A CASE STUDY OF FIRST YEAR IMPLIMENTATION OF POSITIVE
BEHAVIORAL INTERVENTIONS AND SUPPORTS IN A HIGH SCHOOL

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Disciplinary infractions are a major problem for American public schools. The traditional, punishment-based approach to this problem has proven ineffective. Positive Behavioral Interventions and Supports (PBIS) have shown to be an effective alternative to manage student behavior. There is a large body of literature demonstrating PBIS's efficacy. Often, the positive effects can be observed within one year of implementation. However, very little research examining the demographic break down of these effects within individual schools has been conducted, especially at the high school level. This study examined discipline referral data for one high school in western North Carolina. Results indicated that the PBIS intervention significantly lowered the number of discipline referrals for students. A significant interaction effect was also found between PBIS implementation and ethnicity (White, Black, Hispanic, and Other). Implications, and limitations of the study, as well future directions for research are discussed.

CHAPTER 1: INTRODUCTION

Student "acting out" (i.e. disruptive and inappropriate behavior) can be a major problem for school systems. While levels of overt violence in public schools have been stable since the early seventies, more moderate forms of behavioral problems, such as aggressive, disruptive and anti-social behaviors, as well as insubordination, have been on the rise (Barrett, Bradshaw, & Lewis-Palmer, 2008; Muscott, et al., 2004). This has put a strain on schools, requiring more special education services for children who exhibit these behaviors (Barrett, et al., 2008). These problems are not merely contained within public schools, but also extend into society at large. The Surgeon General's 2001 report to congress stated that while juvenile homicide has decreased in recent years, the rate of other less severe anti-social crimes has increased (U.S. Department of Health and Human Services, 2001). The increase in delinquency has led to an increased need for school services and a need for changes in policy regarding how best to address school aged children and adolescents' behavioral problems.

The traditional approach to this problem has been the use of discipline referrals and disciplinary actions, such as verbal warnings, removal from class, detention, as well as both in and out of school suspensions. However this has been shown to be relatively ineffective, leading to repeat offenses, which often increase in severity (Lewis & Garrison-Harrell, 1999; Lewis & Sugai, 1999; Turnbull et al., 2002). In fact, an overwhelming number of all students (over 60%) have been suspended or expelled at least once between 7th and 12th grade (Fabelo, et al., 2011). In addition, school suspensions and expulsions, especially multiple ones, are correlated with grade

retentions, dropping out, and contact with the juvenile justice system (Fabelo, et al., 2011). There is no evidence to suggest that the removal of students from school adds to school safety. On the contrary, it may actually contribute to deviant behaviors by placing already at-risk students into situations with less supervision and more exposure to delinquent peers than if they were to remain in school, while simultaneously increasing negative emotions, such as frustration, fear, anger, and shame (Bear, 2010; National Association of School Psychologists, 2008). Suspension also deprives students of access to education, which gives rise to legal and ethical issues, especially for students with disabilities (National Association of School Psychologists, 2008). In addition, punishment-based policies have disproportionally impacted students from minority backgrounds (Bear, 2010; National Association of School Psychologists, 2008). However, documented negative outcomes associated with punishment-based policies, each year over 3 million students are suspended from school (Planty et al., 2009).

It is clear that disciplinary policies have a large impact. They can often negatively affect school climate and thereby impede students' feelings of school connectedness (Bear, 2010; Hyman & Perone, 1998). A school's atmosphere can go a long way in influencing student behavior. Overly harsh and unfair disciplinary practices can cause students to perceive school as hostile and even prison-like. This can lead to feelings of resentment and cause further disciplinary and behavioral problems, such as aggression, truancy, vandalism and even school dropout (Bear, 2010; Mayer & Leone, 1999; Ruef, Higgins, Glaeser, & Patnode, 1998).

Traditional, punishment-based disciplinary measures will surely always be needed in schools. There will always be behavioral and disciplinary problems within schools

that are at a level necessary to require punitive action. Students who are endangering themselves or others require immediate intervention in order to remove them from a position in which they can harm themselves or others. Punishment can indeed be effective on an individual-case level (Bear, 2010). However, based on the shortcomings of punitive approaches outlined in the literature, it is clear that the implementation of new, evidenced-based practices that deal with problem behaviors on a school-wide policy level is necessary in order to effectively address the growing discipline problem in American public schools. (Conroy, Dunlap, Clarke & Alter, 2005; National Association of School Psychologists, 2008).

CHAPTER 2: LITERATURE REVIEW

Positive Behavioral Interventions and Supports (PBIS)

Positive Behavioral Interventions and Supports (PBIS) have been shown to be an effective and less harmful alternative to punitive approaches to disciplinary problems (National Association of School Psychologists, 2008; Safran, & Oswald, 2003; Ruef, et al., 1998). PBIS entails utilizing data-based positive behavioral reinforcement, support and interventions in lieu of traditional disciplinary action (Turnbull et al., 2002). As opposed to traditional disciplinary approaches, which only address problems after they have occurred, the aim of PBIS is prevention. It alters the factors in the environment that are contingent to problem behaviors while simultaneously teaching appropriate conduct (Conroy, et al., 2005; OSEP Technical Assistance Center on Positive Behavior Interventions and Supports, 2009b; Safran, & Oswald, 2003).

PBIS also incorporates teacher-driven data collection in order to help teachers see the functions of students' behaviors. The basis for this approach is that when teachers understand the triggers and outcomes of student behaviors, the triggers can be removed or reframed, thus altering the outcome. A negative behavior can be shaped into a positive one with a similar or alternative outcome (i.e. positive attention instead of negative attention). In addition, when students become aware of the functions of their own anti-social behaviors they can come to appreciate the reasons behind the need for alternative behaviors and their links to better outcomes, and therefore be more likely to act appropriately (OSEP Technical Assistance Center on Positive Behavior Interventions and Supports, 2009b; Ruef, et al., 1998).

PBIS and Response to Intervention (RTI)

PBIS utilizes school wide policy change, backed by data-based interventions and

student functional assessment information in order to affect student behavior and school

environment. It also employs progress monitoring to ensure that these methods are

working (Conroy, et al., 2005; OSEP Technical Assistance Center on Positive Behavior

Interventions and Supports, 2009b; Sheers, 2010). These interventions can be

incorporated into a 3-tiered Response To Intervention (RTI) model, which targets all

students through school-wide policy change, as well as at risk groups and individuals

through targeted interventions (Johns, Patrick & Rutherford, 2008; OSEP Technical

Assistance Center on Positive Behavior Interventions and Supports, 2009b). For PBIS to

succeed, a fundamental change in perspective must occur. The problem must be seen as

an interaction between the environment and a child with skill deficiencies and poor

resiliency to stressors, rather than simply as an individual's choice (McKevitt &

Braaksma, 2008; Ruef, et al., 1998; Sugai, Horner, & McIntosh, 2008). This is because,

in order to effectively change behavior, environmental contingencies such must be

targeted. For example, a child may struggle to behave appropriately because they lack

social and interpersonal skills, have difficulty with inhibiting responses, have poor anger

management strategies, lack appropriate coping mechanisms, are performing at a

frustrational level academically, are not able to fully access the curriculum, are not able

to grasp a particular teacher's instructional style, or have a personality clash with a

teacher. When children are seen as the sole cause of their behavior and punished, they are

typically only told what not to do (e.g. are told to "stop"), not how to change their

behavior. This is problematic, because punishment does not provide children with the

skills to inhibit responses to environmental cues or alternative positive behaviors, which

the child can perform (Bear, 2010). RTI attempts to achieve the change in perspective

mentioned above by using a tiered framework to alter the school environment and

customize it to the needs of subsets within school populations (Johns, et al., 2008; OSEP

Technical Assistance Center on Positive Behavior Interventions and Supports, 2009b).

