committed staff members. Fourth, efforts to improve interventions for students with severe problem behaviors must be organized into a comprehensive and strategic building- or district-level plan that ranks as one of the top three school improvement goals for at least 2 years. Walker et al. then suggested that adequate schoolwide prevention would meet the needs of between 80% and 90% of the population when delivered consistently and with fidelity.

In the same decade, Greenwood (1999) echoed the refrain that prevention in the school setting is worth the investment of time and resources. In 2001, Gottfredson and Gottfredson conducted a survey of principals from 1,287 schools to assess current disciplinary and preventive practices in schools. The survey asked schools to identify what they were doing to "promote school safety, prevent or manage problem behavior, and enhance the orderly operation of the school" (p. 320). All responding principals confirmed the existence of disciplinary policies, procedures, and formal written rules of conduct. With the exception of distributing handbooks to students and parents, no information was reported on how these rules and policies were taught in the school environment. The most commonly reported responses to student misbehavior were categorized by the authors as "mild-social control" (p. 328) and included parental notification, conference with student, conference with parents, oral reprimand, and exclusion from class. The next category of common response was suspension, followed by restitution and counseling services. Modifications to the learning environment through staff training were seldom reported as a preventive practice or behavior management

strategy. Although self-report data should be examined with caution, this survey confirmed previous research on school practices, with 89% of the principals indicating that they use suspension and 94% indicating that exclusion from the learning environment is common. The survey failed to address the consistency and fidelity of preventive, proactive practices in schools.

Brener, Martindale, and Weist (2001) reported that more than three fourths of schools offer mental health, social service, and prevention service options for students and their families. Wilson and Lipsey (2007) conducted a meta-analysis of 249 experimental and quasi-experimental studies of school-based programs to address disruptive behavior, including aggression. They found that universal programs, those targeted at groups of students, had the greatest effect. In addition, the effects were greatest in schools that had a high fidelity of implementation and staff consensus that the program was needed. In a national survey of 3,691 school-based programs, the disparity in effect between simply offering intervention options and actually ensuring that interventions are delivered with consistency and universally was confirmed (Gottfredson & Gottfredson, 2002). Evidence suggests that there is much room for improvement in the training of school staff and maintaining of research-validated prevention practices over time.

The challenge for schools in both policy and practice is to abandon ineffective and inefficient practices such as exclusion from the learning environment and to increase evidence-based preventive practices in all areas of the school environment, including the classroom. Gottfredson and Gottfredson (2002) demonstrated that there is much work to accomplish, as the typical prevention program lasts less than 1 month in schools, and the

current application of preventive practices is inconsistent and largely ineffective, with classroom interventions and behavior modification activities yielding the highest results.

History and Definition of Schoolwide Positive Behavior Interventions and Supports

According to Carr et al. (2002), "Were it not for the past 35 years of research in applied behavior analysis, schoolwide PBIS could not have come into existence" (p. 5). A recent definition of schoolwide PBIS is "a systems approach to establishing both the overall social culture and intensive behavior supports needed to achieve academic and social success for all students" (Horner et al., 2009, p. 133). Schoolwide PBIS is the convergence of many lines of research, policy, and practice over the past 50 years such as the following: (a) three-tiered community health model (Caplan, 1964; Commission on Chronic Illness, 1957; Larson, 1994; Mrazek & Haggerty, 1994); (b) applied behavior analysis, most notably the application of operant psychology applied to concerns of social importance (Baer, Wolf, & Risley, 1968; Carr et al.); (c) recommendations to apply whole-school interventions (Walker et al., 1996); and (d) early demonstrations that behavior interventions implemented at group levels are effective (Sprick & Nolet, 1991).

According to Sugai and Horner (2002), the goal of schoolwide PBIS is to hinder the development of inappropriate and antisocial behavior through proactive teaching, to encourage desired social behaviors, to maximize academic performance, and to remove factors that promote, sustain, or reinforce problem behaviors. Further, schoolwide PBIS is described as the combination of the following four key elements: (a) outcomes, (b) data

for decision making, (c) evidence-based practices, and (d) systems change procedures (Sugai, Sprague, Horner, & Walker, 2000). Outcomes are the indicators valued by students, families, teachers, and staff and typically include academic achievement and social competence. Information gathered and utilized for planning with stakeholders is essential to the schoolwide PBIS model. Evidence-based practices refer to the curriculum, instruction, and intervention activities utilized by stakeholders to achieve their desired outcomes. Finally, schoolwide PBIS values the behavioral and biomedical science of human behavior and arranges for enduring and generalized effects with stakeholders.

Effectiveness of Schoolwide Positive Behavior Interventions and Supports

Bradley, Doolittle, Lopez, Smith, and Sugai (2007) reported that more than 7,000 schools throughout the United States are implementing schoolwide PBIS. There is a growing body of research to support the effectiveness of schoolwide PBIS. Evaluation reports document that schoolwide PBIS can be implemented in a variety of school settings with fidelity (Barrett, Bradshaw, & Lewis-Palmer, 2008; Eber, 2006). Implementation of schoolwide PBIS is correlated with reduction in observed rates of problem behavior (Horner, Sugai, Todd, & Lewis-Palmer, 2005). In addition, an analysis of ODR rates in implementing schools yields a consistent reduction in reactive disciplinary practices (Eber; Horner et al., 2005; Luiselli, Putnam, & Sunderland, 2002; Taylor-Greene et al., 1997; Taylor-Greene & Kartub, 2000). Schoolwide PBIS is also a durable intervention model, with reports providing examples of multiple year

implementation cycles (Doolittle, 2006; Horner et al., 2005). The connection between academic and social behavior is well documented in schoolwide PBIS reports, with schools demonstrating student gains in academic proficiency and social competencies (Eber; Kellam, Rebok, Ialongo, & Mayer, 1994; McIntosh, Chard, Boland, & Horner, 2006; Putnam, Horner, & Algozzine, 2006). According to the National Association of School Psychologists (2008), a review of research on the effectiveness of schoolwide PBIS "showed that there was over a 90% reduction in problem behavior in over half of the studies; the problem behavior stopped completely in over 26% of the studies" (p. 1). Finally, a randomized, wait-list controlled, effectiveness analysis of schoolwide PBIS implementation in 60 schools found significant increases in perception of school safety and promising correlations between schoolwide PBIS and academic performance on federally mandated tests in the elementary setting (Horner et al., 2009).

Tiered System of Support: A Key Component of Schoolwide Positive Behavior Interventions and Supports

Walker and Shinn (2002) described a "three-tiered system of support" (p. 13) as essential for schoolwide PBIS. This system included primary, secondary, and tertiary levels of intervention and support. Sugai and Horner (2002) described the three-tiered system as a "continuum of behavior support in which the intensity of behavior support necessarily increases in relation to increases in the behavioral needs and challenges of the student" (p. 37; see Figure 1). Descriptions of each tier and examples of basic actions schools typically take at each level are described in Table 1.

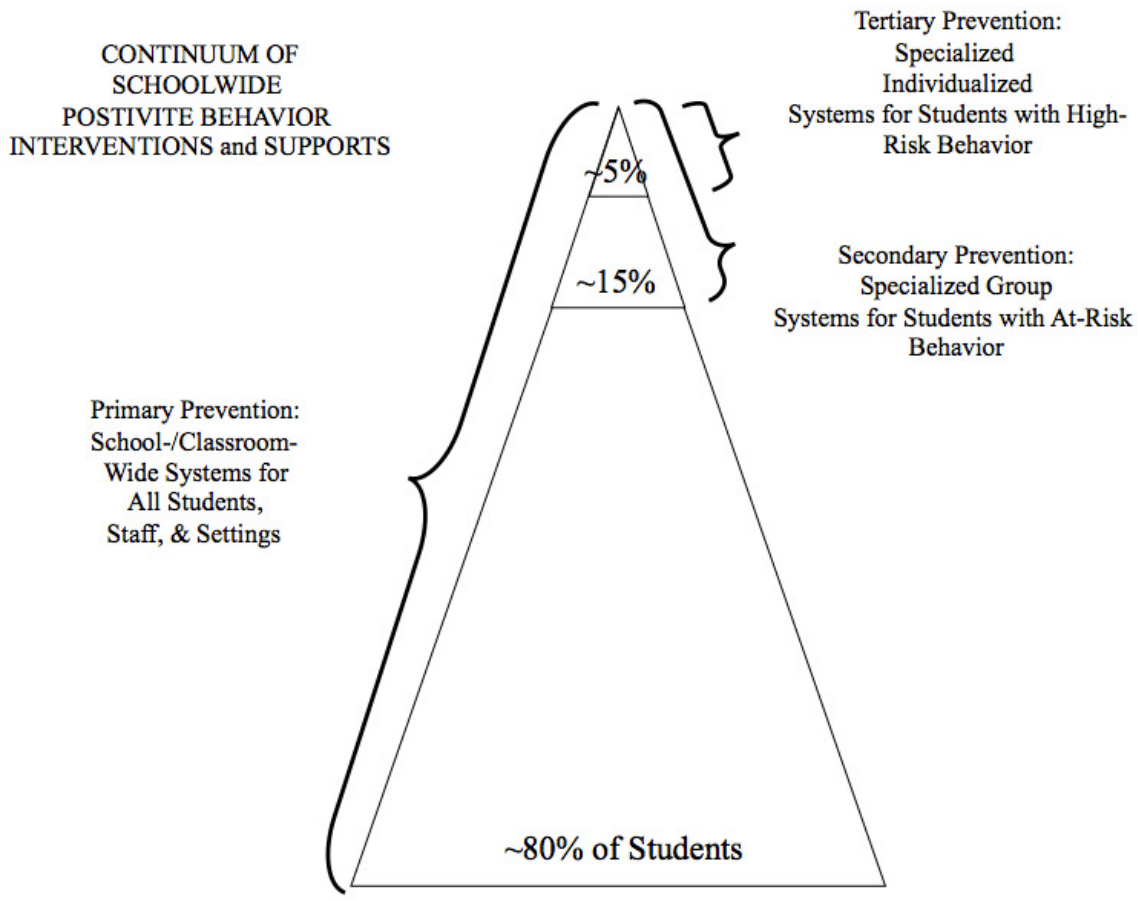

Figure 1. Continuum of schoolwide positive behavior supports.

Table 1

Typical Core Elements of a Three-Tiered Intervention System

Tier	Core element
Primary	Defined schoolwide rules and expectations Explicit instruction of rules and expectations System to acknowledge and reinforce appropriate behavior Developed continuum of strategies to discourage inappropriate behavior Continuous collection and use of data for decision making
Secondary	Identification of at-risk students Increased supervision and behavior contingent feedback Increased academic monitoring and feedback Increased communication with student's home Continuous collection and use of data for decision making
Tertiary	Individually delivered Functionally based Increased academic and behavior support Focus on a problem-solving model Durable enough to continue implementation over an extended period of time Increased communication with student's home Often requires connections with community supports (i.e., wrap-around services) Continuous collection and use of data for decision making

Primary Prevention

The first tier included primary prevention strategies and "focus[ed] on enhancing protective factors on a schoolwide basis to keep minor problems and difficulties from developing into more serious ones and preventing children from ending up at greater risk" (Horner et al., 2009, p. 15). Schoolwide PBIS delivers primary prevention strategies to all students. The process for developing and implementing primary tier prevention varies across elementary, middle, and high schools, with the basic features and outcomes remaining consistent (Horner et al.).

Following the schoolwide PBIS model, schools establish schoolwide behavioral

expectations that are taught and acknowledged. Bowen, Jenson, and Clark (2004) indicated the following critical features of effective rules: (a) positive and clearly stated; b) limited to five or fewer; (c) written and publicly posted; (d) distributed to stakeholders (i.e., students, families, and teachers); (e) taught and practiced; (f) explicit ties to positive consequences for following; (g) explicit ties to negative consequences for not following; and (h) systematic supervision to monitor consistently.

Taylor-Greene and Kartub (2000) reported that in September of the 1994-1995 school year, the staff developed and implemented schoolwide rules that they titled the "High Fives." These schoolwide behavioral expectations or rules were discussed with staff on a yearly basis. Over time, the school staff developed specific examples of the High Fives in each school area and explicitly instructed students by using examples and nonexamples in the school setting. For example, students were given a brief demonstration of the proper and improper ways to enter the lunchroom and then afforded the opportunity to practice entering the lunchroom correctly. School staffs deliver High-Five tickets to students throughout the school year for following school rules, and the tickets are tied to opportunities for positive reinforcement through a lottery (Fern Ridge Middle School, 2004).

Another key component of primary-level (i.e., tier one) implementation of schoolwide PBIS is the development of a continuum of strategies to discourage inappropriate behavior and ensure continuous collection and use of data for decision making (Horner et al., 2009). According to Simonsen et al. (2008), schools should ensure that the first response to minor inappropriate behavior is a brief interaction that describes

the error and redirects the student to the appropriate behavior. The second response should be to treat social behavior errors much like academic errors by providing feedback and instruction. Finally, for more intense behavior problems, the school develops a systematic response format for all school staff to follow. This process is outlined in 1-minute skill builders (Fister & Kemp, 1995). Simonsen et al. also suggested that the school should modify its discipline policy and supporting documentation to create "two levels of behaviors: [1] minor behaviors that should be handled in the classroom with basic behavior interventions and [2] major behaviors that are referred to the office for additional support" (p. 36). According to Walker and Shinn (2002), when a fully integrated approach such as schoolwide PBIS is implemented, between 75% and 85% of a school's students can be inhibited from developing behavior problems.

Secondary Prevention

The second tier (secondary prevention and intervention) focuses on removing or reducing the impact of multiple risk factors (i.e., lack of supervision and low academic skill) for students who exhibit frequent incidences of low-intensity behavior problems (i.e., attendance problems; Sugai & Horner, 2002). Walker and Shinn (2002) noted these interventions are called *selected* because students "select themselves out as candidates for more intensive interventions by demonstrating their nonresponsiveness to schoolwide intervention" (p. 16). Students who require secondary interventions have been called "at risk for problem behaviors" (Walker et al., 1996, p. 195). This group of students typically makes up between 5% and 15% of the student population (Walker et al.).

According to Horner et al. (2009), secondary-tier supports are suited for students who benefit from low-intensity interventions that can be administered efficiently (Crone, Horner, & Hawken, 2004). Effective implementation of secondary prevention requires identification of students requiring additional instruction and support through screening and data review. Once students are identified, it is important to develop methods to monitor student progress on a frequent basis, increase structure and predictability, increase adult feedback, increase academic instruction, increase communication with the home, and collect and utilize data for consistent decision making with regard to student needs. The Behavior Education Program is a commonly utilized secondary intervention (Crone et al.). The Behavior Education Program includes a screening process for at-risk students, restructures the student's schedule of adult feedback through use of the Daily Progress Report, and serves as a communication tool between the student's home and school. The Behavior Education Program is also an efficient intervention that can be implemented schoolwide in a fiscally responsible manner. (The Fern Ridge Middle School [2004] reports annual costs for the Behavior Education Program are less than $1,600.)

Tertiary Prevention

The third tier (tertiary prevention and intervention) is focused on reducing the "complexity, intensity, and severity of problem behaviors that become well established in the behavioral repertoire of individual students" (Sugai & Horner, 2002, p. 37). Students in this group require multiple levels of services and represent between 1% and 7% of the

school population (Walker et al., 1996). Students requiring tertiary services exhibit a pattern of behavior that is persistently severe and have failed to respond to secondary and primary levels of service (Scott & Eber, 2003). Tertiary intervention must be individualized, intensive, functionally based, initiated early, delivered over the long term, and involve parents, peers, and teachers (Horner et al., 2009).

Databased Decision Making

The concept of systematic decision making in educational settings based on data can be traced to the 1980s with debates about measurement-driven instruction (Popham, 1987; Popham, Cruse, Rankin, Sandifer, & Williams, 1985); state requirements to use outcome data in school improvement planning and site-based decision-making processes dating back to the 1970s and 1980s (Massell, 2001); and school system efforts to engage in strategic planning in the 1980s and 1990s (Schmoker, 2004). Schoolwide PBIS requires the use of data to guide decision making (Sugai & Horner, 2002). School personnel should develop and implement a set of procedures for monitoring effectiveness, which may include analysis of discipline referrals; behavior incident reports; and records of attendance, truancy, and tardiness (Lewis & Sugai, 1999). Academic data are also important indicators of the effectiveness of schoolwide PBIS (Horner et al., 2009).

Schools routinely collect data; utilizing data to make meaningful decisions can be difficult for educational systems to perform (Latham, 1988). Nakasato (2000) reported a study of more than 52 schools in Hawaii and found that these schools were “not fluent with data management techniques, [requiring] a practical training and feedback loop” (p.

247) to make rational decisions with regard to implementation of schoolwide PBIS. In a survey of 70 participants, Kincaid, Childs, Blase, and Wallace (2007) found that the most commonly reported barrier to effective implementation of schoolwide PBIS was "staff buy-in [and was closely followed by the] use of data" (p. 178).

Increasing the Success of Schoolwide Positive Behavior Interventions and Supports Implementation

Throughout the prevention and intervention literature, researchers have noted that proactive and preventive actions are generally short-lived, they lack consistency in quality, and they are highly variable (Gottfredson & Gottfredson, 2002; Latham, 1988). According to Sugai and Horner (2002), the following five basic steps will increase the sustainability, fidelity, and effectiveness of schoolwide PBIS:

1. Schools should establish a leadership team. This team should include individuals who are (a) respected by their colleagues, (b) are representative of the school, (c) have behavioral expertise and are willing to increase their knowledge of effective practices, (d) include administration as a member of the team, and (e) meet regularly to review data and problem solve behavioral concerns. Schools are highly encouraged, when possible, not to add this team to their administrative organization without first assessing existing teams and committees. Many times a team with the aforementioned individuals, skills, and practices can be utilized to guide the schoolwide PBIS efforts.

2. Schools should secure schoolwide agreement and support for the initiative. Schools must ensure that the following staff agreements are secured by 80% or more of the school staff: (a) nature and priority of the staff development needs and efforts, (b) long-term commitment and investment (e.g., 3 to 4 years), and (c) importance of taking a preventive and an instructional approach to behavior management and schoolwide discipline.
3. Schools should develop a databased action plan. Following formation of a leadership team and securing of schoolwide agreements, it is important for the leadership team to review a variety of data sources. For example, ODRs, attendance patterns, and detention and suspension rates can yield baseline information and point the team toward the next steps. It is also important to solicit staff perceptions of need and priorities for improvement through surveys, focus groups, or self-assessment inventories. Using this information, teams will develop observable and measurable action plans, including time lines, training needs, and resource requirements.
4. Schools should arrange for high fidelity of implementation. Schools must wait to implement an action plan until they can ensure that (a) staff are appropriately trained in the rationale and application of skills and strategies, (b) leadership is strong, and (c) resources are adequate. Another important component required for high fidelity of implementation is a high level of positive reinforcement for staff effort and success.

5. Schools must conduct formative, databased monitoring of progress. One of the best ways to support the efforts of schoolwide PBIS is sharing the success of interventions. For this to be accomplished, a school must collect, plot, and analyze meaningful data on a consistent basis. For example, ODRs represent the overall health of a school's disciplinary system. If frequency of ODRs is decreasing due to the implementation of schoolwide PBIS, teams should continue doing what is working. If there is a spike or upward trend in the number of ODRs, teams should make adjustments to their action plan, as the plan is no longer accomplishing their goal of a proactive and preventive system.