Under PBIS, teachers are trained to collect and analyze data related to student behavior in

the classroom, and then to use these data to choose and implement research and evidence

based interventions (OSEP Technical Assistance Center on Positive Behavior

Interventions and Supports, 2009b). RTI is a powerful delivery system for these

interventions within school systems and PBIS most often utilizes the RTI framework. In

RTI, behavioral difficulties and interventions are conceptualized as being on a

continuum, which allows for customization of services to at-risk groups, as well as

individual students (Johns, et al., 2008; OSEP Technical Assistance Center on Positive

Behavior Interventions and Supports, 2009b).

At Tier I of RTI, the school-wide level (85-95% of students), PBIS utilizes

character education (i.e. skills training and development of prosocial behaviors) to instill

positive values and attributes into students, coupled with positive reinforcement, such as

praise and use of token economies, to strengthen and support these values (National

Association of State Directors of Special Education, 2008). The teaching of these skills

and values allows children to have the capacity to meet behavioral expectations. At the

beginning of each school year, these expectations must be defined and taught to make

this a clear and meaningful process (Bear, 2010; Eber, Sugai, Smith, & Scott, 2002;

Netzel & Eber, 2003; OSEP Technical Assistance Center on Positive Behavior

Interventions and Supports, 2009a; Ruef, et al., 1998;).

At Tier II of RTI, at-risk students (5-15% of students), universal screenings as

well as discipline referral data can be used to identify students who have greater needs

than the general population (McKevitt & Braaksma, 2008; OSEP Technical Assistance

Center on Positive Behavior Interventions and Supports, 2009a;). The techniques above

can be fine tuned to better fit specific subgroups, such as those with specific cultural

backgrounds, as well as groups with common risk factors and behaviors (e.g. students

with mental health disorders, poor social skills, or poor academic performance). In

addition, home and school communication can be increased. The rules can also be gone

over to ensure that the problem is not one of communication. In addition, curriculum and

instruction can be adjusted to increase student engagement and motivation (OSEP

Technical Assistance Center on Positive Behavior Interventions and Supports, 2009a;

Ruef, et al., 1998). Students can also be given behavioral instruction, as well as taught

self-management skills (Knoff, 2008). This can be coupled with more intensive

reinforcement that is then faded out so that students come to internalize the motivations

for good behavior, as opposed to good behavior solely for the reward (Conroy, et al.,

2005; Ruef, et al., 1998).

Tier III of RTI targets individual students (1-7% of students). At this level, the

same principles from the previous two tiers can be reapplied to address students' needs

on a one-on-one basis. This allows for further customization so that a student's unique

needs can be met (Ruef, et al., 1998; Turnbull et al., 2002). In addition, parental

involvement at this level has been shown to be key for success in targeting problem

behaviors in students whose behavioral problems transcend multiple settings (Netzel & Eber, 2003; Eber, et al., 2002; Johns, et al., 2008). Parent conferences, correspondence, and participation in intervention increase the likelihood of positive outcomes (Netzel & Eber, 2003). The continuation of PBIS practices at home adds a level of consistency that is very important for impacting lasting changes in behavior (Netzel & Eber, 2003; Eber, et al., 2002; Johns, et al., 2008).

Efficacy of PBIS

This kind of positive, proactive, whole-school approach has been shown to be much more effective than discipline-based approaches, which focus on individual students on a case-by-case basis (McColley, 2010; Netzel & Eber, 2003). For example, schools who score higher on school engagement measures tend to have lower occurrences of discipline problems (McColley, 2010). There is an extensive amount of research that shows the efficacy of PBIS (Conroy, et al., 2005; OSEP Center of Positive Behavioral Interventions and support, 2009a). It has been shown to reduce the number of office discipline referrals by 20-60%, while simultaneously increasing student engaged time and academic performance (Cohn, 2001).

Efficacy of PBIS with discipline problems. PBIS is applicable over a wide range of cases. It has been shown to be effective with students with relatively minor behavioral problems, such as tardiness swearing and dress code violations, as well as with more severe disciplinary problems, such as bullying, vandalism, destruction of property, fighting and drug use (Carr, et al., 1999; Conroy, et al., 2005; National Center for Mental Health Promotion and Youth Violence Prevention, n.d.). PBIS has shown to be effective with students with severe behavioral and emotional problems, as well as

those with pervasive developmental disabilities (Carr, et al., 1999; Conroy, et al., 2005).

It is also effective in a wide range of settings, including both general and special

education classrooms, alternative schools, home settings, and clinics (Carr, et al., 1999;

Conroy, et al., 2005; Tobin, 2006). PBIS has been used to decrease destructive, disruptive

and stereotyped behaviors in students across a wide range of performance and ability, and

across settings (Conroy, et al., 2005)

In addition to decreasing problem behaviors in these students, PBIS has been

shown to have long lasting effects on lifestyle, such as increases in functional

communication skills, specific skill performance, psychosocial skills, self-monitoring,

social interaction and school engagement (Cohn, 2001; Conroy, et al., 2005). The current

literature indicates that it is successful for about one-half to two-thirds of all cases, and

that success rates almost double when the interventions developed under PBIS are based

on prior functional behavioral assessments (Carr, et al., 1999). In about half of all

studies, problem behaviors were reduced by 90%, and in 26% of studies, the targeted

problem behavior ceased completely (Cohn, 2001).

Efficacy of PBIS with improvements in academic achievement. PBIS has also

been shown to have farther-reaching effects than just the reduction of problem behaviors.

Students with high numbers of office discipline referrals typically have low academic

performance, and by extension, schools with widespread disciplinary problems have poor

academic achievement and low standardized test scores overall (Irwin, Tobin, Sprague,

Sugai, & Vincent, 2004; Putnam, Horner, & Algozzine, 2006). Students who exhibit

behaviors such as fighting, harassing and threatening violence, as well as certain types of

nonviolent misbehavior, have been shown to have significantly lower GPA's as well as

higher frequencies of academic deficits than well-behaved students (Irwin, et al., 2004; Putnam, Horner, & Algozzine, 2006). Out of school suspensions resulting from disciplinary infractions also hinder academic performance by removing children from the school environment. This in turn decreases instructional time, and makes necessitates students to fill in gaps in curriculum when they return to school (Irwin, et al., 2004). As expected, decreases in problem behaviors also result in increased academic performance. Seventy-three percent of schools that implemented PBIS saw improvements in math achievement scores, and 41% of schools saw improvements in reading achievement, although this number was higher (60%) for middle schools (Muscott, Mann, & LeBrun, 2008). In addition, there is evidence to suggest that PBIS increases standardized test scores (Putnam, Horner, & Algozzine, 2006).

Some of this increase in academic achievement may result from PBIS allowing for better time management within the classroom. Under PBIS, teachers have been shown to have increased instructional time, due to less time spent disciplining students. Fewer distractions from students with disruptive behaviors can increase academic engaged time for all students. This translates into increased reading, language and math performance and test scores for students (Barrett & Scott, 2006; Putnam, Horner, & Algozzine, 2006).

In addition, PBIS has been shown to increase students' sense of community within the schools, and school climate in general. This increase in student perception of the schools may contribute to less delinquent behavior, due to heightened sense of community, as well as higher levels of student engagement, accounting for improvements in academic achievement (Conroy, et al. 2005; Irwin, et al., 2004; Sheers, 2010).

Efficacy of PBIS with specific subgroups. Although there is much literature on the overall effects of PBIS on school populations, there is relatively little data on how different demographic groups within these populations respond to the intervention. The majority of studies report the demographic information of their samples descriptively (i.e. list means), if at all, and do not examine the differences among these groups using statistical analysis. In addition, most studies focus on single schools, from which detailed demographic information is hard to extrapolate even when it is reported (Conroy, et al, 2005; Carr, et al., 1999). This information is important for schools that implement PBIS to collect and analyze to insure that all students benefit from the intervention. This is especially important given the fact that there is a multitude of evidence demonstrating inequality in the way discipline referrals are handed out across socioeconomic status (SES), ethnicity, and gender (Fabelo, et al., 2011; Kaufman, et al., 2010; Skiba, et al., 2011; Skiba, Michael, Nardo, & Peterson, 2002; Townsend, 2000; Vincent, Cartledge, May, & Tobin, 2009; Wallace, Goodkind, Wallace, & Bachman, 2008). In addition, though there is little literature to show this, it is likely that schools' PBIS initiatives do not affect all types of discipline problems equally, but rather have greater impact on some types of behavior than others. Some behavior problems are more salient and externalized (e.g., fighting or vandalism, insubordination, disrespectfulness), and therefore easier to target for intervention, when compared to more covert (e.g. being off task, drug use). In addition, some behaviors are more related to environmental contingencies than others and therefore more easily addressed with behavioral techniques.

Socioeconomic status (SES) differences. Students from low socioeconomic status (SES) backgrounds receive disproportionate amounts of disciplinary actions within

American public schools. For example, it has been shown that those who receive free and reduced price lunches are at higher risk for school suspension (Skiba, et al., 2002; Townsend, 2000). This is also true of students whose fathers are unemployed (Skiba, et al., 2002).

Overall, there is very little difference in the effect of PBIS between schools with low average SES students and schools with high average SES students (as measured by percent of students who receive free and reduced price lunch) (Frank, Horner, & Anderson, 2009). In fact, in one study that looked at 890 schools that implemented PBIS within 299 districts, across 20 states, low SES schools were found to perform slightly better than high SES schools, with 59% of high SES schools achieving their goal of lowering discipline referrals within the first year of implementation, versus 61% of low SES schools (Frank, Horner, & Anderson, 2009). In this study there were 606 elementary schools, 205 middle schools, 73 high schools, and 6 non-traditional grade level schools" (Frank, Horner, & Anderson, 2009, p. 2). It should be noted that the aforementioned study only compares differences between schools. To date, no research has been conducted comparing low and high SES students within a school.

Ethnic differences. Unfortunately, ethnicity and SES are highly related in American society. Often problems associated with ethnic and cultural differences overlap with differences in SES due to the disproportionate amount of ethnic minorities than live in poverty (Skiba, et al., 2011). This can make it difficult to tease out the effects that interventions such as PBIS have on different ethnic groups versus on people from different social strata. However, even when SES is accounted for, there is a trend within the public school system towards minority students receiving disproportionately high

amounts of discipline referrals (Skiba, et al., 2011; Townsend, 2000; Wallace, et al., 2008).   This is especially problematic for African American students, who typically receive twice as many office referrals as their Caucasian peers (Fabelo, et al., 2011; Kaufman, et al., 2010; Vincent, et al., 2009). Hispanic students are also disproportionately represented, with nearly one third more disciplinary violations than Caucasian students (Fabelo, et al., 2011). In addition, they are more likely to receive corporal punishment, and to be expelled from school, despite having no more disciplinary infractions than their Caucasian peers (Kaufman, et al., 2010; Skiba, et al., 2011; Skiba, et al., 2002).

The racial diversity within a school (as measured by percentage of minority students enrolled) has been shown to be related to its success in achieving the goal of lowering discipline referrals within the first year of implementation (Frank, et al., 2009). However, this relationship is not linear, with schools with medium levels of minority enrollment having the greatest likelihood of reducing disciplinary problems (70%) compared to low and high minority enrollment (Frank, et al., 2009).   In addition, despite minority students, especially African Americans, receiving a disproportionately high number of discipline referrals within school systems, they have not been shown to differ significantly from their Caucasian peers in response to PBIS. Instead, reductions in referrals seem to be proportionate across ethnicities (Frank, et al., 2009; Vincent, et al., 2009). However, due to discrepancies in assignment of discipline referrals across ethnicity, care should be taken to ensure that culturally relevant skills training and reinforcements are available for all ethnicities within a school when implementing PBIS.

Gender differences. While reported percentages vary, there is a clear trend that boys receive more discipline referrals than girls (Fabelo, et al., 2011; Kaufman, et al., 2010; Skiba, Peterson, & Williams, 1997; Skiba, et al., 2002; Wright, & Dusek, 1998). However, it is not clear if this is due to boys exhibiting a higher frequency of aggressive behaviors, or because boys tend to show more overt, physically aggressive behaviors, which are easier to identify than more covert relational aggression exhibited by girls (Kaufman, et al., 2010). In addition, the types of discipline handed out to boys and girls tend to differ. Boys tend to be punished more severely than girls, and are more likely to receive suspensions and corporal punishment (Shaw & Braden, 1990; Skiba, et al., 2002). Despite these discrepancies, it appears that both males and females respond about equally well to PBIS (Kaufman, et al., 2010; Vincent, et al., 2009). That gender differences exist, though, is cause for customization of procedures for boys and girls (such as targeting different behaviors for intervention and use of different reinforcers), as well as careful monitoring of within school trends when implementing PBIS.