Following these five basic steps can help schools avoid common mistakes and errors that can cause positive programs to fail in school systems.

Local Implementation of Schoolwide Positive Behavior Interventions and Supports: Utah's Behavioral Initiative

State Level

Utah's Behavioral Initiative (UBI) is a state-funded professional development project with the mission of supporting implementation of schoolwide PBIS in Utah schools. UBI builds upon a long history of behavioral support in Utah, starting in the 1980s with the Behavior and Educational Strategies for Teachers (BEST) Project. The following three public agencies employ personnel to carry out the UBI project:

(a) Utah Personnel Development Center, (b) Utah State Office of Education, and (c) Utah State Professional Development Improvement Grant. The governing coalition for UBI is the state team. The state team meets twice a month. In addition, UBI has an advisory council that meets quarterly and includes the UBI state team and recognized experts in education from local universities, state mental health and substance abuse agencies, implementing schools, and various departments within the Utah State Office of Education. From 2001 to 2005, UBI supported schools directly with a model that allowed individual schools an opportunity to make application with the UBI project to participate in training. The 2005-2006 school year ushered in a modified model of service delivery for UBI, with districts partnering directly with the project.

District Level

In summer 2005, representatives from the UBI state team approached local school districts and solicited applications to partner with the implementation of schoolwide PBIS. Of the 40 school districts in Utah, 5 expressed interest and met minimal requirements for participation. The partnership required districts to select a district coach to act as the trainer and liaison between schools, the district, and the state team. This district coach was required to participate in routinely scheduled meetings with the state team, collaborate with coaches in other districts, conduct quarterly meetings with a district leadership team, and coach implementing schools through the process of adopting and developing schoolwide PBIS. The district coach also participated in yearly checks of fidelity at both the district and school levels; monitored the collection and use of data for

decision making; and trained the school coordinator, administrator, and implementation team throughout the year.

School Level

Each implementing school selects a coordinator and building implementation team. The coordinator facilitates the schoolwide PBIS efforts by scheduling meetings, delegating assignments, and leading team activities. The building implementation team includes a school administrator and five to seven additional school staff. Schools are also encouraged to include a member of their community as a participant on the building implementation team. The school completes formalized agreements with the district and state through the UBI application. The coordinator and administrator receive training prior to implementation and are then required to submit data through on online database. The coordinator and administrator receive training on the logistics of UBI and key components of schoolwide PBIS. Eventually, the building-level team receives training from the district coach with the coordinator and administrator present to lead and facilitate consensus building and implementation planning.

Purpose of the Study

The need for systematic implementation of evidence-based behavioral supports in schools is supported by research, policy, and practice. The public expects schools to educate students in environments that are free of violence. Most of the common practices in schools to reduce violence or respond to behavioral problems are reactive, punitive,

and inefficient. Schools throughout the country are turning to schoolwide PBIS to address the needs of their students and communities. Many published studies on schoolwide PBIS have demonstrated results, yielding decreased punitive practices in schools, increased student performances, and increased positive perceptions in the school climate (Horner et al., 2009; Lewis & Newcomer, 2002; McCurdy, Mannella, & Eldridge, 2003; Metzler, Biglan, & Rushby, 2001; Scott, 2001; Taylor-Greene et al., 1997).

The current study sought to evaluate the effects of schoolwide PBIS in Utah schools. In addition, the current study sought to evaluate the following unique features of UBI: (a) use of the Principal's 200 Club to systemize schoolwide positive reinforcement, (b) system-level collection of positive data frequencies, (c) social validity measures conducted with both the implementation team and staff members who are not members of the school team, and (d) explore possible connections to implementation of schoolwide PBIS and academic achievement.

Research Questions

1. Do ODR rates decrease in Utah schools that implement schoolwide PBIS?
2. Is schoolwide PBIS implemented with fidelity in Utah schools?
3. What is the social validity of schoolwide PBIS implementation in Utah schools, according to school staff?
4. Does the pattern of ODRs change after implementation of schoolwide PBIS in the middle school setting?
5. Is there a relationship between ODR rates and schoolwide positive

reinforcement rates?

6. Is there a correlation between implementation of schoolwide PBIS and rates of tardy behavior at the middle/junior high school level?
7. Does implementation of schoolwide PBIS yield an increase in administrative efficiency by decreasing time spent correcting student behavioral errors?
8. Does implementation of schoolwide PBIS correlate with student performance in high-stakes testing?

CHAPTER 2

METHODS

Introduction

The primary objective of this investigation was to assess the efficacy of systematic change in Utah schools through the implementation of schoolwide PBIS. Utah has a long history of systematic professional development and support aimed at building the capacity of schools to serve all students, including those with significant behavioral needs. Examples of systematic reform from Utah's past include the *Least Restrictive Behavioral Intervention Manual* and supporting materials as well as the Behavior and Education Strategies for Teachers Project. This tradition has continued for more than 30 years. Since 2001, through financial and personnel support, Utah has promoted whole-school reform collaboratively with the Utah State Office of Education, the Utah Personnel Development Center, and the Utah State Improvement Grant. Most of the reform efforts have been facilitated through UBI. The current study explored a variety of aspects of school reform through data collected by implementing UBI districts and schools. These data measured levels of student outcomes and staff perceptions.

Participants

The UBI state-implementation team formalized partnerships with 15 out of the 40 school districts in Utah. The partner districts represent more than 80% of the student population in Utah and are located in all regions, both rural and urban. These partnerships include mutually agreed-upon responsibilities for the district- and state- implementation teams. For example, the district-implementation team agrees to support schools in implementing schoolwide PBIS through funding and coaching support, and the state-implementation team provides matching funds, materials, and training opportunities. Each year, schools make an application to their district to participate in the systematic reform training program. Selected schools commit to between 3 and 4 years of active implementation with state and district support.

The participants for the current investigation included a sampling of 10 implementing schools in their 2nd year of data collection and in their 1st year of schoolwide PBIS implementation. The 10 schools included in this investigation represent 4 middle schools and 6 elementary schools across five school districts. Cumulatively, the schools represent high-, moderate-, and low-income neighborhoods. The data collected for this study are routinely collected in public schools participating in a systematic change process; therefore, the University of Utah Institutional Review Board approved the investigation with the Utah Personnel Development Center and did not require formalized approval from each district's institutional review committee or board.

Participant schools were selected using the following criteria: (a) participation with the system change initiative during the investigation period, with baseline year being

the 2005-2006 school year and implementation year being the 2006-2007 school year; (b) district compliance with agreements related to training and implementation; (c) school compliance with agreements related to data collection and reporting; and (d) number of participants from an individual district limited to three or fewer to ensure a broad representation of district demographics. When more than three schools in a particular district met criteria for inclusion, each school was assigned a number based on the correspondence between their school name and the order of the alphabet; then dice were used to select participants. For example, if a district had three schools eligible for study, the school names were alphabetized and then schools were assigned a number based upon their rank in the order. When the dice were rolled, the school ranked closest to the top of the dice was selected. Table 2 represents the basic demographic information for individual participant schools and averages throughout the schools.

Descriptions of the Participant Schools

School A is a middle school serving grades seven through nine and is located in the southwest area of Salt Lake County. School A has approximately 1,430 students, with 15% using free and reduced lunch and a 13% minority population. School A has a small number of students who are English language learners (ELLs; less than 3%). School A has a 9% special-education eligibility rate. During the baseline year (2005-2006) and the implementation year (2006-2007), School A demonstrated adequate yearly progress. School A is in an area with consistent enrollment growth that averages 14% per year. School A experienced more than a 35% turnover rate in teachers and administrators from

Table 2

Participant School Demographics

Schools	Levels	Students (*n*)	Minority students (%)	English language learners (%)	Special education (%)	Free and reduced lunch (%)
A	Middle	1,430	13	< 3	9	15
B	Middle	1,500	9	< 1	7	8
C	Middle	710	7	< 1	10	19
D	Middle	890	10	< 3	15	25
E	Elementary	531	76	50	20	93
F	Elementary	716	41	22	17	62
G	Elementary	523	49	25	17	55
H	Elementary	725	54	34	14	59
I	Elementary	940	16	3	14	31
J	Elementary	506	39	15	14	60
Average		849	31	15	14	43

baseline to implementation. This rate of staff mobility is typical of the schools in this district and area.

School B is a middle school serving grades seven through nine and is located in the south-central area of Salt Lake County. School B has approximately 1.500 students, with 8% using free and reduced lunch and a 9% minority population. School B has a small number of students who are ELLs (less than 1%). School B has a 7% special-education eligibility rate. During baseline and implementation, School B demonstrated adequate yearly progress. School B has a stable enrollment and experienced no significant changes in teacher staffing and had no administrator changes.

School C is a middle school serving grades seven through nine and is located in the northern area of Weber County. School C has approximately 710 students, with 19% using free and reduced lunch and a 7% minority population. School C has a small number of students whoa re ELLs (less than 1%). School C has a 10% special-education eligibility rate. During baseline and implementation, School C demonstrated yearly progress. School C has a stable enrollment rate and experienced no significant changes in teacher staffing but did experience a 50% change in administrators.

School D is a middle school serving grades seven thorugh nine and is located in the west end of Weber County. School D has approximately 890 students, with 25% using free and reduced lunch and a 10% minority population. School D has a small number of students who are ELLs (less and 3%). School D has a 15% special-education eligibility rate. During baseline, School D did not achieve adequate yearly progress; however, during the implementation year, adequate yearly progress was demonstrated. School D experienced an administrator change but did not experience significant changes in teacher staffing.

School E is an elementary school serving grades kindergarten through six and is located in the northwest area of Salt Lake County. School E has approximately 531 students, with 93% using free and reduced lunch and a 76% minority population. School E has 50% of its students who are ELLs. School E serves students on a traditional 9-month schedule. School E has a 20% special-education eligibility rate, with two special-education, self-contained classrooms for students with severe behavior disorders. During baseline, School E did not achieve adequate yearly progress; however, during the

implementation year, adequate yearly progress was demonstrated. School E maintained stable enrollment and staffing rates.

School F is an elementary school serving grades kindergarten through six and is located in the west-central area of Salt Lake County. School F has approximately 716 students, with 62% using free and reduced lunch and a 41% minority population. School F has 22% of its students who are ELLs. School F serves students on a year-round schedule. School F has a 17% special-education eligibility rate. During both baseline and implementation, School F demonstrated adequate yearly progress. School F maintained stable enrollment and staffing rates during both years. School F experienced construction and a mold problem that disrupted day-to-day operations of the school during the implementation year.

School G is an elementary school serving grades kindergarten through six and is located in the west-central area of Salt Lake County. School G has approximately 523 students, with 55% using free and reduced lunch and a 49% minority population. School G has 25% of its students who are ELLs. School G serves students on a traditional 9-month schedule. School G has a 17% special-education eligibility rate. During both baseline and implementation, School G demonstrated adequate yearly progress. School G received two self-contained cluster units for students with severe behavior-disorder needs during implementation. These 12 students accounted for 5% of the special-education eligibility rate.

School H is an elementary school serving grades kindergarten through six and is located in the west-central area of Salt Lake County. School H has approximately 725

students, with 59% using free and reduced lunch and a 54% minority population. School H has 34% of its students who are ELLs. School H serves students on a traditional 9-month schedule. School H has a 14% special-education eligibility rate. During both baseline and implementation, School H demonstrated adequate yearly progress. School H has a consistent enrollment rate and experienced a 21% change in staff from baseline to implementation.

School I is an elementary school serving grades kindergarten through six and is located in the northwest area of Weber County. School I has approximately 940 students, with 31% using free and reduced lunch and a 16% minority population. School I has 3% of its students who are ELLs. School I serves students on a traditional 9-month schedule. School I has a 14% special-education eligibility rate. During both baseline and implementation, School I demonstrated adequate yearly progress. School I has a growing enrollment rate of approximately 5% per year. School I experienced minimal staff attrition from baseline to implementation but gained staff due to student enrollment increases.

School J is an elementary school serving grades kindergarten through five and is located in the central area of Cache County. School J has approximately 506 students, with 60% using free and reduced lunch and a 39% minority population. School J has 15% of its students who are ELLs. School J serves students on a traditional 9-month schedule. School J has a 14% special-education eligibility rate. During both baseline and implementation, School J demonstrated adequate yearly progress. School J has a stable enrollment rate and minimal staff changes from baseline to implementation.

In addition to the participant schools, each of the school districts provides a coach for the school teams. Pursuant to the agreement between the district and the state, each coach can support up to four schools. Therefore, large school districts, with many implementing schools, may employ more than one coach. Seven coaches were involved in the current study. All of the coaches hold advanced degrees in education and have previous experience with schoolwide PBIS implementation. The coaches participate in state and regional networking functions, and they also participate in the development of training materials, procedures, and plans for implementing schools throughout the state.

Dependent Variables

The following dependent variables were included in the current study: (a) ODRs, (b) tardy data, (c) SET, (d) schoolwide positive reinforcement data, (e) Principal's 200 Club Fidelity Checklist, (f) Utah's Criterion-Reference Test, (g) End-of-Year Questionnaire, and (h) administrator efficiency. Each dependent variable is described, and appropriate supporting information is included.

Office Disciplinary Referrals

ODRs occur in schools when a staff member observes or learns through reporting of inappropriate student behavior that warrants administrative intervention. The procedure typically includes recording the behavioral infraction on a standard form and sending the student to the office. The administrator then assesses the situation and determines a consequence. Sugai et al. (2000) demonstrated that tracking increases and

decreases in ODRs are strong indicators of the climate of a school. Specifically, schools with fewer ODRs are safer places to learn. ODRs have been used as main outcome measures in schools that implement schoolwide PBIS for a variety of reasons (e.g., importance and relevance to schools and availability of office referral data; Lassen et al., 2006). For the current study, all participating schools used a written ODR form and then reported the data electronically in a computer-based student data system (i.e., Discipline Tracker [Version 4.0; Edusoftware Solutions, Inc., 1996] or PowerSchool [Pearson Education, Inc., 2001]). ODR data were summarized monthly, reported to the district coach, and reported to me.

Tardy Data

Utah schools are required to keep track of student attendance. When a student is tardy, the teacher notes this on the student's record. For the present investigation, secondary students' rates of tardy behavior were analyzed. Comparisons among schools could not be made because each school had a different definition of tardy behavior. For example, two of the schools considered a student tardy if he or she was not seated when the bell rang and another school recorded tardy behavior if the student was more than 3 minutes late to class. However, comparisons within the individual schools' data were possible due to the four middle schools maintaining the same tardy policies during baseline and the implementation phase. Elementary school tardy data were not analyzed for the following two reasons: (a) The variability among individual classrooms was high and (b) many times, due to their young ages and developmental levels, elementary school

tardies were a reflection of adult behavior more than student behavior (e.g., parents dropping students off at school after the bell rang; Fox, Dunlap, & Cushing, 2002).

Schoolwide Evaluation Tool

During spring of the implementation year, I and the district coach(es) conducted an on-site evaluation of each school's implementation of schoolwide PBIS using the Schoolwide Evaluation Tool (SET). The SET is a rigorous measure of primary prevention practices within a schoolwide behavior support multitiered framework. The SET is a valid and reliable measure used to evaluate fidelity of implementation (Horner et al., 2004). The SET includes the following three sources of data: (a) on-site observations; (b) on-site interviews of students, staff, and administration; and (c) a review of permanent products (i.e., disciplinary plan). The SET consists of 28 items organized into the following seven subscales that represent key features of schoolwide PBIS implementation in schools and an overall summary score: (a) expectations defined, (b) behavioral expectations taught, (c) ongoing system for rewarding behavioral expectations, (d) system for responding to behavioral violations, (e) monitoring and decision making, (f) management, and (g) district-level support.

Scoring for the SET, is included in Appendix A, involves assigning a value of 0, 1, or 2 (0 = *not implemented*, 1 = *partially implemented*, and 2 = *fully implemented*) for each of the 28 items. Subscale summary scores (percentage of possible points for each of the seven key features) are produced, and a summary score as the mean of the seven subscale scores is computed (Todd, Lewis-Palmer, Horner, Sugai, & Phillips, 2002).

Schoolwide Positive Reinforcement Tickets and

Principal's 200 Club Fidelity Checklist

A key component of preventive practice in schools such as schoolwide PBIS is a conscious effort by school personnel to notice and acknowledge rule-following behavior (Sugai & Horner, 2002). The current investigation collected schoolwide reinforcement data through implementation of the Principal's 200 Club. Each school designed and distributed good behavior tickets to students, which were counted and recorded monthly.

In addition, the Principal's 200 Club Fidelity Checklist was developed to assess the implementation levels of key features related to the Principal's 200 Club reinforcement system. The Principal's 200 Club Fidelity Checklist included the following three sources of data: (a) on-site observations, (b) on-site interviews of students and staff, and (c) a review of permanent products (i.e., positive reinforcement tickets). The Principal's 200 Club Fidelity Checklist consists of 27 items organized into the following five subscales that represent key features of the Principal's 200 Club program and an overall summary score: (a) observable implementation, (b) school manager role, (c) administrator leadership, (d) staff participation, and (e) student participation. A school is considered high implementing by scoring 80% or higher on the indicators. A copy of the Principal's 200 Club Fidelity Checklist is included in Appendix A.

Utah's Criterion-Reference Test

Every school in Utah participates in end-of-level testing in the areas of literacy and mathematics. This testing compares student performance with state criterion as

related to yearly standards prescribed in the state core curriculum. These data are also used to determine adequate yearly progress of student performance and are publicly posted on the Utah State Office of Education Web site. Data are reported for students who attend at least 160 days of a particular school year. These data are reported in rates of percentage of students scoring proficiently.

End-of-Year Questionnaire

Interventions in schools must be found socially valid in order to justify the investment in development and implementation. In order to assess the level of social validity for the present investigation, an End-of-Year Questionnaire was developed and administered. In April 2008, which was the implementation year, teachers, staff, and administration from each school were administered a survey. The survey consisted of five satisfaction questions that were rated on a 5-point, Likert-type scale (1 = *strongly disagree*, 2 = *disagree*, 3 = *not sure*, 4 = *agree*, and 5 = *strongly agree*). These questions included the following:

1. The UBI has made a significant positive impact within my school.
2. The benefits from the UBI were worth the time and effort invested.
3. My own knowledge and skill in the application of effective behavior management interventions have increased.
4. In the past year, I have used most of the strategies and interventions that I learned through UBI.

The school-implementation team participated in the survey as did a sampling of teachers

and staff at the school who were not a member of the implementation team.

Administrator Efficiency

Interventions in schools require time and money to implement. In 1987, when discussing social validity, Baer, Wolf, and Risley reported that cost-benefit analysis is a measure to consider when conducting studies that are social in nature. Irvin, Tobin, Sprague, Sugai, and Vincent (2004) demonstrated that ODRs are a widely used and valid indicator of overall school health that is universally understood. Therefore, for the current investigation, rates of ODRs during baseline and implementation were utilized to express administrator time. A conservative estimate of 15 minutes of administrator time spent on each ODR was utilized to calculate time saved through reduction in ODR rates. The results were expressed in terms of decreased administrator time spent on behavioral concerns. Cost efficiency was measured by multiplying the time saved by the average cost of public administrators in Utah.