Efficacy of PBIS with types of discipline problems. As mentioned above, PBIS has been shown to be effective for a variety of different behavioral concerns, resulting in lower frequencies of office discipline referrals and suspensions (Luiselli, Putnam, handler, & Feinberg, 2005). However, virtually no research has been done comparing how different types of discipline problems are impacted by PBIS implementation. Schools incur different discipline problems at different rates, with attendance and tardiness problems typically being the most common and anti-social behaviors such as vandalism and fighting typically being the least common (Kaufman, et al., 2010). While PBIS initiatives have been shown to be effective overall, the question of how different

types of discipline problems are affected comparatively by a school-wide approach has yet to be answered.

Limitations of PBIS

PBIS is a rigorous and time-intensive process. Efficacy of intervention can be limited by difficulties that occur at different stages in the process. PBIS requires extensive planning, effort to create stakeholder buy-in, and training of school faculty and personnel. Difficulties in any one of these areas can lead to ineffective implementation (Sugai, 2008; Tobin, 2006; Tobin, 2007). For example, one study found that teachers and administrators often disagree about what areas of intervention are the highest priority targets for improvement (Tobin, 2007).

In addition, proper implementation of PBIS requires thorough and continuous data collection and analysis. Tobin (2007) found that schools that used the School Wide Information System (SWIS) data analysis software package had higher implementation scores on school-wide, classroom, and non-classroom, features of intervention, as measured by the Staff Self-Assessment Survey of Positive Behavior Support. However, both schools that used SWIS and those that did not use SWIS were found lacking when it came to addressing problem behaviors of individual students (Tobin, 2007). This suggests that a school's ability to utilize data-based decision making, and thereby increase fidelity of intervention, depends upon a school's access to and use of resources such as SWIS. It also suggests that the efficacy of PBIS with intensive Tier III interventions, designed to improve behavior of individual students, may be limited (Tobin, 2007).

The research is also mixed regarding the effect of extrinsic rewards, which are key components of PBIS, on intrinsic motivation (Bear, 2010; Henderlong & Lepper, 2002). Some research suggests that tangible rewards (though not praise) can negatively impact intrinsic motivation, and thereby negatively impact student performance. However, this effect depends on the student's attributions about their behavior (Bear, 2010; Deci, Koestner & Ryan, 1999; Deci, Koestner & Ryan, 2001; Henderlong & Lepper, 2002). For example, children can learn that external attributions about behavior, such as "I behaved that way to earn the reward," can also be interpreted as indications of personal success, such as "I was successful in earning rewards." (Bear, 2010, p. 112). In addition, student's intrinsic motivation can also be lowered when they make social comparisons regarding their level of reinforcement versus that of other students. However social comparisons were found to be detrimental to motivation regardless of whether or not extrinsic motivation was utilized (Bear, 2010; Deci, et al., 1999; Deci, at al., 2001; Henderlong & Lepper, 2002).

Research also indicates that the desirability of the motivator is much more important than the frequency on its ability to change behavior (Bear, 2010). This suggests that educators need to use the behavioral techniques involved in PBIS strategically and determine what reinforcers might be most motivating within their classroom and to individual students (Bear, 2010). It should also be noted that punishment may hurt intrinsic motivation, causing children to comply out of avoidance or fear of punishment rather than out of enthusiasm to behave (Dev, 1997; Henderlong & Lepper, 2002).

PBIS in High Schools

While a good deal of research has examined use and efficacy of PBIS at elementary and middle school levels, few studies have examined PBIS at the high school level (Bohanon-Edmonson, Flannery, Eber, & Sugai, 2005; Tobin, 2006). However, a developmental framework suggests that different types of behavioral problems occur at different ages due to different developmental milestones. For example, adolescents appear to commit more serious and sometimes criminal offenses such as theft and vandalism, as well as demonstrate increased conflict with adults, than do younger children. This may be due to some adolescents not yet developing more complex ideas about honesty, respect for property, autonomy, or fully grasping the consequences of deviant behavior (Kaufman, et al., 2010).

A developmental perspective for behavioral interventions such as PBIS implies that different practices (i.e. different rewards, types of praise, etc.) designed to target different behaviors should be used with children in different grades, due to differences in development (Bohanon-Edmonson, et al., 2005; Kaufman, et al., 2010; McIntosh, et al., 2008). High schools also differ from elementary and middle schools in terms of organizational structure and both academic and behavioral expectations. This suggests that PBIS at the high school level most be conducted differently than at either the elementary or middle school levels (Bohanon-Edmonson, et al., 2005).

An exploratory study of PBIS in high schools by Tobin (2006) found that PBIS is being conducted in high schools as well as alternative high schools in both rural and urban settings. These schools typically utilize tools and technology such as the Team Implementation Checklist (TIC) and SWIS. Despite PBIS implementation, these high

schools continued to experience high levels of disciplinary problems and continued to utilize traditional, punitive measures such as in and out of school suspension. Additionally, implementation was a slow process in these high schools. It was typically implemented incrementally, with additional components being added yearly (Tobin, 2006).

The First Year of PBIS Implementation

Along with its wide reach, PBIS has taken off, in part, because of the immediacy of its effect. More than 60% of schools meet their goals to reduce discipline referrals within one year of implementation (Frank, et al., 2009). Many schools have even met their goals within the first 3 months of implementation (Muscott, Mann, & Leburn, 2008). Implementing a PBIS program requires much planning, preparation, and change. This can be daunting for school administrators, and cause resistance in teachers and students alike. The beginning of any new program is generally seen as a trial period, and the quality of implementation within this window can make or break it by framing how it is seen by school personnel (Taylor-Greene, et al., 1997). The success and desire to continue such a program may well hinge on the effectiveness of its implementation the first year. No longitudinal studies have been conducted to examine the duration of effect. However, for individual schools to ensure continued positive impact of PBIS, it is important to monitor progress over time so that difficulties (i.e.. changes in effect due to changing student populations, new school personnel, change in power of reinforces due to changes in culture, etc.) can be identified and examined independently of the overall framework of PBIS, allowing changes to be made and keeping support for the program high.

CHAPTER 3: STATEMENT OF THE PROBLEM

Discipline problems are major sources of difficulty for school systems and can hinder the learning process by creating disruptions. The traditional approach to these problems has been to use punitive measures. However, these measures divert time that could be used for instruction into time spent disciplining and can alienate students (Luiselli, et al., 2005; National Association of School Psychologists, 2008). PBIS is a positive and effective alternative to the traditional approach to discipline (Bear, 2010).

Educators use PBIS as a means to analyze the environment in which problem behaviors occur. It identifies the contingencies as well as the functions of these behaviors, rather than placing blame on the child. Once these factors are found, students can be taught coping skills, and alternative behaviors can be modeled (Bear, 2010). It has been shown to be effective for a wide range of behavioral issues, and to positively impact academic achievement as well. Much of this effect is immediate, and schools typically see positive effects after only one year (Frank, et al., 2009; National Association of School Psychologists, 2008; Safran, & Oswald, 2003).