Design

The current study was a single-subject, A|B design that compared baseline and implementation variables. The current investigation included 10 cases, with the entire school being the participant. Therefore, the model was a single-case research design. According to Kratochwill (1985), applied research in educational settings is necessary in order to evaluate intervention effectiveness. Single-case studies can also be a valid method for this type of research. In addition, Kazdin (1981) argued that a robust data

system can yield adequate information for scientific inferences if the methods "include objective information, which refers to the large category of measurement strategies in which systematic quantitative data are obtained" (p. 185). Threats to internal validity are inherent in case-study research. The following threats are common to internal validity: (a) history, (b) maturation, (c) testing, (d) instrumentation, (e) statistical regression, (f) selection, (g) mortality, and (h) selection-maturation interactions (Campbell & Stanley, 1963; Cook & Campbell, 1979; Kazdin, 1980).

Kratochwill (1985) suggested several recommendations to improve the scientific merit of intervention single-case studies. The following recommendations were used to guide the development of this investigation:

1. Utilize direct measures of progress rather than subjective or anecdotal data: For each of the research questions, quantifiable data were reported. When possible, data utilized in previously reported research were selected as dependent measures (e.g., ODRs and performance on Utah's Criterion-Reference Test).
2. Employ continuous assessment of progress: Although some data were collected exclusively as a postimplementation measure, many data were collected at regular intervals throughout the 2 years of study (e.g., monthly data summary).
3. Make use of planned manipulation of the independent variable rather than passive observation of the conditions: The present investigation utilized a baseline phase with the intervention phase preplanned but not

implemented until baseline data were collected. No aspect of the present investigation was passive.

4. Gather adequate baseline data to demonstrate consistent levels of behavior: The baseline phase for the present investigation and the intervention phase were each 9 months.
5. Assess effect size: Effect sizes were assessed.
6. Replicate across an increased number of participants: Ten cases made up the present investigation. Each school included multiple adults and students with collectively more than 10,000 participants.
7. Replicate across diverse participants: The schools were located in 10 neighborhoods, with multiple income, racial, ethnic, religious, age, and linguistic groups included.
8. Standardize assessment and treatment conditions: Training materials, procedures, and processes were standardized throughout the districts and schools.
9. Assess fidelity of treatment: Two strategies were employed to assess the fidelity of implementation. First, fidelity checks using standardized instruments were conducted. Second, the complexities of available interventions were assessed. Those selected interventions reflected the highest degree of standardization and the lowest degree of complexity.
10. Evaluate the impact of treatment using multiple dependent variables: The interventions for the current study were assessed using multiple measures

(e.g., ODRs and tardy behavior).

11. Include social validity measures to increase the credibility of the intervention(s): A survey of the school's personnel perceptions was included in the results as was an evaluation of the administrator's time utilization.
12. Employ formal visual and statistical data analysis: Data for the present investigation were represented visually, and statistical analyses were also reported.
13. Plan for generalization and follow-up assessment: The current investigation covered 2 years of data, representing 18 months.

Independent Variables

Schoolwide Positive Behavior Interventions and Supports

The schools included in the current investigation collected data for 1 year prior to implementing schoolwide PBIS as a framework for their behavioral programming. Schoolwide PBIS is not a prepackaged or commercially available discipline curriculum. Schoolwide PBIS is a blueprint that is based upon behavioral principles and multiple levels of prevention and intervention for schools to follow when developing, adjusting, and maintaining effective disciplinary systems that fit individual school contexts (Sugai & Horner, 2002; Walker et al., 1996). The following three assumptions were made when implementing schoolwide PBIS:

1. Schools with effective disciplinary systems invest in preventing behavioral

problems by attending to the following four components: (a) establishing and articulating rules/expectations for conduct in all areas and activities at the school; (b) explicitly teaching expectations/rules using sound instructional practices, including modeling examples and nonexamples in authentic contexts; (c) systematically reinforcing individuals for demonstrating appropriate behaviors; and (d) systematically correcting and reteaching behavioral errors. This sequence enables schools to proactively address social behavior rather than to deal with behavioral infractions in a case-by-case manner.

2. Schools with effective disciplinary systems have support systems readily available to identify and address the needs of students who are at risk for developing chronic behavioral problems.
3. Schools with effective systems develop and maintain processes that deliver high support to students with chronic behavioral problems.

Each of the participant schools engaged in the following two phases: baseline (2005-2006) and (b) treatment (2006-2007). The data were gathered over an 18-month period.

Phase 1. During baseline, the following preimplementation activities occurred:

1. The school administrator completed an application for participation with the schoolwide systematic change process. This application included approval for participation by the district leadership.
2. The school administrator selected a multidisciplinary team to guide data

collection and implementation of interventions. This team included but was not limited to the building administrator, a special educator, a general educator, student services personnel (e.g., a school psychologist), and a coordinator who was primarily responsible for ensuring communication with the district coach and compliance with deadlines. For the participant schools, the coordinator's primary role in the school varied. The 10 schools had coordinators who were (a) special educators, (b) general educators, (c) school psychologists, (d) school counselors, and (e) paraprofessionals.

3. The school administrator and team coordinator attended a brief, 1-day summer training session in June 2005. The session agenda included (a) instruction on the rationale for schoolwide PBIS and systematic change; (b) role definition for the administrator, coordinator, and school-based multidisciplinary team; and (c) explicit instruction on procedures for collecting and reporting data.
4. For the duration of the baseline year, the building coordinator submitted monthly data summaries using an online system. These data summaries included a monthly tally of the following information: (a) ODRs, (b) tardy behavior, (c) in- and out-of-school suspension, and (d) other pertinent data selected by the administrator for reporting (i.e., number of teacher-delivered consequences).

Phase 2. During Phase 2, the implementation activities occurred for each of the 10

participant schools. These activities included the following four levels of implementation: (a) administrator and team coordinator; (b) school-implementation team, including administrator and team coordinator; (c) all school staff; and (d) district coach and state support.

1. Administrator and team coordinator

    a. The school administrator and team coordinator attended a brief, 1-day summer training in June 2006. This training included (a) instruction on the rationale for schoolwide PBIS and systematic change; (b) role definition for administrator, coordinator, and school-based multidisciplinary team; and (c) explicit instruction on procedures for collecting and reporting data. This training session included repeated information from the previous year's administrator and team coordinator training session.

    b. During the year, the team coordinator attended district- sponsored networking meetings to problem solve implementation challenges and receive targeted training on schoolwide PBIS.

    c. The administrator and team coordinator were responsible for requesting funding from the state-implementation team to help carry out implementation plans. Each school was eligible to apply for grant money up to $2500.00.

2. School-implementation team

    a. The school-implementation team participated in a series of training

activities during August between baseline and implementation school years. The training activities included (a) explicit instruction on the rationale for implementation of schoolwide PBIS; (b) facilitated use of tools for evaluation of current school practices and policies related to social behavior; (c) examples of schoolwide PBIS policies and practices in Utah schools; and (d) structured time with opportunities to plan, as a team, the implementation of schoolwide PBIS for the upcoming year.

b. Throughout the year, the school-implementation team met twice monthly to plan, implement, and assess their efforts in implementing the components of schoolwide PBIS. The components included the following: (a) establishing schoolwide expectations through development of common definitions and public posting of rules for conduct, (b) giving explicit instructions to all students and staff with regard to schoolwide expectations, (c) implementing the Principal's 200 Club to systematically acknowledge students and staff who followed expectations, and (d) implementing interclass time-out to systematically address student behavioral errors as they occurred.

c. Each month, the school-implementation team ensured that data summaries were completed and submitted using the online reporting system.

d. Twice during the school year the school-implementation team attended statewide behavior institutes to refresh their skills and to network with other school-implementation teams.

e. In spring of the implementing year, the school-implementation team planned for and participated in fidelity assessment of the following two implementation checks: (a) SET and (b) Principal's 200 Club Fidelity Checklist.

f. At the end of the implementing year, the school-implementation team participated in a social validity questionnaire.

3. All school staff

a. Under the direction of the administrator and team coordinator and with the support of the school-implementation team, all staff members participated in a series of discussions to propose and ratify the adoption of schoolwide expectations.

b. Following the establishment of schoolwide expectations, the entire staff participated in developing and carrying out teaching plans that instructed students on schoolwide expectations.

c. All staff members agreed to reinforce students for following schoolwide expectations by verbally acknowledging the rule-following behavior and delivering a Principal's 200 Club ticket.

d. Each teacher participated in the development of interclass time-out procedures, and they provided data on their use of those

procedures.

e. School staff members participated in the fidelity checks and social validity questionnaire, as selected.

4. District coach and state support

a. Each district provided a coach to aid schools with the implementation of schoolwide PBIS.

b. The coach provided and supported training activities for the school-implementation teams.

c. Periodically, the coach attended the school-implementation team meetings in order to provide formative instruction related to implementation of schoolwide PBIS.

d. The coach dialogued with administrators and team coordinators to troubleshoot when questions and concerns came up related to implementation of schoolwide PBIS.

e. The coach coordinated the district network for team coordinators.

f. The coach approved requests for funding prior to passing them on to the state.

g. The coach participated in monthly coaching network meetings with the state-implementation team to develop procedures, assess progress, and troubleshoot implementation.

h. The coach checked the online data system regularly in order to review the schools' data summaries and meeting notes. If a school

did not comply with reporting requirements, the coach met with the building coordinator or school-implementation team leader to help develop plans for increased compliance.

For data collection in both phases (i.e., baseline and implementation), each school used a computerized student information system to collect and report data (i.e., Discipline Tracker or PowerSchool). The schools were required to disaggregate their data that included using graphs at each meeting. Therefore, the data system had to be robust and customizable. Data systems were selected for each school using the following criteria:

1. Ability to track student demographic information, including (a) first and last name, (b) ethnicity, (c) grade level, and (d) special services (e.g., special-education eligible).
2. Ability to track adult demographic information, including (a) school staff member issuing a behavioral citation or acknowledgment and (b) teacher being primarily responsible for the student's records (e.g., homeroom).
3. Ability to track contextual factors related to positive and negative student data, including (a) location where behavioral citation or acknowledgment occurred, (b) time of day when behavioral citation or acknowledgment occurred, and (c) any additional students who were involved in the behavioral citation or acknowledgment.
4. Ability to track specificity related to student behavior by coding student positive or negative behaviors (e.g., physical aggression).

5. Ability to track specificity related to adult response to student behavior (e.g., out-of-school suspension).

The 10 schools in this study used the following two data systems: (a) Discipline Tracker (Version 4.0; Edusoftware Solutions, Inc., 1996) and (b) PowerSchool (Pearson Education, Inc., 2001).

Schoolwide Reinforcement

Schoolwide reinforcement of appropriate behavior is an element of schoolwide PBIS that was standardized throughout the implementing schools using the Principal's 200 Club. The Principal's 200 Club is a systematic way for schools to increase the school staff's delivery rates of positive feedback to students with regard to demonstrating prosocial behaviors (Jenson & Pettersson, 2005; Jenson, Rhode, Evans, & Morgan, 2006). All schools were instructed on the rationale and use of the Principal's 200 Club and then supported with materials and coaching to implement this program. The Principal's 200 Club employs several components of effective behavioral reinforcement and acknowledgment.

Public posting. According to Bowen et al. (2004), public posting provides visual feedback to students and informs others, including peers, parents, and teachers, of student progress and achievement. Public posting is an effective component of schoolwide PBIS because (a) rules that are conspicuously posted and positively stated promote student and staff compliance (Musser, Bray, Kehl, & Jenson, 2001; Rhode, Jenson, & Reavis, 1993) and (b) prosocial functioning is increased (staff and students) when schools publicly post

progress (Gross & Ekstrand, 1983; Staub, 1990).

Positive parent involvement. Connecting families and schools through collaboration and communication is a well-documented intervention to increase positive student behavior. Shephard and Carlson (2003) reviewed 20 studies of home-school collaboration and reported that 15 out of the 20 studies showed positive effects in preventing or ameliorating negative student behaviors such as conduct problems, social skill deficits, and at-risk behaviors.

Intermittent reinforcement. An intermittent reinforcement schedule delivers positive reinforcement at sporadic or irregular rates compared with a continuous reinforcement schedule that delivers reinforcement at regular rates. In natural settings such as schools, intermittent reinforcement schedules are efficient and effective in shaping behavior. In 1973, Kazdin and Polster investigated positive peer interactions and compared an intermittent token reinforcement system with a continuous token reinforcement system. They found that the intermittent reinforcement schedule efficiently maintained positive peer interactions and that the continuous reinforcement schedule was less effective in maintaining positive behaviors over time. The Principal's 200 Club utilizes an intermittent token reinforcement schedule as students are "caught" by adults doing the appropriate behavior in the school rather than receiving a ticket every time appropriate behavior is demonstrated.

Mystery motivator. A mystery motivator is a valued, unknown reward that can be tangible (e.g., stickers), social (e.g., participation in an activity with peers), or a privilege (e.g., free homework pass). A mystery motivator is also effective in increasing positive

behavior (Bowen et al., 2004; Kehl, Bray, Theodore, Jenson, & Clark, 2000).

Verbal praise. Typical students follow directions at a rate between 51% and 62% (Forehand, Gardner, & Roberts, 1978). However, when adults are positively responsive through verbal praise, compliance rates increase substantially (Parpal & Maccoby, 1985). According to Sutherland, Wehby, and Copeland (2000), students are more likely to demonstrate desired social behaviors when high rates of adult approval and specific praise are in place.

The Principal's 200 Club was implemented following posting and teaching of schoolwide rules/expectations. A large visual matrix divided into 200 numbered squares was prominently displayed in a common area of the school. With the matrix, 200 numbered disks (e.g., pennies and cardboard) were placed in an opaque container. Next, teachers and school staff members were given tickets for distribution to students who were observed to follow rules/expectations. Teachers were taught to deliver the ticket as soon as they saw the positive behavior (e.g., following school rules) and to pair the delivery of the ticket with specific behavioral feedback (e.g., "Nice work, you followed my directions the first time asked."). Students were instructed to write their name on the ticket upon receipt. At a predetermined time during the school day, students who received a ticket turned their ticket in for a chance to draw a disk and to write their name on the 200-square matrix. The school informed the parent through a phone call or postcard in the mail of the child's positive behavior. The student's name remained publicly posted on the matrix until there was a "bingo" (i.e., 10 names in any row, column, or diagonal). When a bingo was reached, the students whose names were in the winning row, column, or

diagonal received a mystery motivator. Most frequently, this activity was a social exercise with the principal. The Principal's 200 Club enabled the schools to keep data on which students or groups of students were receiving tickets, which staff member was delivering tickets, behaviors for which tickets were delivered, and locations where positive behaviors and supervision by staff were occurring.

Systematic Correction and Reteaching of Behavior

All implementing sites used interclass time-out as a teacher-delivered consequence prior to issuing an ODR. Interclass time-out (e.g., Stop and Go and Think Time) is a systematic intervention used by teachers and school staff to inhibit classroom disruptions and to increase time on task (Knoff, 2001; Nelson, 1996). The application of interclass time-out for the current study included (a) a precision request (Rhode et al., 1993), (b) a time-out procedure consisting of contingent withdrawal of attention as a response to inappropriate student behavior (Nelson), and (c) a debriefing with a problem-solving component following time-out (Sugai & Colvin, 1996).

Teachers were taught components of the interclass time-out procedure prior to starting school and were given ample opportunities to role play and problem solve the process in order to fit their school and class context. Once school started, students were taught the procedure. The procedure was initiated when a student failed to comply with a teacher's instructions or failed to follow the classroom rules/expectations. The teacher gave the student an explicit request to follow instructions; if the student failed to comply, the student was directed to exit the classroom and proceed to a partner teacher's

classroom. The partner teacher invited the student to a predetermined time-out location (typically a desk away from the rest of the students) and delivered a debriefing form. Upon successful completion of the debriefing form, the student was instructed to return to class. The interclass time-out period did not exceed 20 to 30 minutes (Bowen et al., 2004).

Analysis

The current investigation was a single-case A|B design, with 10 schools providing an interparticipant model. For this investigation, a single-case model was necessary because the nature of a whole-school setting does not allow for adequate levels of experimental control, which is necessary for a group design. According to Kazdin (1981), typical research in the school setting does not lend itself to special requirements such as withdrawing or withholding treatment at predetermined intervals, which group designs often require.

The current investigation employed multiple methods to analyze data. When appropriate, data were graphed for visual inspection. Visual inspection included noting changes in means, levels, and slopes or trends. In addition, descriptive statistical analyses were conducted using the Statistical Package for the Social Sciences, Version 17.0 (SPSS, Inc., 2009). As appropriate, frequencies, percentages, means, and standard deviations were calculated and reported for each question in graphs and tables. The current study could not make assumptions concerning population distributional form and equality of intermeasure variances and covariances. Therefore, the “no-assumptions”

approach to calculating effect sizes was employed by dividing the difference in treatment phase means by the baseline standard deviation (Busk & Serlin, 1992) as follows:

(Baseline Mean – Intervention Mean)/Baseline Standard Deviation = Effect Size

CHAPTER 3

RESULTS

This section reports a variety of data sets, including (a) ODR rates for baseline and intervention phases; (b) fidelity of implementation rates for both the SET and Principal's 200 Club Fidelity Checklist; (c) perceived satisfaction with the intervention package (i.e., schoolwide PBIS); (d) ODR rates disaggregated by student level of risk for baseline and treatment phases; (e) correlation of ODR and schoolwide positive reinforcement; (f) rates of tardy behavior for baseline and treatment phases; (g) reduced cost of administrative expense as a result of reduced ODRs, reported in both days and dollars; and (h) rates of student proficiency in high-stakes testing for baseline and treatment phases. Data are narratively reported in tables and in graphs (when appropriate) with the following categories: (a) percentage, (b) mean, (c) standard deviation, (d) effect size, (e) correlation coefficient, and (f) ODR net numbers converted to days and dollars.

Results of Research Questions

Research Question 1

Research Question 1 asked: Do ODR rates decrease in Utah schools that implement schoolwide PBIS? The data were collected utilizing an electronic data system for baseline and intervention school years. Data were reported per 100 students to

standardize the scale. Table 3 displays the means, standard deviations, and effect sizes globally and by school level. Figure 2 shows the mean ODRs per 100 students for the 9 months of baseline and 9 months of intervention data across all participant schools (N = 10). Figure 3 displays the mean ODRs per 100 students for the 9 months of baseline and 9 months of intervention data across middle school participants (n = 4). Figure 4 displays the mean ODRs per 100 students for the 9 months of baseline and 9 months of intervention data across elementary school participants (n = 6).