However, despite much research done on PBIS, there is little comparative demographic information available. The vast majority of studies either only examine overall effects on the number of discipline referrals for an entire school, or target one demographic group and do not compare their sample's response to a larger, more inclusive population (Conroy, et al, 2005; Carr, et al., 1999). Because PBIS focuses primarily on the interaction of internal and external causes of behavior, it should be customizable to different settings, and types of problems. In order to do this,

demographic differences as well as different types of problem behaviors need to be considered. Schools could utilize this type of information to customize their own PBIS approaches in order to best serve their own unique populations.

The purpose of this study was to examine one high school's response to PBIS during the first year of implementation, in order to aid that school in the decision-making process, and help the school personnel identify areas that may require fine-tuning. The researcher did this by analyzing how different demographic groups (White, African American, Hispanic, and Other) responded to the intervention, and by identifying how different types of problem behaviors were impacted. In the process, this study added to the still scarce literature on this topic. The purpose of this study was to answer the following questions: (1) Was the school that was the subject of the study successful in significantly reducing the total number of their discipline referrals during the first year of implementation? (2) Was the PBIS intervention equally as effective across all ethnicities (White, African American, Hispanic, and Other)?

CHAPTER 4: METHODS

Participants

This study utilized student archival data from a high school in western North Carolina. The school is located in a low-income suburban district, just outside the city limits. It has a unique and diverse population of approximately 1250 students from 27 different countries of origin. The school has a large numbers of first and second-generation Slavic immigrants, African American students, and Hispanic students. This diversity, coupled with a high number of low SES students, has lead to conflict and an abundance of disciplinary issues (An Assistant Principal at Participant School, personal communication, June 27, 2011). This school has a substantial dropout problem, with an average of 84 dropouts per year between 2005 and 2010. The percent of students receiving free or reduced price lunch in 2010 was 58.2%, and the average percentage for the past five years was 52.73%. In 2006 and 2007, 28% and 26% of 9th graders respectively, were retained. The average number of suspensions per year (both in and out of school) between 2006 and 2009 was 1208, and in 2006 and 2007 the total number of suspensions exceeded total enrollment (An Assistant Principal at Participant School, 2011).

For the purposes of this study, 9th and 12th graders were excluded from the data analysis. This was done because the data were drawn from two different years, meaning that 12th graders in the year prior to intervention did not receive the intervention, and 9th graders during the first year of intervention did not attend the school during the previous year. Therefore, these two groups were not involved in both pre- and post-measures, and

were excluded from the study. After these adjustments were made, the study examined

the effect of the first year of PBIS intervention on a total of 560 students in the 10th and

11th grades.

The school utilized the School Wide Information System (SWIS) (a data analysis

software package designed to examine school-wide discipline referrals) to collect data.

SWIS allows for ethnicity to be coded under eight categories (White, Black/African

American, Hispanic/Latino, Asian, American Indian/Native American, Hawaiian/Pacific

Islander, Multi-Racial, and Not Listed). However, due to a limited number of cases,

American Indian/Native American, Hawaiian/Pacific Islander, Multi-Racial, and Not

Listed were collapsed into a single variable labeled "other" so that the effect of

intervention for these groups could be measured meaningfully.

Materials

Data were be collected through the use of archival data previously collected by

the High School using the School-Wide Information System (SWIS) software package:

> SWIS is a web-based information system used to improve the behavior support in
>
> elementary, middle and high schools… School personnel collect ongoing
>
> information about discipline events in their school, and enter this information
>
> through a protected, web-based application. SWIS provides summaries of this
>
> information for use in the design of effective behavior support for individual
>
> students, groups of students, or the whole student body (May, et al., 2000, p. 4).

Procedures

This study was developed under the supervision and guidance of the school's

assistant principal. He brought the research proposal to the principal and the Co-Chair of

its PBIS Implementation Team at the school. They both gave their approval for the proposed study. Under the direction of the assistant principal, a letter of permission was drafted to the Associate Superintendent of Curriculum and Instruction of the school district. She also gave her approval to conduct this study. All identifying information was removed from the SWIS data prior to being viewed by the researcher, insuring anonymity of all students within the school.

Though the high school in this study does not utilize a Response to Intervention (RTI) process, their PBIS program used a three-tiered approach. Tier I consisted of "general curriculum enhanced by acknowledgments of positive behaviors, and clearly stated expectations that are applied to all students," (An Assistant Principal at Participant School & PBIS Coordinator at Participant school, 2011). This included clearly establishing classroom rules, positive supports, reinforcement of appropriate behaviors, "bully proofing," as well as the use of seat changes, time outs (both in and out of the classroom) and parent-teacher conferences (An Assistant Principal at Participant School & PBIS Coordinator at Participant school, 2011). Tier II focused on "specific interventions for students who do not respond to universal efforts, targeting groups of students who require more support, and interventions that are part of a continuum of behavioral supports needed at the school" (An Assistant Principal at Participant School & PBIS Coordinator at Participant school, 2011). This included measures such as referrals to Student Support Services staff (i.e. the school psychologist, guidance counselor and/or social worker), referrals to social skills groups (i.e. anger management, conflict resolution, peer mediation), development of support plans for students, social/emotional counseling, mentoring, and parent groups (An Assistant Principal at Participant School &

PBIS Coordinator at Participant school, 2011). Tier III focused on "the needs of individual students who exhibit a pattern of problem behaviors, diminishing problem behaviors, and increasing the student's social skills and functioning…" (An Assistant Principal at Participant School & PBIS Coordinator at Participant school, 2011). It did this by employing multi-disciplinary, comprehensive assessments, such as Functional Behavioral Assessments (FBAs), behavioral contracts, Behavioral Intervention Plans (BIPs) and through collaboration with community resources, agencies and parenting groups (An Assistant Principal at Participant School & PBIS Coordinator at participant school, 2011).

In addition to the elements of intervention described above, the school also utilized specific reinforcers to garner an atmosphere of school spirit as well as to promote pro-social behaviors and generate increased motivation for academic achievement. One such incentive involved the collaboration of the participant school with a local drug recovery and rehabilitation agency. The school arranged for one of the agency's staff to be on school grounds four days per week. This staff member maintained a public Facebook though which students could earn rewards for prosocial behavior in order to generate school cohesiveness and spirit. For example, one such post might be, "The first 10 students to tell Mr. Teacher to have a good morning will get a free T-shirt."