Table 3

Means, Standard Deviations, and Effect Sizes for Office Disciplinary Referral Rates

	M	*SD*	Effect size
Total (N = 10)			1.20
Baseline	7.54	3.03	
Intervention	3.91	2.29	
Middle school (n = 4)			1.35
Baseline	8.95	2.65	
Intervention	5.38	1.13	
Elementary school (n = 6)			1.26
Baseline	6.59	2.91	
Intervention	2.93	2.27	

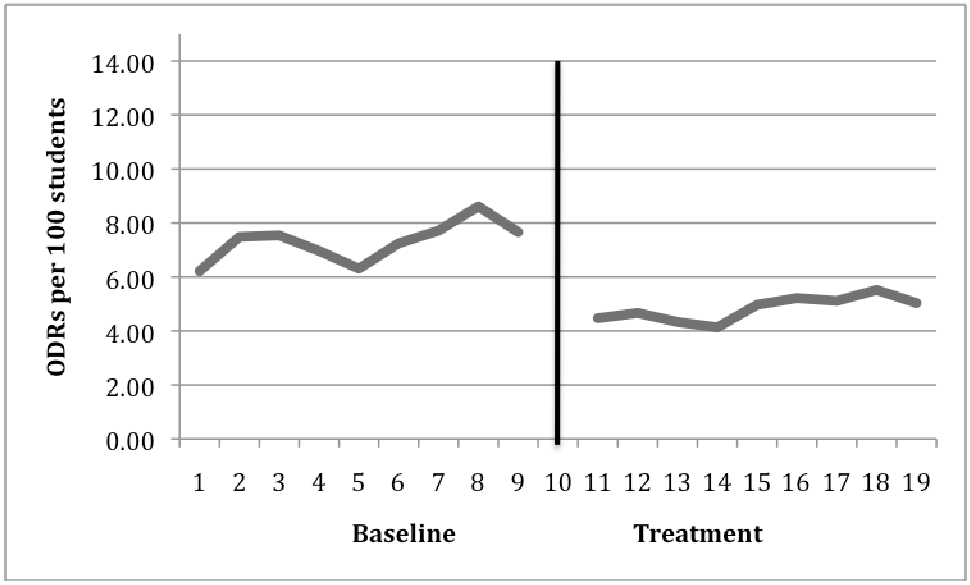

Figure 2. Mean office disciplinary referral rates per 100 students across all participant schools ($N = 10$).

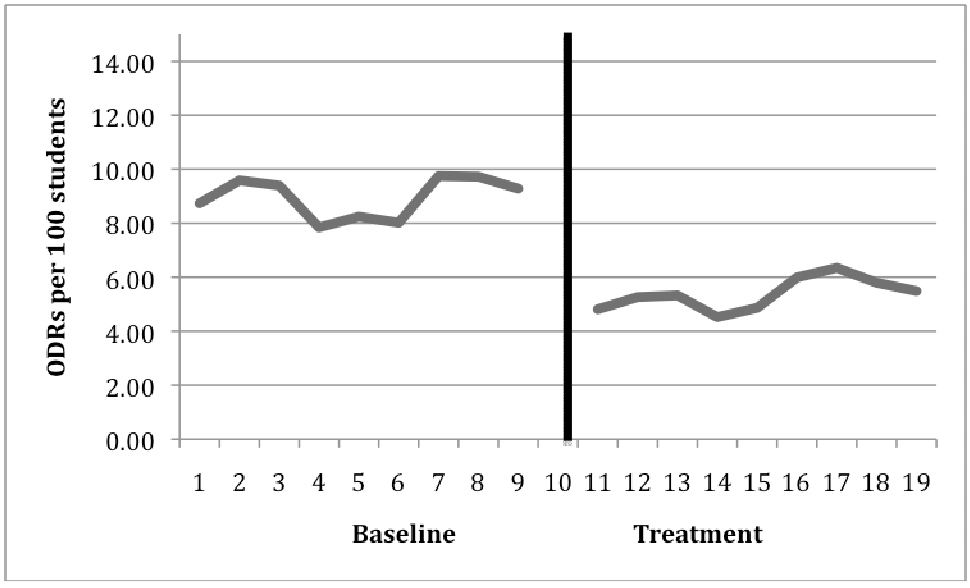

Figure 3. Mean office disciplinary referral rates per 100 students for middle school participants ($n = 4$).

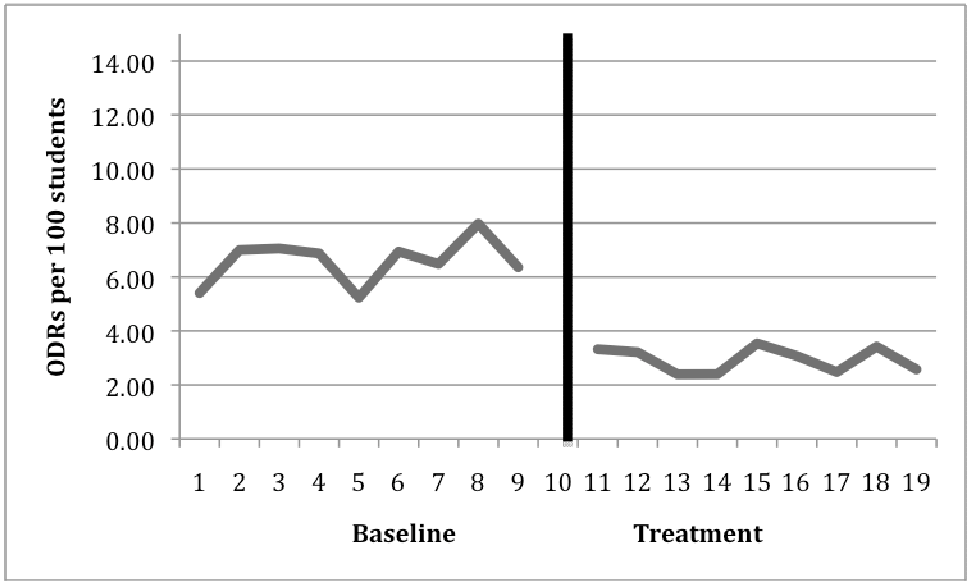

Figure 4. Mean office disciplinary referral rates per 100 students for elementary school participants (n = 6).

Schools with the highest rates of ODRs during the baseline phase yielded the greatest reduction in ODRs during the treatment phase. The following three schools demonstrated the greatest reduction: (a) School C (middle school), 40% reduction; (b) School D (middle school), 46% reduction; and (c) School F (elementary school), 90% reduction. During the treatment phase, School F demonstrated remarkable results, averaging 9.88 fewer ODRs per 100 students, per month, compared with the baseline phase.

Two elementary schools (i.e., Schools H and J) reported the lowest number of ODRs per 100 students during the baseline phase. During the treatment phase, School J demonstrated the smallest reduction in ODRs, averaging .27 fewer ODRs per 100 students, per month, and barely a 1% reduction in ODR rate. Research Question 1 was

satisfied, as all 10 schools demonstrated a reduction in ODR rates during the treatment phase, with 9 of the 10 schools demonstrating a 25% or greater reduction. Figures displaying the pattern of ODRs per 100 students for the 9 months of baseline and 9 months of intervention in each participant school are included in Appendix B.

Research Question 2

Research Question 2 asked: Is schoolwide PBIS implemented with fidelity in Utah schools? In order to answer this question, each school participated in an on-site evaluation with me and their district coach using the SET and the Principal's 200 Club Fidelity Checklist.

The SET measures the overall level of schoolwide PBIS implementation by calculating seven subscale scores and an average summary score. A high fidelity of implementation is earned by meeting two conditions: (a) scoring 80% or higher on the summary score and (b) scoring 80% or higher on at least six of the seven subscales. The 10 participant schools implemented with fidelity as measured by the SET, with 100% of the participant schools scoring a summary score of above 90% and scoring 80% or higher on at least six of the seven subscales. Table 4 presents the range of scores achieved by the participants on the seven subscales included in the SET and the summary score. Figure 5 represents the mean scores for middle school and elementary school participants on each of the seven subscales and the summary score.

Table 4

Schoolwide Evaluation Tool Results

Subscale	*M* (%)	*SD*
Expectations defined	100	.0000
Teaching expectations	92	9.1893
Rewarding expectations	95	8.2117
Correcting behavioral errors	84	14.3201
Monitoring behavior	100	.0000
Managing data	95	5.8118
District and state support	100	.0000
Summary score	95	3.2226

Note. $N = 10$.

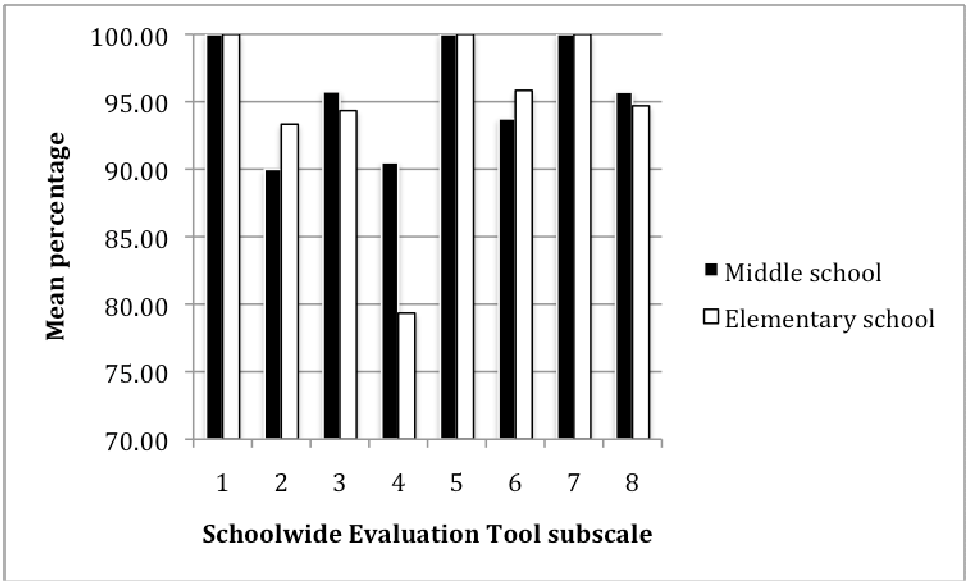

Figure 5. Mean Schoolwide Evaluation Tool subscale scales for middle school ($n = 4$) and elementary school ($n = 6$) participants.

The Principal's 200 Club Fidelity Checklist measures key features of the whole school behavioral acknowledgment system. This tool was developed for the current investigation. Unfortunately, item analysis has not been performed to determine the reliability and validity of the measure. Data from the current study demonstrate that all schools scored a summary score of 75% or higher. Basic features of the intervention were observed. Table 5 presents scores achieved by participants on the five indicators included with the Principal's 200 Club Fidelity Checklist and the summary scores. Research Question 2 was satisfied, as shown by high scores on the SET and Principal's 200 Club Fidelity Checklist. Differences between the two fidelity tools are noted. Average summary scores were 95% for the SET and 83% for the Principal's 200 Club Fidelity Checklist. All 10 schools successfully implemented the salient features of schoolwide PBIS as demonstrated with an 80% or higher summary score and an 80% or higher subscale score on at least six of the seven SET scales. SET subscales one (i.e., expectations defined), five (i.e., monitoring and decision making), and seven (i.e., district- and state-level support) yielded 100% scores for all 10 schools.

Variability among the schools on the Principal's 200 Club Fidelity Checklist was higher than the SET scores, which may point to the tool itself being untested and possibly less reliable than the SET. The Principal's 200 Club Fidelity Checklist scores were highest on subscale four (i.e., staff's reported participation in the intervention), with all schools scoring at least 80%. The area with the lowest degree of evidence was subscale five (i.e., student participation) across all 10 schools.

Table 5

Principal's 200 Club Fidelity Checklist Results

Indicator	*M* (%)	*SD*
Observable implementation	83	11.4968
School manager role	83	14.4856
Administrator leadership	80	14.3913
Staff participation	92	7.8881
Student participation	76	11.4818
Summary score	83	7.5629

Note. $N = 10$

Research Question 3

Research Question 3 asked: What is the social validity of schoolwide PBIS implementation in Utah schools, according to school staff? Using a 5-point, Likert-type scale, ranging from 1 = *strongly disagree* to 5 = *strongly agree*, survey respondents were asked to specify their level of agreement to statements related to the following: (a) positive impact within the school, (b) worth time and effort, (c) increased personal knowledge related to interventions, and (d) reported use of interventions in the school setting. The respondents included 63 individuals who served on their school's schoolwide PBIS implementation team and 41 individuals who did not serve on their school's schoolwide PBIS implementation team ($N = 104$ surveys).

The End-of-Year Questionnaire included a 5-point, Likert-type scale with the first 2 points including the language *disagree*, the midpoint benignly labeled *not sure*, and the

2 endpoints including the language *agree*. The pattern of responses demonstrated an overall reported satisfaction with schoolwide PBIS and the elements required for implementation (*agree* + *strongly agree* = 63.75%). Matell and Jacoby (1972) reported that 5-point, Likert-type scales average a midpoint of 20%, which was true with these data (*not sure* = 23.78%). Participants who were dissatisfied by the implementation of schoolwide PBIS at their school were substantially fewer than those who reportedly agreed with the survey (*disagree* + *strongly disagree* = 8.83%). Table 6 represents the overall response rates for all four questions, and Figure 6 displays the rate of response for each of the four questions.

Table 6

Rates of Responses to Social Validity Measure

	Questions			
	Positive impact of schoolwide PBIS within school	Schoolwide PBIS worth time and effort	Increased personal knowledge related to behavioral interventions	Used behavioral interventions
1 = *Strongly disagree*	*N* = 6 % = 5.9	*N* = 4 % = 3.9	*N* = 3 % = 2.9	*N* = 4 % = 3.9
2 = *Disagree*	*N* = 6 % = 5.9	*N* = 6 % = 5.9	*N* = 5 % = 4.9	*N* = 2 % = 2.0
3 = *Not sure*	*N* = 23 % = 22.5	*N* = 21 % = 20.6	*N* = 25 % = 24.5	*N* = 28 % = 27.5
4 = *Agree*	*N* = 31 % = 30.4	*N* = 27 % = 26.5	*N* = 29 % = 28.4	*N* = 27 % = 26.5
5 = *Strongly agree*	*N* = 34 % = 33.3	*N* = 37 % = 36.3	*N* = 35 % = 34.3	*N* = 37 % = 36.3

Note. PBIS = Schoolwide positive behavior interventions and supports. *N* = 104.

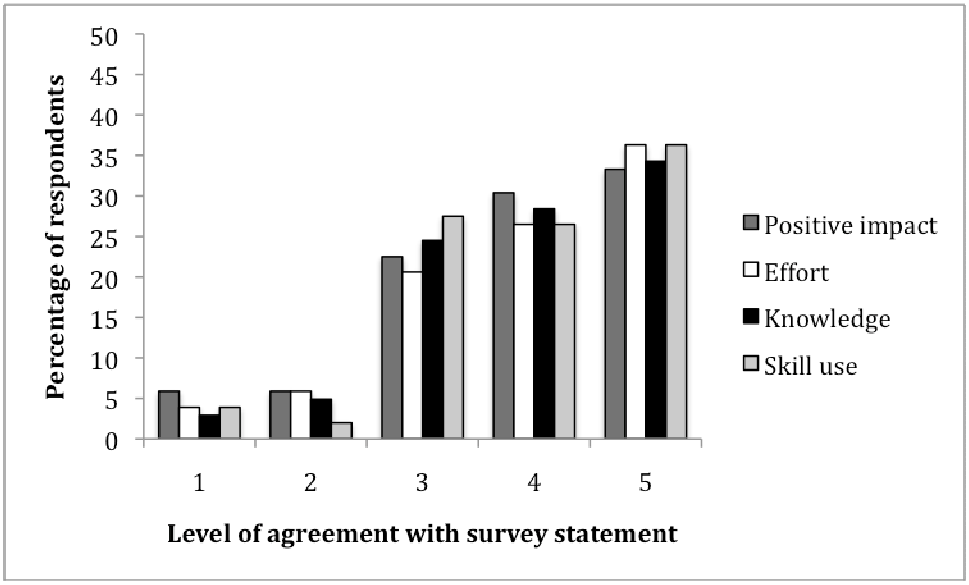

Figure 6. Rate of response for social validity questionnaire (*N* = 104).

Research Question 3 was satisfied, with the majority of responses from staff members affirming that the schoolwide PBIS process (a) *made a significant impact within* [the] *school*, (b) [was] *worth the time and effort,* (c) [personal] *knowledge and skill. . . increased, and (d) [individuals] used … strategies and interventions.*

Research Question 4

Research Question 4 asked: Does the pattern of ODRs change after implementation of schoolwide PBIS in the middle school setting? This research question explored the overall distribution of ODRs among middle school students. Schools that implement preventive and proactive practices (i.e., schoolwide PBIS) with fidelity can expect most students (approximately 89%, 74%, and 71% of elementary school students,

middle school students, and high school students, respectively) to exhibit minimal need for behavior intervention (Horner, 2007).

In order to answer this question, ODR rates per student were compared for baseline and treatment years in the four middle schools (i.e., Schools A, B, C, and D). The students were grouped into three conditions based on their rate of ODR for the year: (a) low risk = zero to one infraction, (b) at risk = two to five infractions, and (c) high risk = six or more infractions.

Figure 7 displays the proportion of students receiving administrative intervention through the ODR process for behavioral infractions at the three levels of intensity in middle schools in both the baseline phase and the intervention phase.

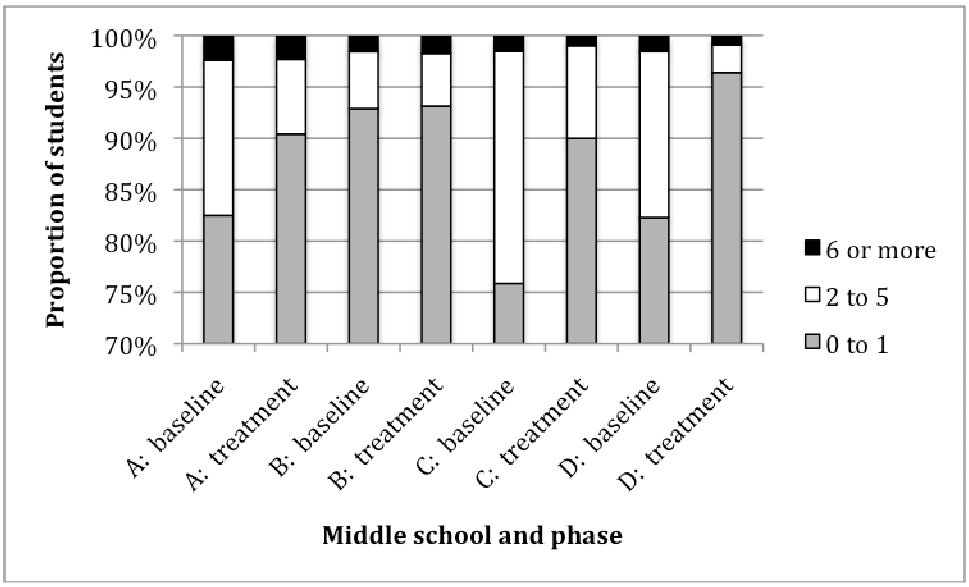

Figure 7. Proportion of students receiving administrative intervention for behavioral infraction grouped by level of perceived risk: (a) high = 6 or more, (b) middle = 2 to 5, and (c) low = 0 to 1 (N = 10).

The high rate of students at the low-risk level during the treatment phase exceeded national averages for middle schools implementing schoolwide PBIS as follows: (a) School A = 90% low risk, (b) School B = 93% low risk, (c) School C = 90% low risk, and (d) School D = 96% low risk. Table 7 demonstrates the mean percentage and change from baseline for student level of risk as reported by ODR rates (N = 10). The data yield a decrease in risk as defined by ODRs at a rate of 9.1%.