After speaking with other high schools in the area, the PBIS team at the participant high school decided not to implement individual daily tokens, because other schools had reported a lack of results and difficulties in proper coordination and monitoring of token distribution. However, individual teachers were told that they could implement their own token economies in their classes if they so choose. However, only a

small minority of teachers did so. Teachers who chose to implement such token

economies typically used reinforcers such as allowing students to choose their own seats

and earn extra bathroom breaks. Use of food or candy was forbidden from being used as

a reinforcer due to a state law which states that food cannot be distributed in school prior

to lunch time so as not to interfere with cafeteria sales (PBIS Coordinator at participant

school, personal communication, January 20, 2012).

The school chose to implement school wide reinforcement in the form of the

"Triple A Card" ("AAA Card"). The three As stand for Achievement, Attendance, and

Attitude. The students were rated across these three criteria for consecutive 6-week

intervals throughout the school year. Earning the first A, Achievement (or academics),

meant that a student did not receive any failing grades during the 6-week period. Ds and

Cs were allowed. The school's rational for only prohibiting Fs stemmed from

observations and reports from other schools in which students were required to receive

As and Bs in order to earn the first A. The schools that were consulted reported that

students who put in effort but were unable to obtain higher grades became frustrated,

causing the intervention to have an aversive effect on these students. This was done so as

not penalize students with lower cognitive or academic ability. However, the school's

PBIS coordinator also acknowledged that this may still not be a completely fair system,

as one student might "slack off" and get a B, while another student might work diligently

to earn a C (PBIS Coordinator at participant school, personal communication, January 20,

2012).

The second A, Attendance, was earned when a student did not miss more than one

school day during the six-week period. This applied to both excused and unexcused

absences. The school does not have a timely way to check for and verify causes of absences, and therefore students were disqualified from earning the second A for missing 2 or more days of school during the 6-week time period (PBIS Coordinator at participant school, personal communication, January 20, 2012).

The third A, Attitude (or behavior), was earned when a student did not receive any major discipline referrals during the 6-week period. Minor referrals were teacher referred, and did not factor into whether or not a student earned the third A. For example, if a student was disrespectful, a teacher may choose to redirect the behavior himself or herself, and then record and report the incident later (thus constituting a minor referral). However, if the behavior continued, a teacher may choose to send the student to the office for discipline from an administrator (thus constituting an office, or major referral). In addition, when a student received a minor referral, here or she was sent to lunch detention. Lunch detention, or "silent lunch" required a student to eat lunch in a quiet room, in which students were not permitted to speak to one another. If the student did not attend lunch detention, then he or she was given a major referral. When a student received a major referral, he or she got "overnight suspension." Overnight suspension meant that a student was not allowed to return to school until a parent or guardian accompanied him or her and discussed the behavioral problem with school staff. If a student received multiple major referrals, he or she was sent to In School Suspension (ISS). ISS is held in a separate building within the school system that has a counselor on site to discuss behavioral concerns with students. In ISS, students continued to receive instruction. The aim of the ISS program is to help to eliminate bad behavior for which the function is to get out of having to come to school, as well as to avoid students missing

academic time and instruction (PBIS Coordinator at participant school, personal communication, January 20, 2012). This indicates that the school maintained punitive consequences for behaviors. However the AAA cards were utilized in order to decrease the occurrence undesirable behaviors and thereby have less need for the punishments described above.

If a student met criteria for all three As he or she received a AAA Card. The AAA card entitled students to receive one of each of the following per week in each class for the following six-week period: (1) a pass to leave one class one minute early to go to lunch, (2) a free homework pass (one night of not having to do homework), and (3) a free bathroom pass. In addition, students also received a free day-pass to the local YMCA. The school's PBIS coordinator reported that not all teachers bought into this program, and some did not allow students to use these incentives in their classrooms. This had prompted the change of the working on the AAA Card from "free homework pass" to "free or late homework pass," which allowed teachers to decide whether they wanted to allow students to be able to abstain from a particular assignment, or instead to turn it in a day late (PBIS Coordinator at participant school, personal communication, January 20, 2012).

Each AAA Card earned was also an invitation to a "Celebration." The Celebration was a party for all students who had earned a card. According to the participant school's PBIS coordinator, these events varied due to constraints of time and weather. For example, one Celebration entailed all students across all grades having an hour's free time outside on the field containing the school's track. Another Celebration gave students half an hour of free time indoors, separated by grade level. At one Celebration, a local

radio station was invited to the school and gave away prizes to students. In the spring, the school also had a large Celebration outdoors with inflatables. The school's PBIS coordinator stated that some of the Celebrations have been received more positively than others, and this is in large part due to their inconsistency. In addition, because final grades were not reported until after the end of the school year, a final celebration was not held for the final six-week period. The PBIS coordinator reported that last year there had been a plan to have a Celebration for the students who had earned a card during the final six-week period at the beginning of the following school year. However schedules became too hectic for this to occur (PBIS Coordinator at participant school, personal communication, January 20, 2012).

During Celebrations, students were also issued tickets to a raffle. There was reportedly some variability in both the number and type of prizes given. Depending on school budget and donations, there were enough prizes for one quarter to one half of students at each Celebration. Regular prizes raffled off included iPods, iTunes gift cards, free passes to a local zip line course, T-Shirts, and wristbands. Celebrations also included fun activities and games during which students could earn additional raffle tickets. Students also received a T-Shirt for every three cards they earned. These cards did not have to be earned in consecutive six-week periods, and students were required to keep track of and hold on to their own cards in order to earn the additional shirt. These shirts were student designed and contained the school mascot and the school's three R's motto: "Respect, Responsibility, Readiness." Approximately 500 students earned three cards and received T-shirts last year (PBIS Coordinator at participant school, personal communication, January 20, 2012).

PBIS implementation initially began within the school for the Freshman Academy. All freshmen in the school are enrolled in this program. It has been in place since the 2009-2010 school year. The Freshman Academy is a separate program that the school utilizes to help students transition from middle to high school. The Freshman Academy is made up of three teams of teachers, counselors, administrators, and emeritus faculty who collaborate to provide additional support to students as well as to one another. Instead of the typical, 90-minute class periods, freshmen have shorter, 45-minute class periods. In addition to regular academic classes, freshmen take an additional leadership course, through which they receive a social-emotional curriculum, including exploring, developing, and reinforcing appropriate social behaviors, encouraging supportive peer relationships and conflict resolution skills, foster communication between home and school and among members of the school community, facilitating students' recognition of the impact of education on their futures, and promoting awareness of diversity and tolerance. This class helps to build some of the skills and competencies that are typical in PBIS implementation. (An Assistant Principal at Participant School & PBIS Coordinator at participant school, 2011).

The PBIS coordinator at the participant school reported some issues with staff training for PBIS. Initially, a core group of school personnel was trained in PBIS by the state Department of Public Instruction (DPI). This group then began training other staff members. A representative from DPI also came to train school personnel. However, much of this training was a repeat of trainings already conducted by the core group of staff. This reportedly frustrated teachers, especially those who were initially skeptical of PBIS. This in turn decreased morale and enthusiasm for the PBIS initiative in the school.