Research Question 4 was satisfied, as all four middle schools demonstrated changes in the proportion of students receiving administrative intervention through the

Table 7

Mean and Percentage Change From Baseline for Student Level of Risk as Reported by Office Disciplinary Referral Rates

Level of risk	*M* (%) of student population	Change (%)
High risk (six or more)		
Baseline	1.7	
Intervention	1.5	- .3
At risk (two to five)		
Baseline	14.9	
Intervention	6.0	-8.8
Low risk (zero to one)		
Baseline	83.4	
Intervention	92.5	+9.1

Note. n = 4.

ODR process between the baseline and treatment phases. The greatest rate of change occurred between the low-risk and at-risk groups, with a 9.1% increase in students receiving one or fewer administrative interventions through the ODR process and an 8.8% decrease in the number of students requiring two to five ODRs, with fewer students requiring intervention. The proportion of students requiring intervention at the high-risk level (i.e., six or more ODRs) remained relatively stable, with a small (i.e., 0.3%) reduction from the baseline to treatment phases, suggesting that the intervention had minimal impact in high-risk students' behavior in the middle school settings.

Research Question 5

Research Question 5 asked: Is there a relationship between ODR and schoolwide positive reinforcement rates? The collection of data utilized an electronic data system for ODR and reinforcement ticket tally rates. Figure 8 displays an XY plot of schoolwide positive reinforcement and ODR rate across all participant schools ($N = 10$). Figure 9 displays an XY plot of schoolwide positive reinforcement and ODR rate across middle school participants ($n = 4$). Figure 10 displays an XY plot of schoolwide positive reinforcement and ODR rate across elementary school participants ($n = 6$). The XY plots of schoolwide positive reinforcement and ODR rates demonstrate limited linear relationships at the overall and elementary school level, with minor relationships at the middle school level. An analysis using Pearson's correlation coefficient confirmed this observation: (a) overall, $r(88) = .331$, $p < .002$; (b) middle school level, $r(36) = .645$, $p < .01$; and (c) elementary school level, $r(54) = -.017$, $p < .901$.

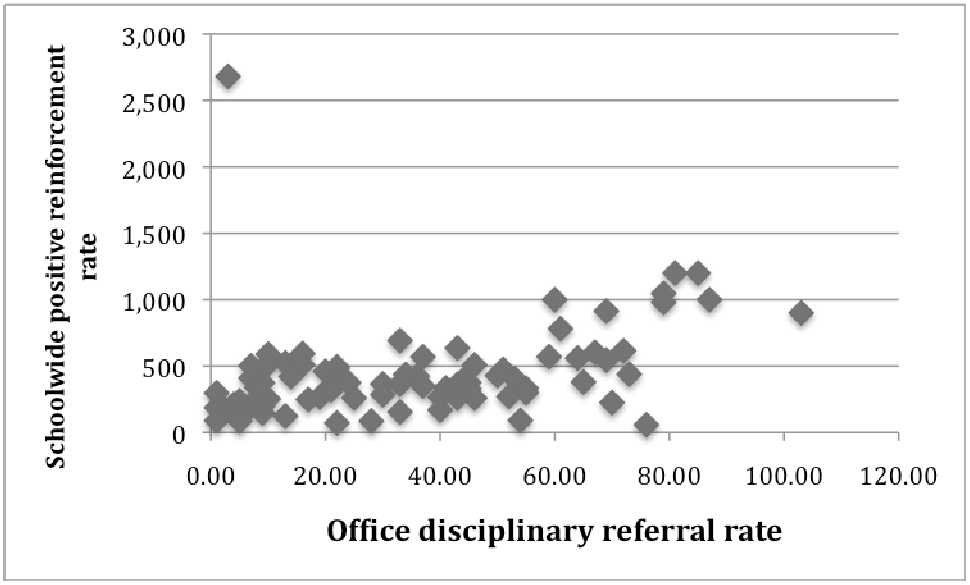

Figure 8. XY plot of schoolwide positive reinforcement and office disciplinary referral rate across all participant schools ($N = 10$).

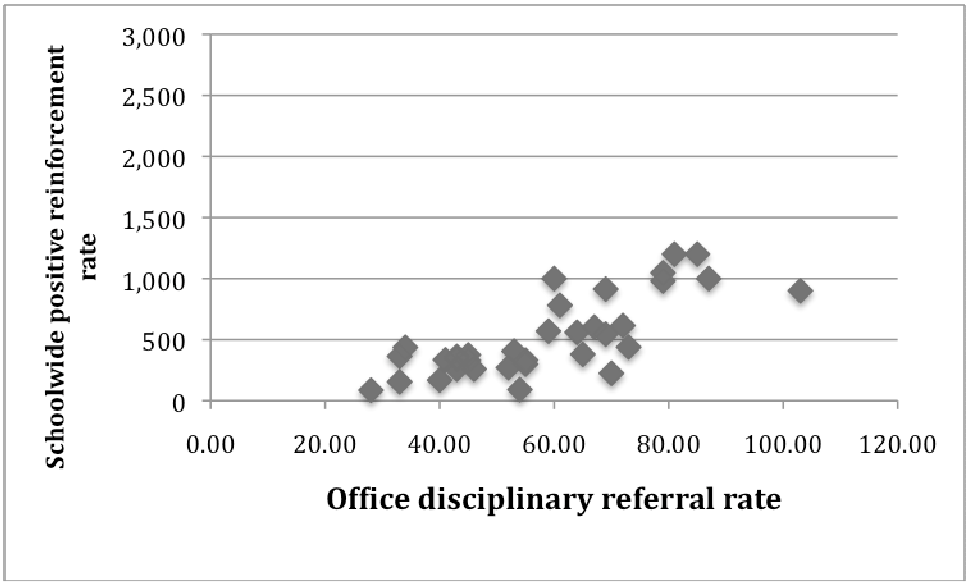

Figure 9. XY plot of schoolwide positive reinforcement and office disciplinary referral rate across middle schools ($n = 4$).

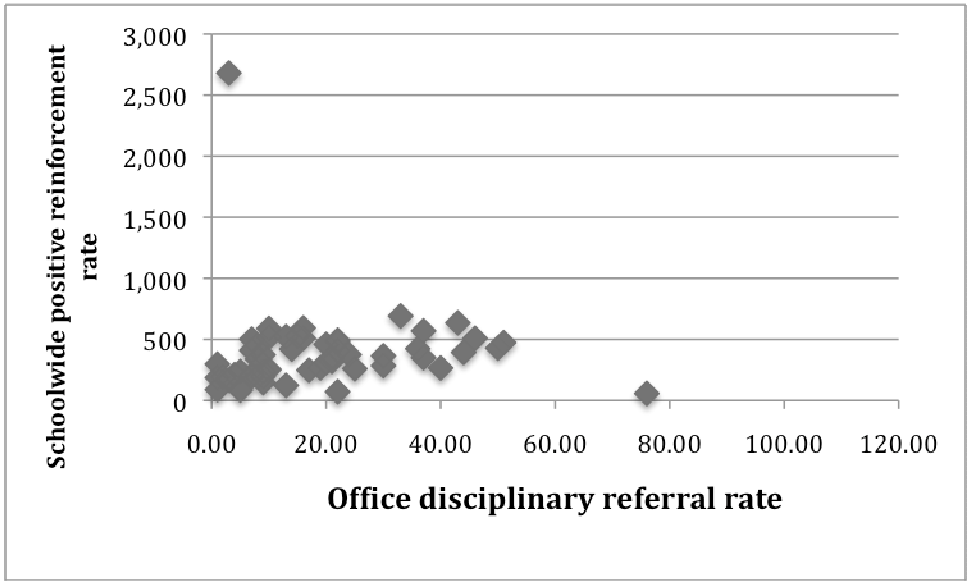

Figure 10. XY plot of schoolwide positive reinforcement and office disciplinary referral rate across elementary schools (n = 6).

These data were inconclusive, with a minor relationship suggested at the middle school level. Research Question 5 was not satisfied with the current results.

Research Question 6

Research Question 6 asked: Is there a correlation between implementation of schoolwide PBIS and rates of tardy behavior at the middle/junior high school level? The collection of data utilized an electronic data system. Of the four middle schools, one school (i.e., School A) was unable to disaggregate its tardy data for the implementation year. Three participant schools were included for this question (i.e., School B, School C, and School D). These data were self-reported by the schools without a permanent product or record (see Table 8). For a global perspective, Figure 11 displays the mean tardy rate

per 100 students for the 9 months of baseline and 9 months of intervention across the three reporting middle schools. Figures 12, 13, and 14 display mean tardy rate per 100 students for Schools B, C, and D, respectively.

Research Question 6 was satisfied with the current results, as all three schools demonstrated a reduction in tardy behavior during the treatment phase.

Table 8

Means, Standard Deviations, and Effect Sizes for Middle School Level Reported Tardy Rate

	M	*SD*	Effect size
Total (n = 3)			1.62
Baseline	30.86	17.41	
Intervention	2.64	1.81	
School B			4.17
Baseline	16.51	3.71	
Intervention	1.04	.47	
School C			1.62
Baseline	39.11	22.22	
Intervention	3.10	1.22	
School D			2.81
Baseline	37.87	12.11	
Intervention	3.78	2.08	

Note. Per 100 students per month.

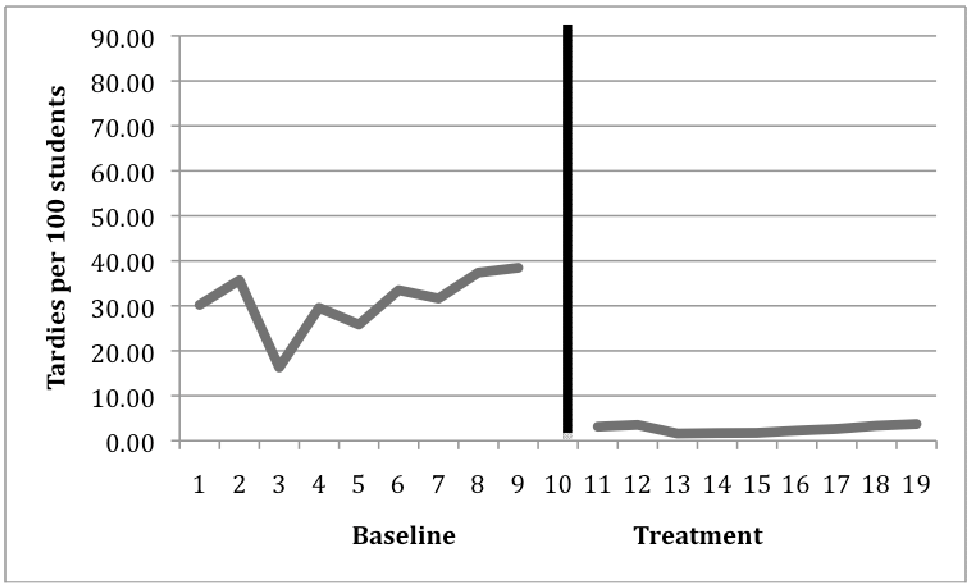

Figure 11. Mean tardy rate per 100 students across reporting middle schools (n = 3).

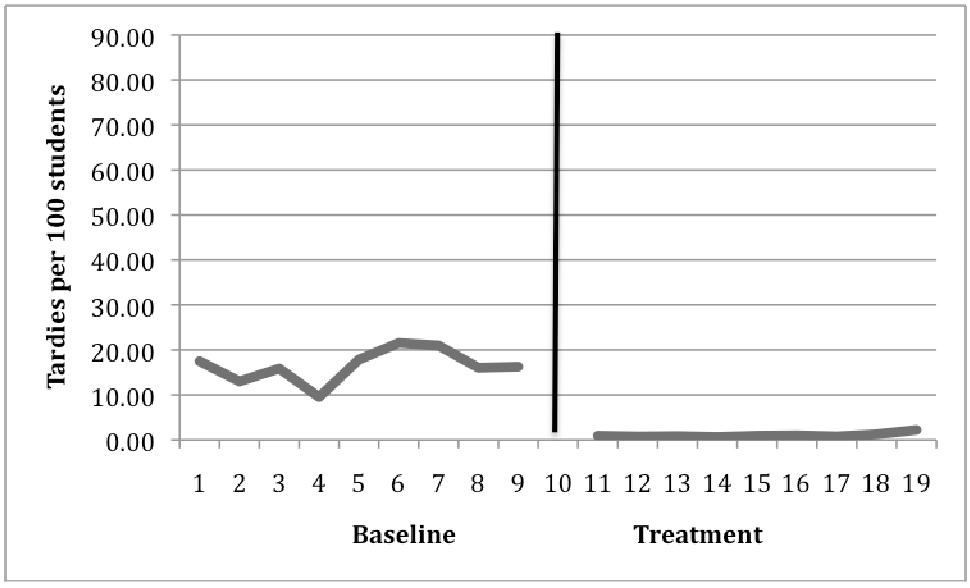

Figure 12. Mean tardy rate per 100 students: School B.

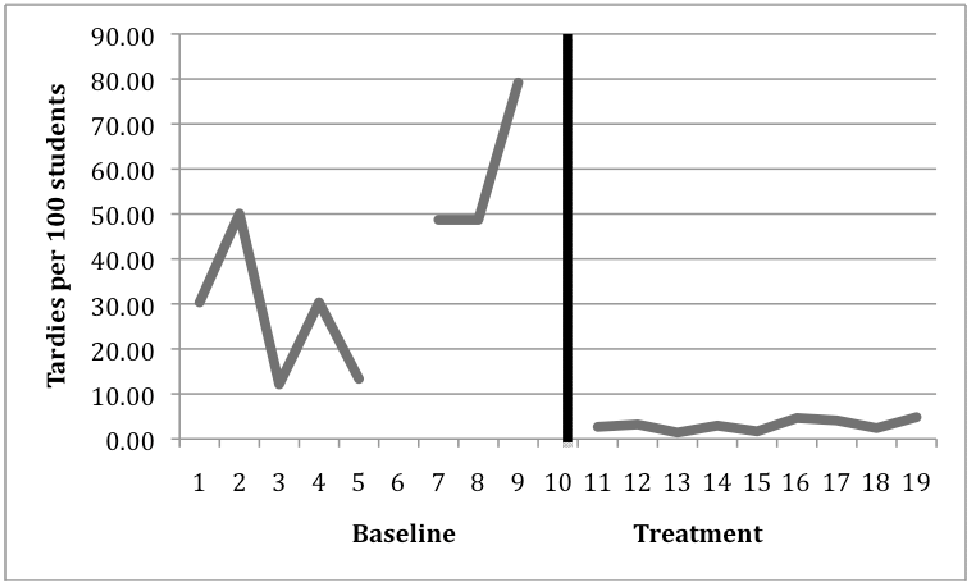

Figure 13. Mean tardy rate per 100 students: School C.

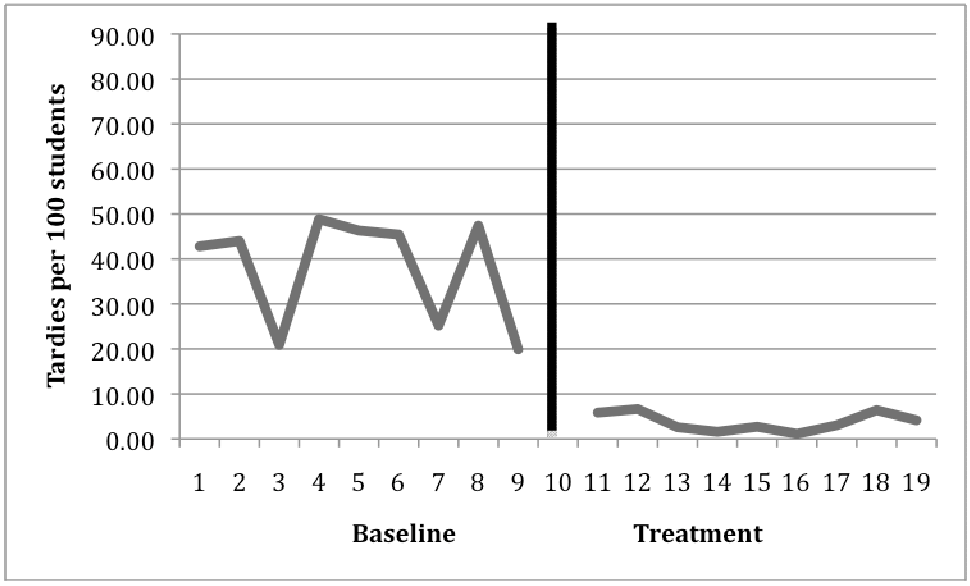

Figure 14. Mean tardy rate per 100 students: School D.

Research Question 7

Research Question 7 asked: Does implementation of schoolwide PBIS yield an increase in administrative efficiency by decreasing time spent correcting student behavioral errors? In order to answer this question, the difference in ODR data baseline to treatment was multiplied by 15 minutes to yield a difference in time spent on student discipline; then the minutes were converted to 8-hour days and multiplied by the average daily salary rate for a public school administrator in Utah. A Web site A Web site (i.e., www.utaheducationfacts.com) is maintained by a public, nonprofit organization in Utah (i.e., Parents For Choice In Education). The Web site shows that the average salary for a school administrator in Utah for the baseline phase was $321.26. Using these figures, Table 9 demonstrates the estimated value for time and salary saved through the reduction of ODRs. As noted, the net savings in administrator time across the 10 schools was approximately $24,958.69.

Table 9

Estimated Savings of Time and Money With Implementation of Schoolwide Positive Behavior Interventions and Supports

	Office disciplinary referral savings	Total day savings	Total money saved
Total (N = 10)	2,486	77.69	$24,958.69
Middle school (n = 4)	1,161	36.28	$11,655.31
Elementary school (n = 6)	1,325	41.41	$13,303.37

Research Question 7 was satisfied with time and money saved due to the implementation of schoolwide PBIS.

Research Question 8

Research Question 8 asked: Does implementation of schoolwide PBIS correlate with student performance in high-stakes testing? All students in the Utah public education system are administered end-of-level assessment in the areas of literacy and mathematics. These assessments are utilized to assess level of student proficiency compared with the state core curriculum. Figures 15 and 16 represent the 10 schools' level of proficiency for literacy and numeracy scores, respectively, in both baseline and treatment phases, including global averages.

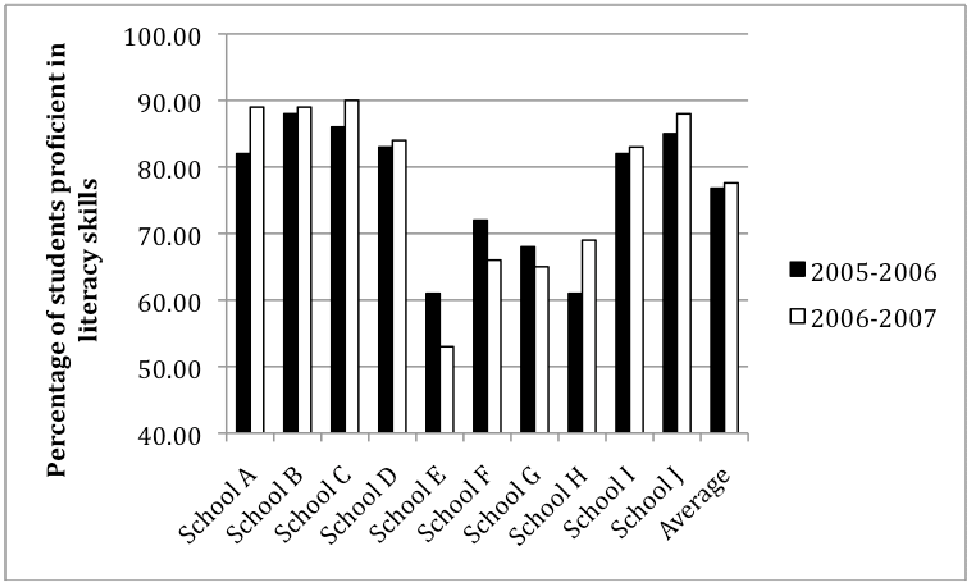

Figure 15. Percentage of students scoring proficient on Utah's Criterion-Reference Test during baseline and treatment years for literacy.

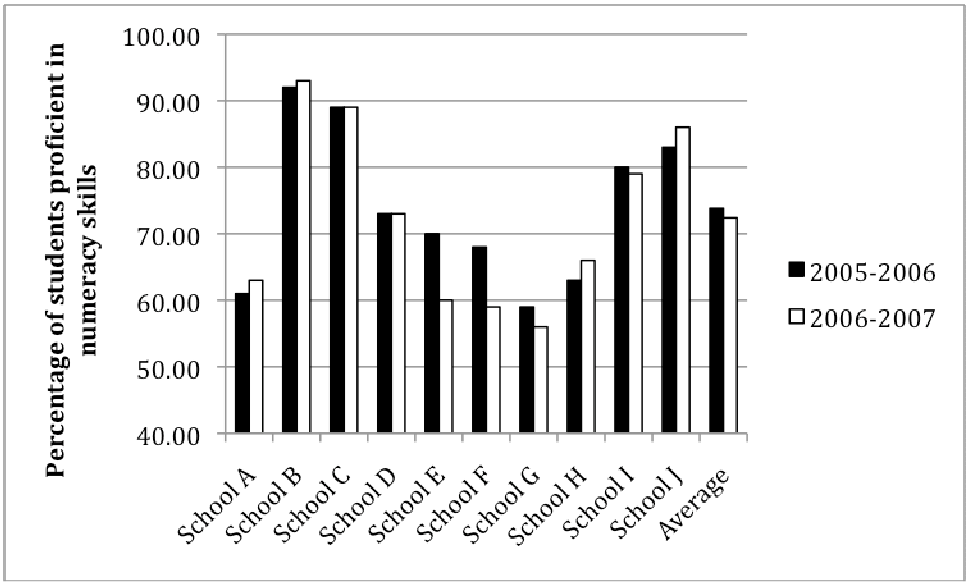

Figure 16. Percentage of students scoring proficient on Utah's Criterion-Reference Test during baseline and treatment years for numeracy.

Using these figures, Table 10 represents the difference between baseline and treatment for numeracy and literacy for all schools (global), middle schools, and elementary schools. The change rate represents the increase or decrease, baseline to treatment, in the percentage of students who are proficient. During the treatment phase, the Utah State Office of Education implemented a significant change to the mathematics core curriculum. This change increased the criterion for proficiency in numeracy skills across elementary and middle schools. Therefore, comparisons of the baseline and treatment numeracy rates may not be valid.

All four middle schools (i.e., School A, School B, School C, and School D) experienced minor increases in their schools' literacy proficiency rate (range from 7% to 1%). For the elementary schools, three of the six (i.e., School H, School I, and School J)

Table 10

Utah's Criterion-Reference Test Proficiency Rate Change From Baseline to Treatment

	Literacy	Numeracy
Total (N = 10)	+.80	-1.40
Middle school (n = 4)	+3.25	+.75
Elementary school (n = 6)	-.83	-2.83

experienced minor increases in their schools' literacy proficiency rate (range from .8% to 8%). Three of the elementary schools (i.e., School E, School F, and School G) experienced decreases in their schools' literacy proficiency rate (range from 3% to 8%). For numeracy, all four middle schools experienced minor to no change in their schools' numeracy proficiency rate (range from 0% to 2%). Four of the elementary schools (i.e., School E, School F, School G, and School I) experienced a reduction in their schools' numeracy proficiency rate (range from 1% to 10%). Finally, two of the elementary schools (i.e., School H and School J) experienced an increase in their schools' numeracy proficiency rate of 3%.

Research Question 8 was not satisfied with the current data. The differences were minimal and inconsistent.

CHAPTER 4

DISCUSSION

Currently, schools are tasked with a complex responsibility to close the achievement gap and ensure that all students, including those with diverse academic abilities, make adequate yearly progress consistent with federal legislation requirements. The reauthorization of the Elementary and Secondary Education Act in 2001 (No Child Left Behind) focuses on the following principles to guide education: (a) increased accountability for student achievement, (b) state and local flexibility to achieve results, (c) expanded parental choice, and (d) precise focus on evidence-based instructional methods (U.S. Department of Education, 2002). States, districts, and schools are compelled to ensure that all children achieve high standards of learning. Constable, Flynn, and McDonald (1996) stated school is "an institution, which, in the most profound way, mediates success and failure, belongingness and nonbelongingness for children in our society. Only family may have a more powerful influence" (p. 11). One of the strongest evidence bases for instructional methods in social behavior is schoolwide PBIS (Simonsen, Sugai, & Negron, 2008). Schoolwide PBIS demonstrates decreased student behavior problems and increased staff consistency, which enables increased positive interactions and improved academic performance (Bradshaw, Koth, Bevans, Lalongo, & Leaf, 2008; Horner et al., 2009; Netzel & Eber, 2003; Safran & Oswald, 2003).

Findings Related to Current Research

According to Simonsen et al. (2008):

> When [schoolwide PBIS is implemented] consistently and accurately, school staff can experience improved disciplinary climate, more available instructional minutes, enhanced academic achievement, greater family and community relations, and improved capacity to address the needs of students who need more intensive behavior and/or academic supports to be successful. (p. 40)

The current study evaluated the implementation and possible outcomes of schoolwide PBIS through Utah's state-sponsored training efforts, UBI, and found the following:

1. The disciplinary climate improved with decreased negative interactions between students and staff (i.e., reduced ODR rates), use of schoolwide positive reinforcement methods (i.e., Principal's 200 Club) and staff endorsement of schoolwide PBIS (i.e., survey results).
2. The opportunities to utilize instructional minutes increased through reduced tardy behavior and reduced classroom disruptions (i.e., fewer ODRs).
3. Enhanced academic achievement was not demonstrated in this study with the selected independent variable (i.e., Utah's Criterion-Reference Test).
4. Family and community relations were not examined in the current study.
5. The capacity of participant schools to address students needing more intensive behavior, academic supports, or both increased through the reduction of ODRs, increased administrator time, and decreased numbers of students in the at-risk range.

6. In addition to the five outcomes, suggested by Simonsen et al. (2008), participant schools demonstrated high fidelity of implementation of schoolwide PBIS features.

Improved Disciplinary Climate

According to Skiba et al. (1997), the most common practice of school administrators in managing student behavior is to deliver consequences through the ODR process. The practice of removing a student from the instructional environment precludes the student from receiving instruction commensurate with his or her peers (Skiba & Peterson, 2003), is reactive, and results in detention or suspension most of the time (Atkins et al., 2002). Data from the current study demonstrated that implementation of schoolwide PBIS effectively decreased the rate of negative interactions between students and staff by minimizing the use of ODRs in the participant schools. The reduction of ODR rates yielded a large change with the average effect size for elementary schools (i.e., 1.26) and secondary schools (i.e., 1.35). In 1988, Cohen argued that an effect size of 1.0 should be regarded as a large, blatantly obvious, and grossly perceptible difference. Therefore, the current study demonstrated that schoolwide PBIS can be the catalyst to decreasing a highly ineffective, negative, reactive, and consistently utilized consequence method in the school setting.

Schoolwide PBIS emerged from applied behavior analysis principles (Carr et al., 2002). One of the salient features of applied behavioral analysis includes the use of positive reinforcement (Baer et al., 1968). Research has demonstrated that when teachers

provide positive feedback to students, problem behaviors decrease and instructional engagement increases (Lewis, Hudson, Richter, & Johnson, 2004). Through use of the Principal's 200 Club, all of the implementing schools had at least one schoolwide intervention in place to promote positive interactions between students and the adults responsible to educate them.

The use of schoolwide positive reinforcement was explored with rates of ODRs and Principal's 200 Club tickets. Analyzing data from all 10 participant schools yielded a minor relationship at the secondary level, $r(36) = .645$, $p < .01$, and the absence of a discernable relationship at the elementary level, $r(54) = -.17$, $p < .901$. The evidence base in favor of positive reinforcement, including Cameron and Pierce's (1994) meta-analysis, suggests a strong relationship between increased positive reinforcement and decreased behavioral problems. For the current study, comparisons were made on a monthly basis as well as for the whole student population. Perhaps, analysis of individual student rates of positive and negative interaction and shorter intervals (e.g., weekly) would yield a discernable pattern.

A promising development from these data demonstrated that the staff's use of positive reinforcement was high. The Principal's 200 Club Fidelity Checklist indicated that staff reported participation rates were more than 80%. This finding was compelling because positive reinforcement in the school setting has been tied to increased student performance (Cameron, Banko, & Pierce, 2001). Also promising was the school staff's willingness to implement positive reinforcement given that the 1990s were fraught with misinformation regarding effective positive reinforcement and behavioral feedback

(Kohn, 1993). In his widely published book, *Punished by Rewards*, Kohn asserted that any form of contingent rewards has diminishing effects on creativity, risk taking, quality of performance, and intrinsic task interest. This text lacked a reputable evidence base and provided information contrary to findings of behavioral researchers who report that positive reinforcement is a needed support in the learning process and has little to no negative effect on intrinsic motivation (Bandura, 1986; Dickinson, 1989; Flora, 1990).

In 2002, Gottfredson and Gottfredson noted that most school-based intervention programs last less than 1 month due to a lack of resources and accountability structures in order to enable adequate support for implementing adults. Interventions perceived as effective, reasonable, and worthwhile are likely to be a priority for future implementation in schools. To assess the perceptions of schoolwide PBIS and training expectations, schools participated in an End-of-Year Questionnaire. This tool was built with a midpoint, as it was a 5-point, Likert-type scale. More than 20% of the responses were at the midpoint, which is a common pattern of responses with survey data; some have argued that a midpoint decreases inflated endorsements because participants can select the midpoint as an opportunity to opt out of giving feedback. Worcester and Burns (1975) included a balanced 4-point, Likert-type scale without midpoint in their large-scale examination of verbal tags. Their study highlighted the implications of scoring verbal scales by the traditional practice of plus 2 to minus 2 or 5, 4, 3, 2, and 1. They found that semantically balanced Likert-type scales are often unbalanced in interpretation; for instance, *strongly disagree* is not directly opposite *strongly agree*. Worcester and Burns also concluded that a 4-point scale without a midpoint appears to push more respondents

toward the positive end of the scale, contributing to the work of Skinner (1953, 1963). Skinner noted that social validity assessments ask respondents to answer questions by describing how satisfied or agreeable they are with challenges; that is, for some individuals, satisfaction or agreement may be an average rating, and for others, agreement may be an extraordinary state. Schwarts and Baer (1991) admonished that valid assessments of social validity must include direct and indirect consumers. For the current study, both of the key implementers on the school team and a sampling of other school staff members were surveyed. A *t* test was conducted to test whether there was a significant difference between the means of the two groups. The data supported the null hypothesis; that is, there was no difference between key implementers (i.e., schoolwide PBIS team) and school staff, with a score greater than 0.05. Therefore, the results of this survey, with 63.75% endorsing *agree* or *strongly agree*, may be a highly accurate reflection of the participants' acceptability of schoolwide PBIS. The four questions included on the survey demonstrated a relatively low rate of disagreement that ranged from 12% to 6%.

Increased Opportunity to Utilize Instructional Minutes

In addition to the aforementioned findings of decreased ODR rates, fewer students received administrative intervention, which typically occurs out of the classroom setting. The most compelling finding from the current study was the overall decrease in reported tardy rates at the three reporting middle schools (i.e., Schools B, C, and D).

The overall effect size for reduced tardy behavior was 1.62. Schools made

significant reductions in reported rates of tardy behavior, decreasing from an average of 30.86 tardies per 100 students to fewer than 3 tardies per 100 students (i.e., 2.64). Secondary educators consistently report that tardy behavior is a persistent annoyance; that is, students who enter the classroom after the bell rings not only miss out on crucial instruction but also interrupt those students who came to class on time (Landon & Mesinger, 1989; Stouffer, 1956). These data suggest that schoolwide PBIS, when implemented with fidelity, may increase the use of instructional time through decreased disruption and disengagement of students through reduced tardy and ODR rates.

The significant reduction in tardy rates presents challenges for generalization due to the lack of permanent product in recording tardy behavior. All three middle schools used electronic methods to record attendance that precluded the coaches or me from conducting random accuracy checks to compare paper records with electronic reporting rates. In addition, participant schools implemented teacher- delivered intervention procedures (e.g., Think Time) during the treatment phase that may have moderated the tardy behavior of students.

Lack of Enhanced Academic Achievement

U.S. public schools are established to educate the populous in both academic skills and behavioral competencies. Most of the training and implementation features for the current study involved behavioral competencies. Stewart et al. (2007) found schools addressing academic skill and behavioral competency when developing goals and instructional plans were more successful in both areas. In 2006, Lassen et al.

demonstrated an inverse relationship between ODRs and performance on standardized tests for reading and mathematics. The current study sought to address questions related to local schools; the independent variable utilized was the state accountability tool (i.e., Utah's Criterion-Reference Test).

Patterns in the areas of literacy and numeracy in the participant schools' performance on Utah's Criterion-Reference Test were inconclusive. Some schools increased in one or more areas and some decreased in one or more areas. Some of the reasons for this lack of discernible relationships between social behavior and academics may be due to the following issues:

1. Utah's Criterion-Reference Test for mathematics changed between the baseline and intervention phases.
2. Utah's Criterion-Reference Test has a limited degree of sensitivity, with the difference between proficient and not proficient being undisclosed for both literacy and numeracy examinations.
3. Students in kindergarten, first grade, and second grade are not administered Utah's Criterion-Reference Test; thus, they are not included in the academic assessment process.
4. In schools with high mobility, students assessed from year-to-year may be different.
5. Two data points for the duration of the study may be inadequate to demonstrate trends.

Interestingly, Brand, Felner, Seitsinger, Burns, and Bolton (2008) found the following: "In three large-scale samples of schools, teachers' climate ratings were associated significantly and consistently with students' performance on standardized tests of academic achievement, and with indexes of their academic, behavioral, and socio-emotional adjustment" (pp. 507-508). These results were not found in the current study; that is, school personnel reports and behavioral indicator reviews point toward a strong increase in positive school climate, but the results on Utah's Criterion-Reference Test do not support an increase in academic skill.

Increased Capacity to Address the Needs of At-Risk and High-Risk Students

One of the most compelling arguments made by the proponents of schoolwide PBIS is that implementation creates an environment where, on average, 71% to 89% of students respond to the proactive supports and do not require administrative intervention for behavioral problems (Horner et al., 2009). The four middle schools (i.e., Schools A, B, C, and D) demonstrated changes in the proportion of students requiring repeated administrative intervention. During the baseline phase, 83.4% of the students across the four schools required minimal administrative intervention and were categorized as low risk. The intervention phase yielded a 9.1% increase in the proportion of low-risk students across the four schools. The majority of students comprising the increase in low risk shifted from the at-risk group. The high-risk group of students remained fairly stable across phases (i.e., 1.7% to 1.5%). These data suggest the following: (a) The participant middle schools for this study reported fewer students requiring at-risk and high-risk

interventions than the national data sample (Horner et al.), and (b) schoolwide PBIS implementation may not be a strong enough intervention to meet the needs of high-risk students.

In addition to decreasing the number of students requiring at-risk interventions, the study demonstrated that administrators' time could be conserved through implementation of schoolwide PBIS. When a school administrator takes time to address student discipline on an individual basis (i.e., one student at a time), it diminishes the time available to facilitate curriculum alignment, coach teachers to improve their instructional practices, and plan for professional development. In fact, Scott (2004) reported that using staff and student time engaged in disciplinary procedures to evaluate the impact of schoolwide PBIS could be an indicator of efficacy. The total reduction in ODRs across the 10 schools was 2,486, with 77.69 school days saved. This savings is not substantial; however, an argument can be made that many ODRs require more attention than merely 15 minutes. In addition, the required instruction time per school year is 990 minutes. The average school year is 184 days. Therefore, using this formula, the average school day includes a mere 5 to 6 hours of instructional time. Therefore, a more accurate calculation method may include figuring the instructional time lost per student and factor a 6-hour day for administrators because the time spent on ODRs most likely is divested during the instructional time frame. If the formula is adjusted to factor in a 6-hour day, the schools may have actually gained more instructional and administrative time through implementation of schoolwide PBIS than Table 9 suggests. In addition, schoolwide PBIS may decrease the time spent per ODR as the administrative procedures become more

consistent and, thus, the protocols for disciplining students become automated in many situations (Green, 2009).

Demonstrating High Fidelity of Implementation

The evidence base demonstrates that schoolwide PBIS is an effective intervention package for elementary schools (Horner et al., 2009) and middle schools (Lassen et al., 2006). The intent of the current study was to replicate schoolwide PBIS in Utah schools through implementation consistent with the models referenced in the research literature. Fidelity of implementation is the delivery of intervention in the way in which it was designed to be delivered (Gresham, MacMillan, Beebe-Frankenberger, & Bocian, 2000). As reported, the following two fidelity measurements were utilized to assess features of schoolwide PBIS: (a) SET and (b) Principal's 200 Club Fidelity Checklist. Both measures identified visible patterns of implementation in Utah schools through triangulation of the following data sources: (a) personal interviews with staff and students, (b) reviews of archival data and permanent products, and (c) observations of implementation features on-site.

The SET demonstrated the following areas of strength for all 10 schools, with a universal score of 100%: (a) schoolwide expectations, (b) systems to monitor and support social behavior, and (c) state and district support structures. The structure provided to schools through the UBI training activities ensures that schools take time to develop and gain consensus on expectations and rules, formats for communication and data compilation, and support from the state and district. Therefore, not surprisingly, these

areas are those of greatest strength for the participant schools. The areas with relatively heightened variability among the schools included the following: (a) plans and practices for teaching behavioral expectations and rules, (b) system for rewarding students for exhibiting desired behaviors, and (c) system for correcting behavioral errors and reteaching students. The following recommendations can be made given the relatively lower rates of implementation in the aforementioned areas: (a) requiring schools to document teaching plans and provide institutional memory through video recording of behavioral expectation lessons, (b) developing accountability systems for teachers and staff to ensure continued momentum related to the acknowledgment of student success, and (c) clearly articulating and consistently revisiting plans for the handling of behavioral errors and crisis situations.

The Principal's 200 Club Fidelity Checklist revealed a high degree of implementation, with all schools scoring at least 80% on four of the five sections. The one area that yielded a lower than 80% score for any of the schools was student participation. This indicator relied heavily on a student's report of participation in the Principal's 200 Club as a recipient of positive reinforcement. The mean score was 76%. Children's ability to self-report in an accurate manner has been viewed as unreliable (Martens, 1993). The key source of information for this indicator was student oral response. One student, when asked if he had received a Principal's 200 Club ticket, indicated no. His teacher was standing within earshot and pointed to a clipboard with the student's signature, indicating receipt of a ticket less than 2 weeks prior. Recommendations for future study of schoolwide reinforcement (i.e., Principal's 200

Club) include developing additional questions and evidence checks to assess true participation rates of students and adults in the intervention procedure.