The school has since struggled with changing attitudes and increasing buy-in for the intervention (PBIS Coordinator at participant school, personal communication, January 20, 2012).

This study analyzed archival data collected during the 2010-2011 school year prior to PBIS implementation, as well as data collected using the first year of implementation of PBIS (the 2011-2012 school year). Data regarding number of student discipline referrals across ethnicity were collected using School-Wide Information System (SWIS) software to examine student response and the success of PBIS implementation. The ethnicity demographics analyzed were: (1) White, (2) Black/African American, (3) Hispanic, and (4) Other.

CHAPTER: 5 RESULTS

A two-way, repeated measures ANOVA was conducted to examine the effects of

PBIS across ethnicity for 10th and 11th graders in a high school in western North Carolina

(N = 560). The ethnicity demographics analyzed were: (1) White, (2) Black/African

American, (3) Hispanic, and (4) Other. A significant main effect of the PBIS intervention

was found on overall number of discipline referrals. The number of total discipline

referrals after PBIS implementation (*M* = 4.07, *SD* = 6.33) was found to be significantly

lower than before PBIS implementation (*M* = 6.13, *SD* = 7.95) [Wilks' Lambda = .95,

$F(1, 556) = 35.59$, *p* < .0005] (see Table 1). However, a significant interaction effect was

found between the intervention phase (pre-PBIS and post-PBIS) and ethnicity [Wilks'

Lambda = .98, $F(3, 556) = 3.55$, *p* < .05] (see Figure 1).

Table 1

Summary of Means, Standard Deviations, and Sample Size of Number of Discipline
Referrals Pre and Post PBIS Implementation by Ethnicity

Ethnicity	N	Mean	Std. Deviation
Pre-Intervention Referrals			
White	402	5.31	6.74
Black	45	8.51	11.65
Hispanic	65	5.35	7.06
Other	48	11.75	11.13
Post-Intervention Referrals			
White	402	3.63	5.97
Black	45	5.16	7.74
Hispanic	65	4.17	6.14
Other	48	6.63	7.33

Figure 1. Interaction effect observed between phase of intervention and ethnicity
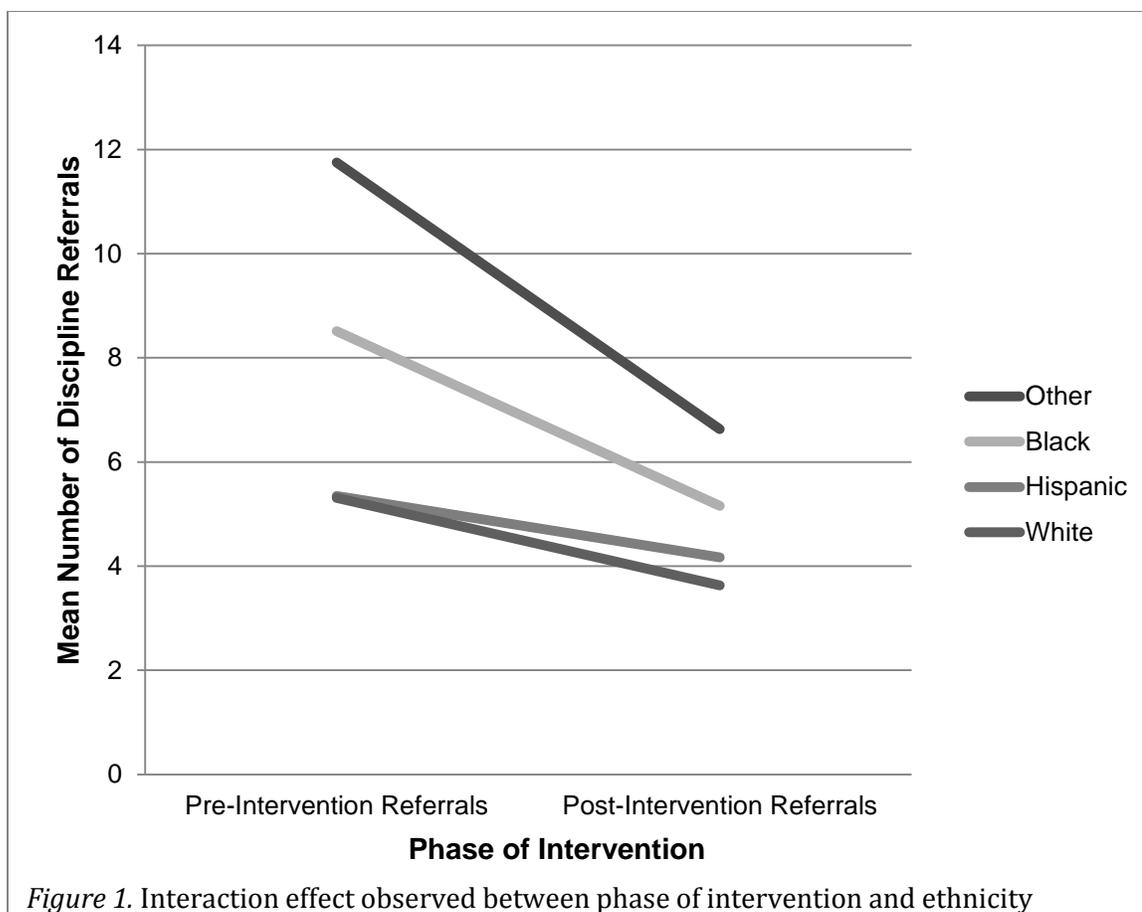
The data set was split both by ethnicity and by phase of intervention, and one-way

ANOVAs were conducted in order to examine the simple effects of intervention and

ethnicity. The data suggests that the interaction effect was most likely due to the fact that

there were significant differences between the numbers of discipline referrals across

ethnicity prior to the intervention (see Figure 2). Prior to intervention, it was found that

White students (N = 402) had significantly fewer discipline referrals ($M = 5.32$, $SD =$

6.74) than did Black students (N = 45, $M = 8.51$, $SD = 11.66$, $p < .05$) and students

classified as "Other" (N = 48, $M = 11.75$, $SD = 11.13$, $p < .0005$). In addition, students

classified as "Other" had significantly more referrals prior to intervention than did

Hispanic students (N = 65, $M = 5.35$, $SD = 7.06$, $p < .05$). No significant difference were

found between number of referrals prior to intervention between Hispanic students and either White or Black students. The differences in number of discipline referrals were somewhat lessened after implementation. The only significant difference between demographic groups observed after implementation of PBIS was between students classified as "Other" ($M = 6.63$, $SD = 7.34$) and White students ($M = 3.63$, $SD = 5.98$) ($p < .05$) (see Table 1).