Limitations and Future Research

The current study has several limitations and is suggestive of lines for future research. These limitations can be grouped into the following three categories: (a) limitations concerning the study's sample, (b) measures, and (c) procedures.

Population Sample

The current study is limited in its generalizability due to the nature of participant districts and schools. The sample consisted of 16,607 students, 4 middle schools, 6 elementary schools, and 5 school districts. Nine of the participant schools were localized along the Wasatch Front region (i.e., between the cities of Ogden and Provo). Only 1 school was located outside of the Wasatch Front region. All of the participant schools self-selected to participate in comprehensive school reform with the Utah Personnel Development Center. This self-selection may present bias. In addition, during the 2006-2007 school year, only 13% of the schools in Utah participated. Future study may benefit from examining the contextual factors related to self-selection into a reform process.

Measures Used

Other limits to generalizability and possible reliability concern the following measures used: (a) ODR, (b) tardy, (c) SET, (d) Principal's 200 Club and its

accompanying Fidelity Checklist, (e) Utah's Criterion-Reference Test, (f) End-of-Year Questionnaire, and (g) administrator efficiency formula.

Office disciplinary referral. The sensitivity of ODR rates has been criticized for perceived shortcomings in identifying low-level, at-risk behavior (Nelson, Benner, Reid, Epstein, & Currin, 2002). In addition, some have argued that ODR rates may demonstrate teacher tolerance for student behavior rather than indicating the level of student behavior exhibited at the school (Morrison & Skiba, 2001). However, Irvin et al. (2004) found that ODRs could be an effective indicator of schoolwide behavioral climate. Future study should compare ODR rates with qualitative measures of school behavioral climate such as observations and questionnaires.

Tardy. The data used for analysis of effect related to tardy behavior were 100% self-report. Future study should examine tardy behavior with a concerted effort to confirm the reported tardy rates with other evidence such as permanent product (i.e., tardy log); observation to obtain rates of adherence to school policy across classrooms, teachers, and time of day; and teacher report of perceptions related to tardy behavior.

Schoolwide Evaluation Tool. The SET is a valid measure of basic implementation of schoolwide PBIS (Horner et al., 2004). However, the SET is minimally sensitive to implementation nuances related to longitudinal application of schoolwide PBIS. Future study should examine complimentary fidelity measures to ensure that sensitivity to implementation strength is paramount.

Principal's 200 Club. The Principal's 200 Club and its Fidelity Checklist were developed locally. Future study should examine both the intervention and the Fidelity

Checklist in sites outside of Utah and the Wasatch Front region. In addition, future study may address the reliability and validity of the Principal's 200 Club and its Fidelity Checklist.

Utah's Criterion-Reference Test. The nature of Utah's Criterion-Reference Test limits generalization and sensitivity to growth. For example, schools with many students who perform significantly below their chronological peers may not recognize incremental progress in their students' academic skill due to the arbitrary 4-point scale for proficiency ratings. Future study should examine schoolwide PBIS and its relationship to curriculum-based measurement (e.g., curriculum-based measurement—reading or curriculum-based measurement—mathematics). A growth model analysis of academic skill compared with schoolwide PBIS implementation should also be recommended for future research.

End-of-Year Questionnaire. The questionnaire used to demonstrate social validity has not been tested or compared with typically utilized social validity measures. Future research could develop a reliable and valid tool of social validity related to implementation of schoolwide PBIS.

Administrator efficiency formula. Future research may consider exploration of more complex cost analysis to account for training costs (e.g., substitutes and travel time) and take an estimate of ODR time during baseline rather than assigning 15 minutes for every behavioral code. Many ODRs require administration to question other students, document illegal activity, and intervene with multiple individuals. The current study did not differentiate among reasons for ODRs, repeat offenders, and other factors that may heavily influence the amount of administrator time and effort expended per referral.

Future research should consider careful analysis of administrator-related features and ODR requirements.

Family and community variables. The current study did not examine family and community relations or perceptions. This area could be one of emphasis for future study.

Study Procedures

The current study investigated multiple variables related to a state-sponsored professional development protocol for implementation of schoolwide PBIS (i.e., UBI), resulting in limited generalizability. For example, I was present at every district- and state-level training. Future study should consider utilization of common protocols that control for person variables. It could be said that one of the moderators in this study was me; therefore, it may be helpful (to future practice in the state) to review effects without one person being heavily involved. Processes to collect data were mainly self-reported. Future study should consider validation checks in addition to comparisons of reported data and paper products (e.g., collection of data to determine errors in current study methods).

Conclusion

The current study suggests that systematic reform through implementation of schoolwide PBIS in Utah is a worthwhile endeavor with successful aspects in all of the participant schools. Overall, the results suggest that (a) school staff endorse the use of schoolwide PBIS methods, (b) ODR rates can be decreased, (c) tardy rates can be

impacted, (d) administrator time can be more efficiently utilized, (e) students' at-risk behavior at school can be reduced, and (f) recognized features of schoolwide PBIS can be implemented in a relatively short period of time (i.e., 2 years). Student performance on state-mandated proficiency examinations was inconsistent. No discernable correlations between ODR and positive reinforcement rates were demonstrated. Results suggest that states can impact the work of local schools and districts in the areas of instruction, intervention, and databased decision making. The current study presents an example of high implementation of evidence-based practices in elementary and middle schools.

APPENDIX A

EVALUATION TOOLS

The Schoolwide Evaluation Tool (SET)

The School-wide Evaluation Tool (SET) is designed to assess and evaluate the critical features of schoolwide behavior support across each academic school year. The set was developed by Teri Lewis-Palmer, Robert H. Horner, Anne W. Todd, and George Sugai; development was sponsored financially by the Office of Special Education Programs (OSEP) Technical Assistance Center on Positive Behavioral Interventions and Supports. The tool is free and can be found online at: http://www.pbis.org/pbis_resource_detail_page.aspx?Type=4&PBIS_ResourceID=222)

Principals 200 Club Fidelity Check List

School _____Started 200 Club_____

Building Coordinator
_____

School Based Manager of 200 Club _____

Building Administrator _____

Rating Scale:

0 =No (major problems)
1=Somewhat (minor problems)
2=Yes (meets or exceeds expectations)

Indicator 1: Setting and Implementing

Indicator	Rating	Source
1a: Does the school have a set of posted school-wide rules		Observation 2=yes in 3 or more locations of the school common areas
1b: Is the 200 club matrix posted in a highly visible location		Observation 2= yes, posted in high traffic area (e.g. main hallway)
1c: Is acknowledgement of reinforcement types and celebration displayed?		Observation (e.g. bulletin board with mystery motivator, menu, or explanation of possible reinforcers)
1d: Are student's names easily identified on the 200 club matrix?		Observation 2=Can be read from 3 – 5 feet away

1e: Does the ticket include the following: student name, staff name, and target behavior		Observation 2=all three indicators 1=2 or fewer indicators 0=no identifying information on ticket
1f: Does the school have a record book where students can sign their name upon turning in a 200 club ticket?		Observation 2=yes 1=other recognition (procedure)
1g: Does the school systematically notify parents when a student receives a 200 club ticket?		Observation (200 Club poster card home) Interview with 200 club school based manager. 2=yes, consistently carried out 1=somewhat, done inconsistently
Quantitative Score Indicator 1	**_____/14**	**___%**
*Do the tickets easily differentiate between a student the staff member knows and a student the staff member does not know? For example: blue tickets for students in their own class an yellow for students in another class?		Observation Bonus Question

Indicator 2: School Based 200 Club Manager

2a: How does staff receive tickets for distribution to students?		Interview Description of procedures for delivering tickets provides for continuous availability for staff. 2 points
2b: Why are tickets awarded "What behaviors do staff look for to give 200 club tickets?"		Interview 2 = Specific behaviors tied to schoolwide expectations or social skills 0 = non-specific
2c: What is the procedure for collecting tickets?		Interview Description of procedure for collecting tickets allows for less than 24 hours from ticket awarded to delivery of ticket to office or School Based 200 Club Manager. 2 points
2d: When is the student's name publicly posted for receiving a 200 club ticket?		Interview 2=upon delivery of ticket to office or School Based 200 Club Manager 1=same day as delivery of ticket to office or School Based 200 Club Manager 0 = not within school day time frame
Quantitative Score Indicator 2	**_____/8**	**___%**
Is the amount of time invested in running the 200 club worthwhile?		Qualitative Information
The procedure for data collection is consistent and yields useable data in a timely manner.		Qualitative Information

Indicator 3: administrator

3a: Are the tickets continuously available to the staff?		Interview 2 = yes 0 = no
3b: What is the procedure for distributing and collecting tickets?		Interview 2 = agreement with School Based 200 Club Manager 0 = not aligned with School Based 200 Club Manager
3c: What is the average time between a bingo on the 200 club board and the delivery of the reinforcement or reward?		Interview 2 = within 48 hours 1 = within a week (5 days) 0 = more than 5 days or ambiguous answer (i.e. "whenever we can")
3d: What are some examples of 200 club rewards that you have overseen or delivered? * If only 1 is give, probe once saying: "Can you tell me any other examples?"		Social/Activity Privilege Tangible 2 = examples include social/activity 1 = examples include privileges but not social/activity 0 = examples include tangible only
Quantitative Score Indicator 3	**_____/8**	**___%**
How is the 200 club reward selected/determined?		Qualitative question
What is the greatest strength of the 200 club as an intervention tool?		Qualitative question
What is a weakness or challenge of the 200 club as an intervention tool?		Qualitative question
Is the amount of time invested in running the 200 club worthwhile?		Qualitative question
The procedure for data collection is consistent and yields useable data in a timely manner.		Qualitative question

Indicator 4: Staff

4a: Do staff report that the schedule of reinforcement is continuous and are they aware of procedures for distributing tickets (i.e. teachers access to tickets, what tickets are distributed for)?		Interview of staff and school based 200 club manager Interview 5 staff members, 3 of 5 must agree with the school based manager of 200 club's description for 2 points
4b: Do staff report satisfaction with the 200 club in the school?		Interview 2=3 to 5 Yes responses 1=1 to 2 Yes responses 0=0 Yes response
4c: Do staff report using specific behavioral feedback when awarding tickets to individual students?		Interview 2=3 to 5 Yes responses 1=1 to 2 Yes responses 0=0 Yes response
4d: Do staff report using the 200 club tickets for specific targeted behavior rather than classwide praise?		Interview 2=3 to 5 Yes responses 1=1 to 2 Yes responses 0=0 Yes response
4e: Do non-certified staff have access to the 200 Club tickets?		Interview school based manager of 200 club and 1 non-certified staff member. Agreement = 2
Quantitative Score Indicator 4	**_____/10**	**___%**
*Are staff members reinforced for participation in the 200 club program?		Interview, observation Qualitative questions

Indicator 5: Students

5a: Do students report knowledge of the how/why a student would receive a 200 club ticket? "How does someone get a 200 club ticket?"		Interview Interview 5 students, 3 of 5 must agree with the school based manager of 200 club's description for 2 points
5b: Can students explain the procedure for receiving and turning in tickets?		Interview 5 students, 3 of 5 must agree for 2 points
5c: Do students report receiving 200 club tickets? "Have you received a 200 club ticket?		Interview 2=3 to 5 Yes response 1=2 0=1 or fewer Yes response **Note: student report is regarding receipt of a 200 club ticket, not being in the winning row, column, or diagonal*
5d: Can students verbalize why they have received 200 club tickets in the past (i.e. specific behavior)? "What did you do to get a 200 club ticket"		Interview 2=3 to 5 Yes responses 1=1 to 2 Yes responses 0=0 Yes response
5e: Do students report knowledge of the reinforcement activity types? "Can you tell me some of the things that kids who win the 200 club get to do?"		Interview 2=3 to 5 Yes responses 1=1 to 2 Yes responses 0=0 Yes response
5f: Do students value 200 club tickets and the subsequent activities or reinforcement? "Do you like having a 200		Interview 2=3 to 5 Yes responses 1=1 to 2 Yes responses 0=0 Yes response

club at your school?"		
5g: Can students explain "the chance", or how winning is achieved? "How do you win the 200 Club?		Interview 2=3 to 5 Yes responses 1=1 to 2 Yes responses 0=0 Yes response
Quantitative Score Indicator 5	**_____/14**	**___%**
*Can students reinforce other students or the staff members for displaying social appropriate behavior?		Qualitative Question

APPENDIX B

ADDITIONAL FIGURES

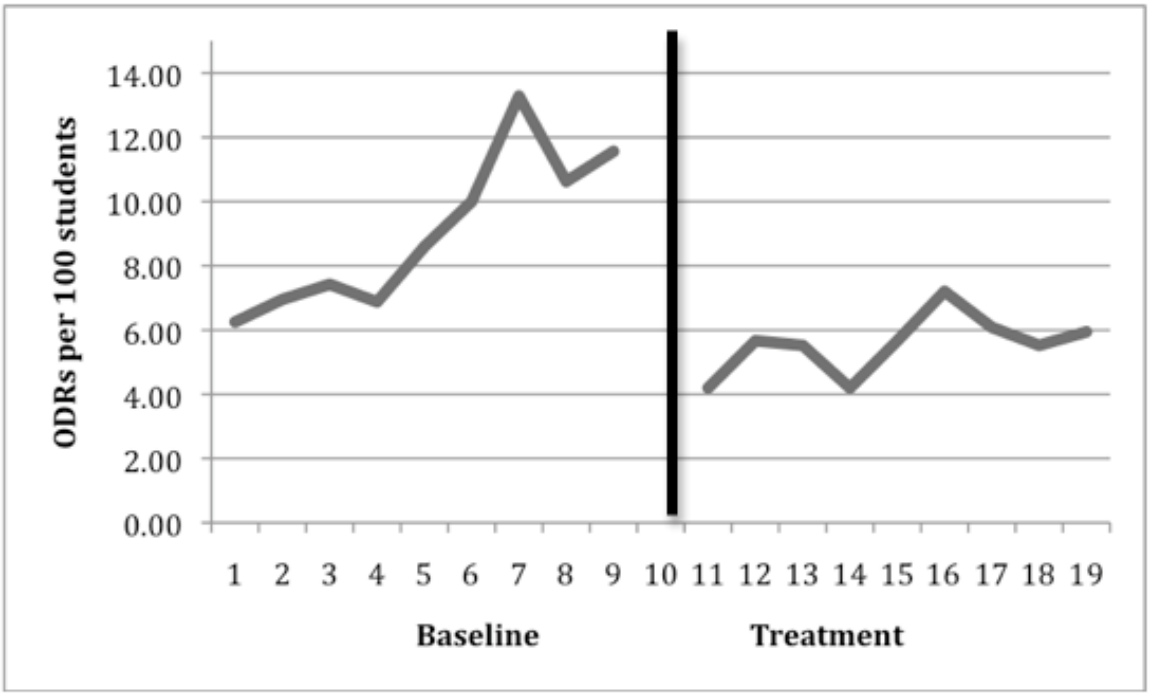

Figure 17. Office disciplinary referral rates per 100 students: School A.

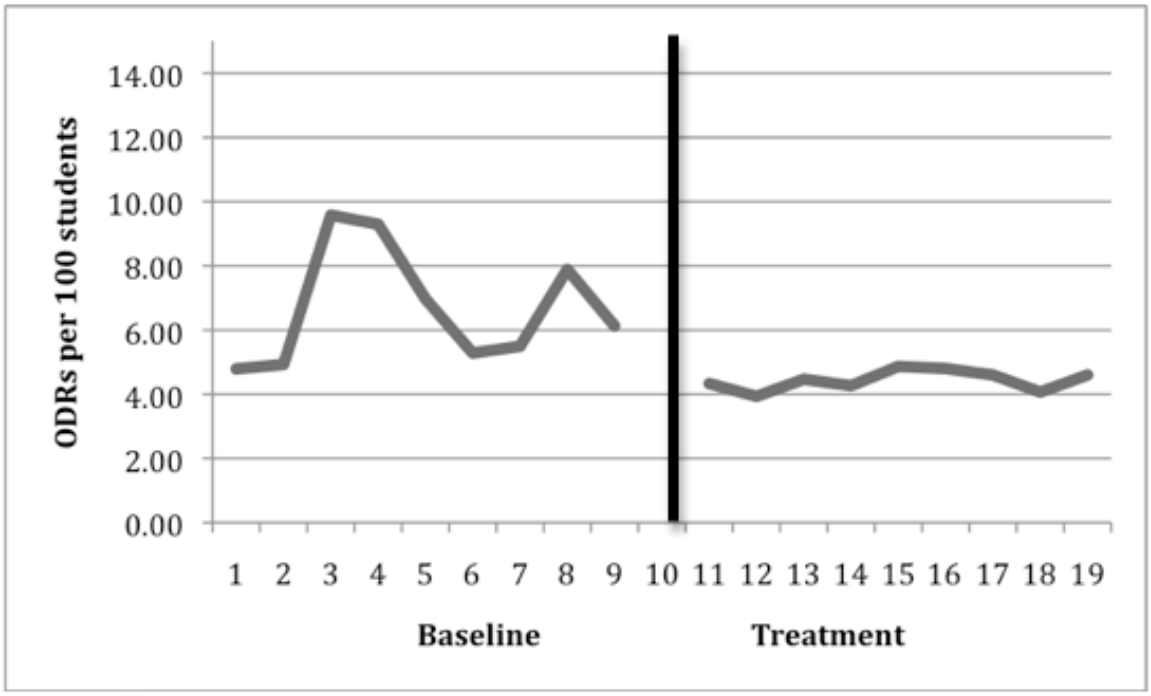

Figure 18. Office disciplinary referral rates per 100 students: School B.

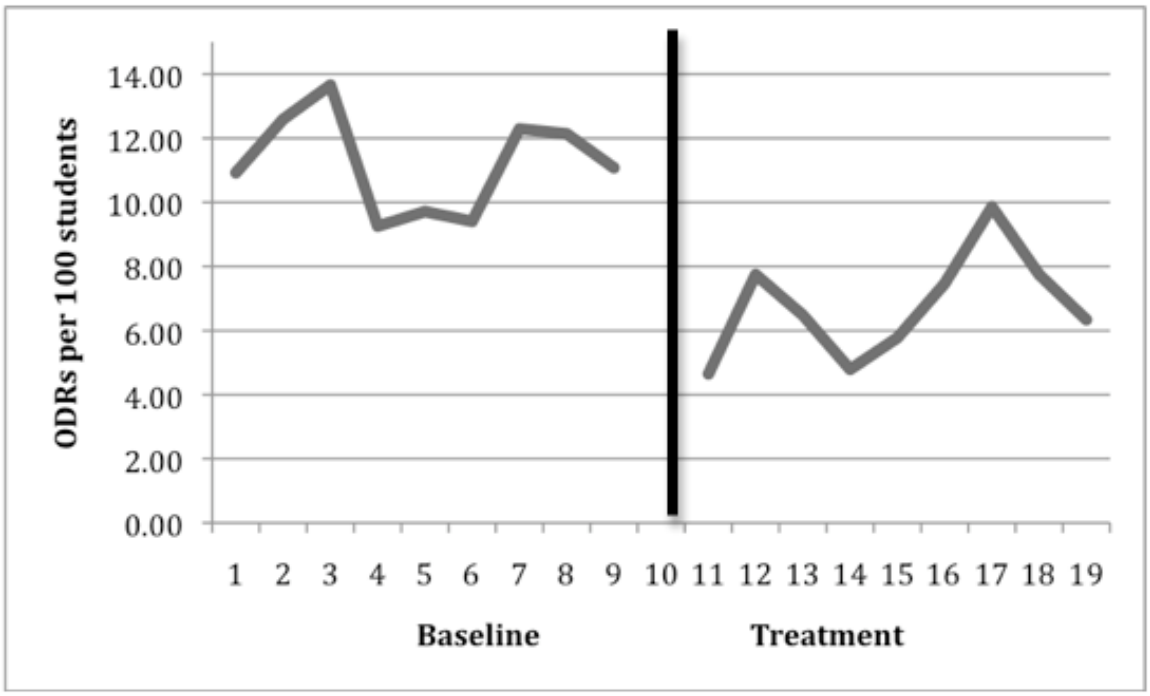

Figure 19. Office disciplinary referral rates per 100 students: School C.

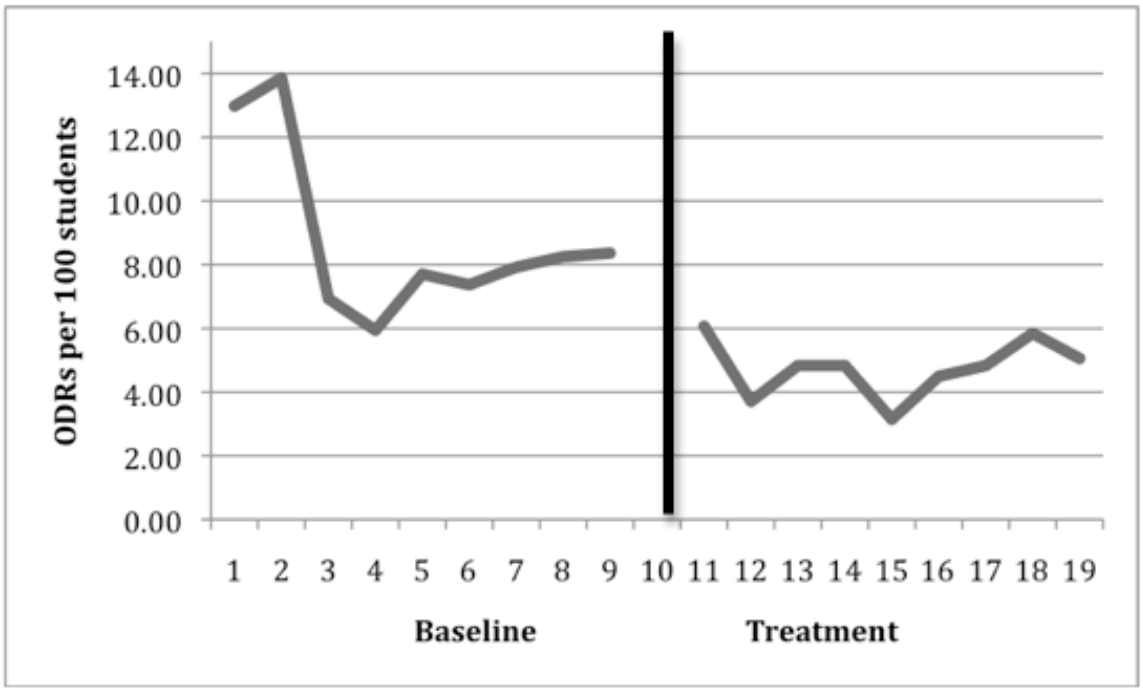

Figure 20. Office disciplinary referral rates per 100 students: School D.

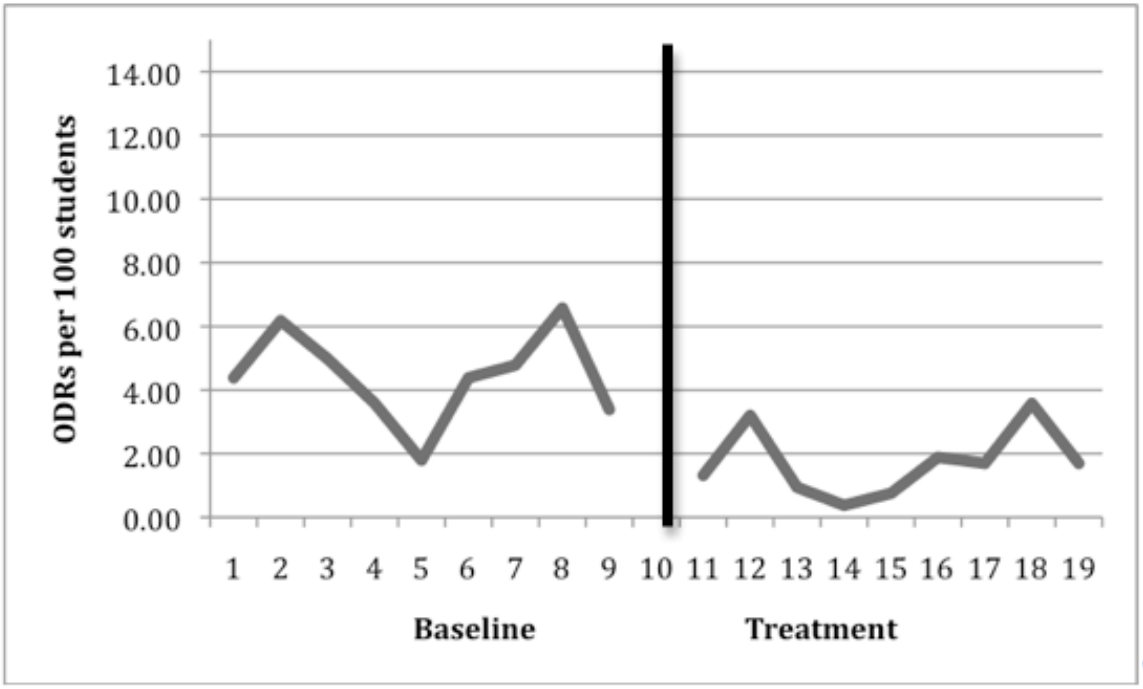

Figure 21. Office disciplinary referral rates per 100 students: School E.

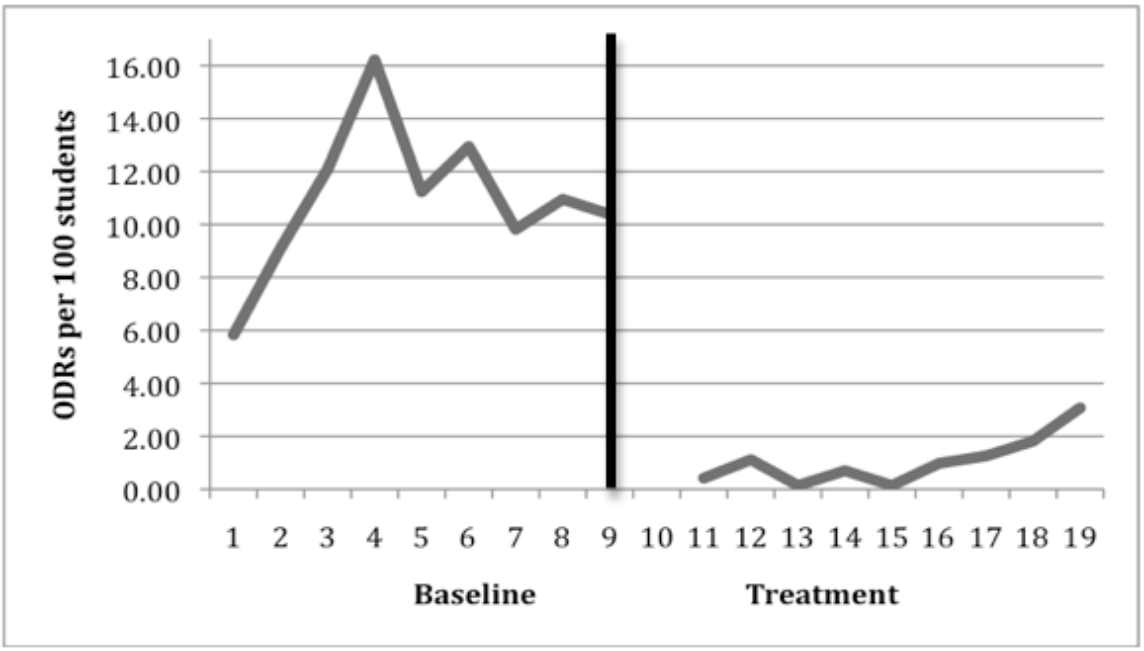

Figure 22. Office disciplinary referral rates per 100 students: School F.

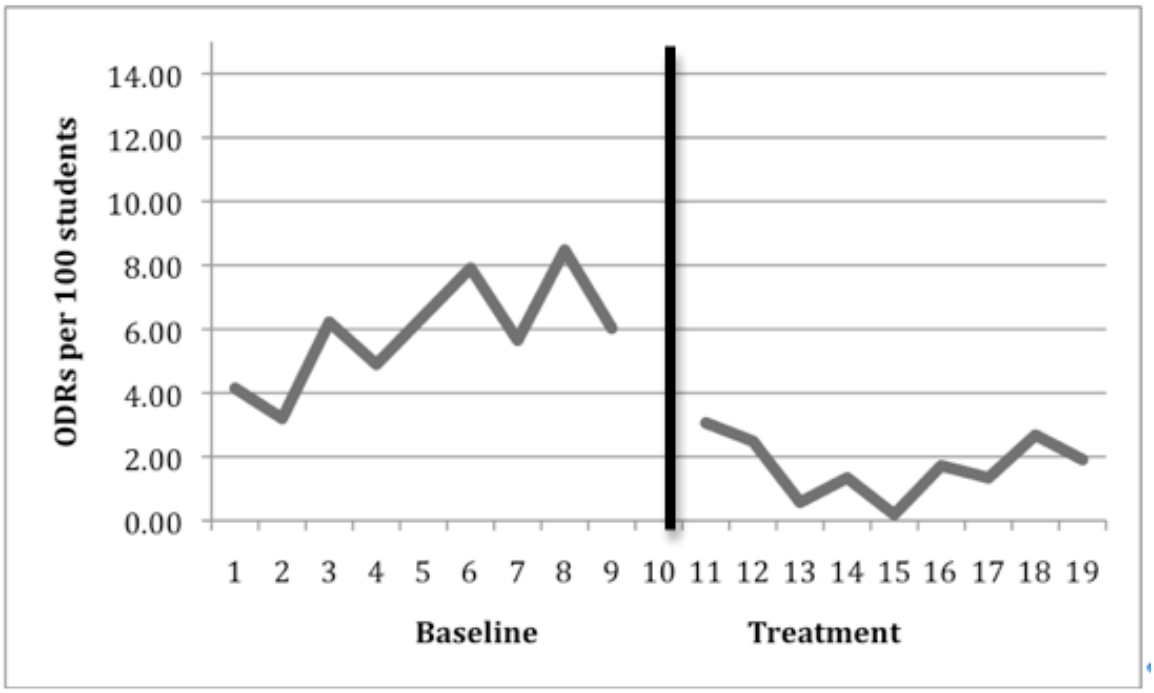

Figure 23. Office disciplinary referral rates per 100 students: School G.

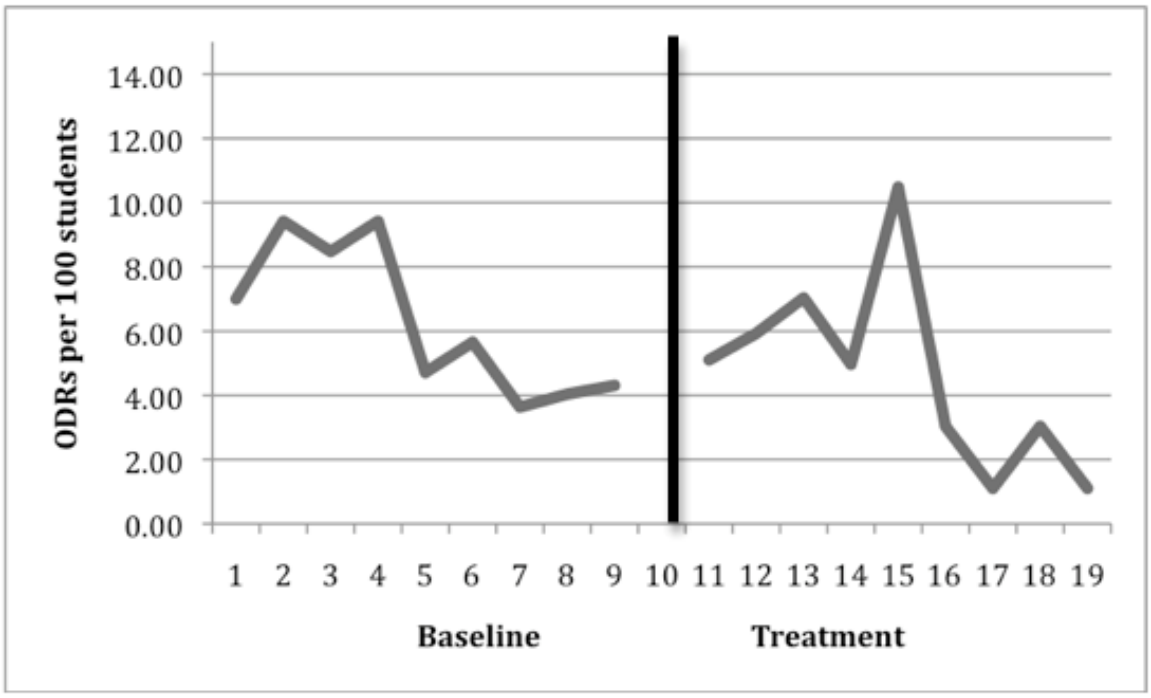

Figure 24. Office disciplinary referral rates per 100 students: School H.

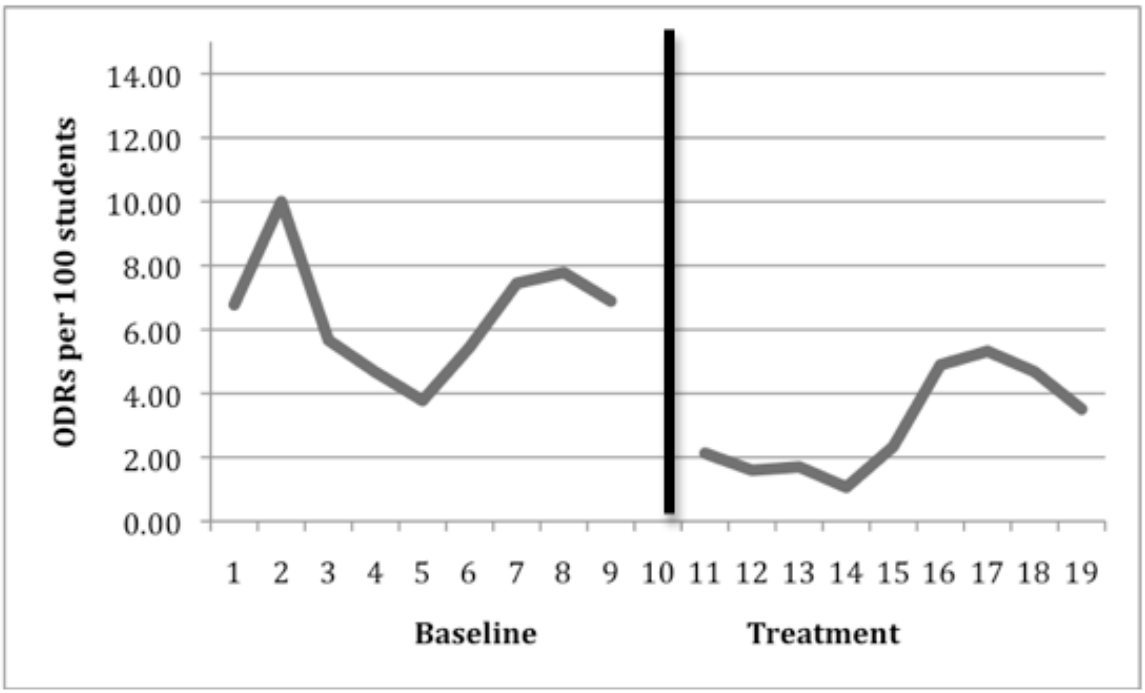

Figure 25. Office disciplinary referral rates per 100 students: School I.

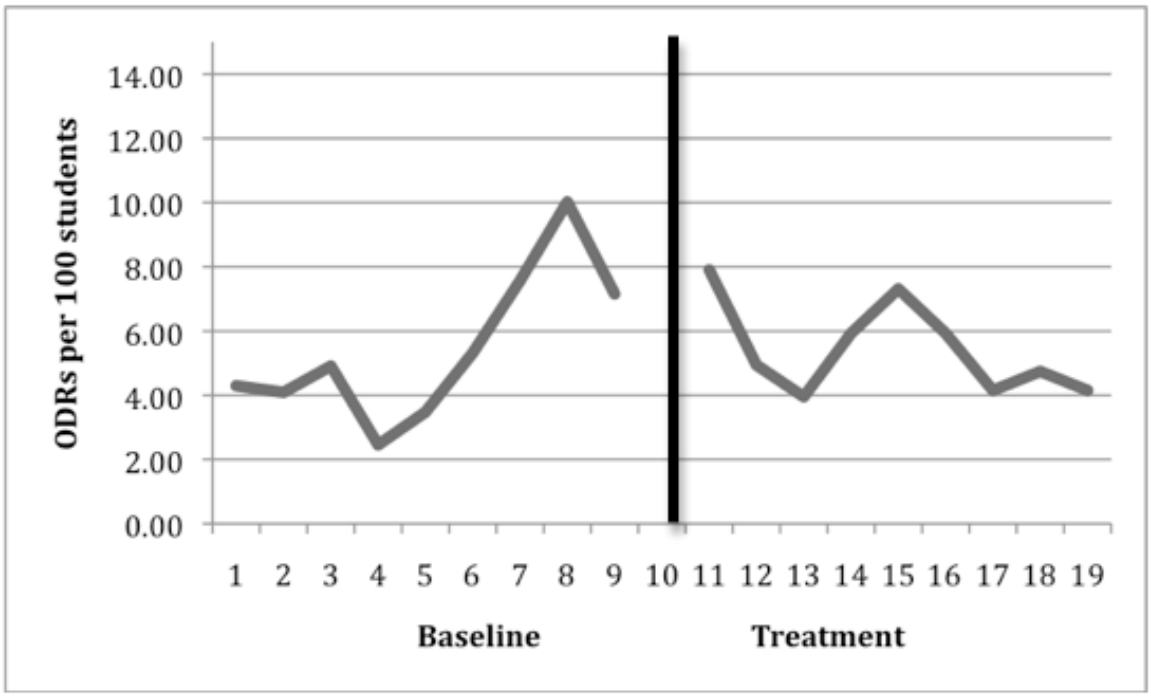

Figure 26. Office disciplinary referral rates per 100 students: School J.

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