Figure 2. Effect first year of PBIS implementation across ethnicity
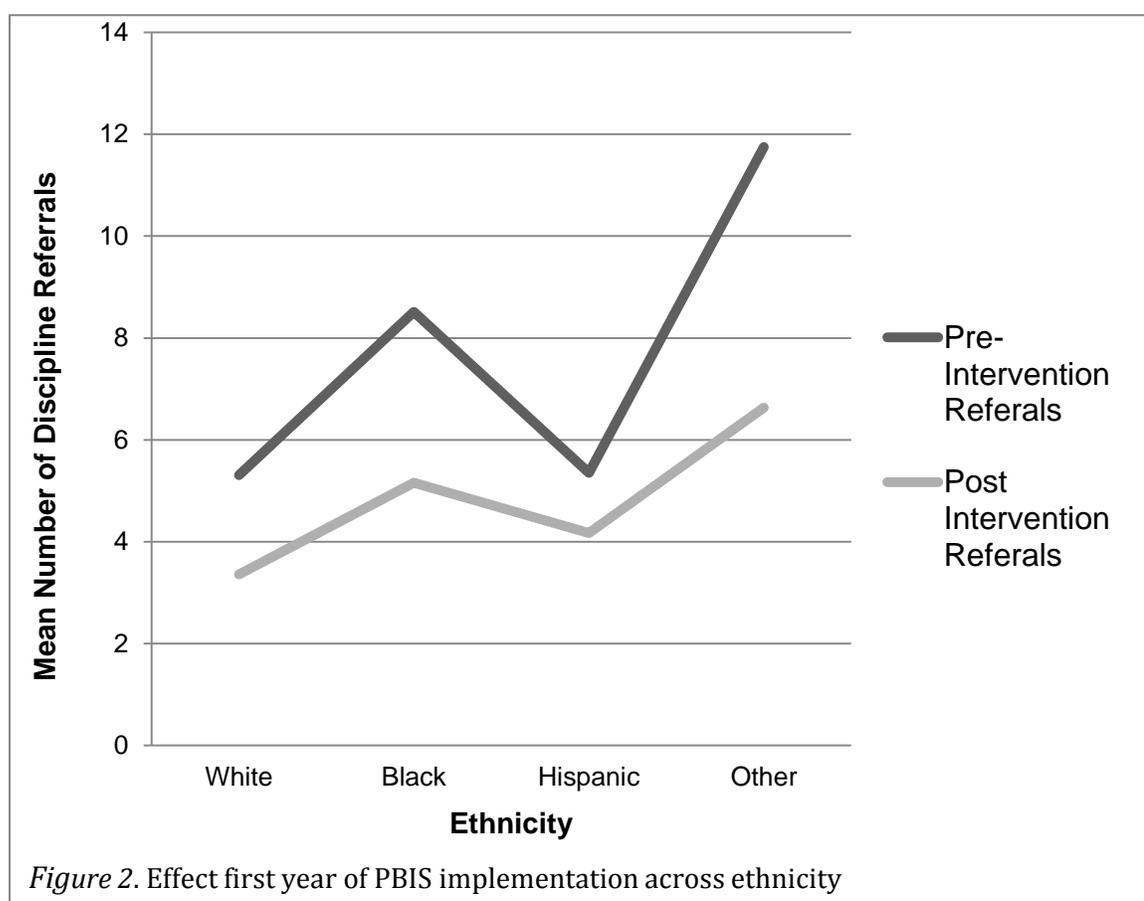
The intervention was also found to have effects of different magnitude for the different demographic groups. White students had significantly fewer discipline referrals after PBIS implementation ($M = 3.63$, $SD = 5.98$) than before ($M = 5.32$, $SD = 6.74$) ($p <$

.0005). Students classified as Other also had significantly fewer discipline referrals after PBIS implementation ($M = 6.63$, $SD = 7.34$) than before ($M = 11.75$, $SD = 11.13$) ($p <$ .005). While no significant difference before and after implementation was found for either Black or Hispanic students, the data did show a negative trend, indicating that overall, both of these demographic groups had fewer referrals after intervention than before (see Table 1).

CHAPTER 6: DISCUSSION

Research has shown the detrimental effects of punitive approaches to discipline problems in schools (Bear, 2010; Fabelo, et al., 2011; Lewis & Garrison-Harrell, 1999; Lewis & Sugai, 1999; National Association of School Psychologists, 2008; Turnbull et al., 2002). Positive Behavioral Interventions and Supports (PBIS) has been shown to be an affective alternative strategy to the traditional, punishment based approach (National Association of School Psychologists, 2008; Safran, & Oswald, 2003; Ruef, et al., 1998). PBIS utilizes positive reinforcement coupled with increases in school engagement, character development, and skills training to increase desirable behaviors while simultaneously decreasing undesirable ones (Conroy, et al., 2005; OSEP Technical Assistance Center on Positive Behavior Interventions and Supports, 2009b; Turnbull, et al., 2002; Safran, & Oswald, 2003). The purpose of this study was to investigate the effects of the first year of PBIS implementation in a high school in western North Carolina, and to determine whether the intervention we equally effective across ethnicity.

The findings were consistent with previous research, which indicated that PBIS can be effective after only one year of implementation (Frank, et al., 2009; Muscott, et al., 2008). Results showed that, overall, the first year of PBIS implementation significantly lowered total number of discipline referrals for all students. While there was a significant interaction between pre and post measures and ethnicity, the number of referrals was reduced for all students after the intervention was implemented.

Unfortunately, consistent with previous research, the study showed that there were significantly higher numbers of discipline referrals for minority students than for

white students (Fabelo, et al., 2011; Kaufman, et al., 2010; Vincent, et al., 2009). Prior to intervention, it was found that White students had significantly fewer discipline referrals than did Black students and students classified as "Other." In addition, students classified as "Other" were found to have significantly more referrals prior to intervention than did Hispanic students.

However, research has shown that despite these inequalities, different ethnic groups respond similarly to PBIS, and that PBIS can actually help to decrease the discrepancies in mean number of discipline referrals among these groups (Frank, et al., 2009; Vincent, et al., 2009). While differences across ethnic demographics continued to exist after PBIS implementation, overall they were found to no longer be significant. The only significant difference between ethnic groups observed after implementation of PBIS was between students classified as "Other" and White students. This narrowing of the gap in mean number of referrals among ethnic groups could be explained in two different ways. First, the intervention, at least in part, may have achieved its goal in reducing ethnic bias for some ethnic groups in the assignment of referrals for problem behaviors. Second, changes in school procedures described above may have had the greatest impact on Black and Hispanic students resulting in a narrowing of the gap between them and the White students.

The intervention was also found to have effects of different magnitude for the different ethnic groups, significantly lowering overall number of referrals for White students and those classified as "Other," but not for either Black or Hispanic students. The data showed a negative trend in mean number of referrals for Black and Hispanic students, indicating that overall; both of these demographic groups had fewer discipline

infractions after intervention than before. However, these ethnic groups continued to have higher numbers of discipline referrals than the other two ethnic groups. This may indicate that the intervention was less effective for these groups, possibly because of less buy-in or less interest in reinforcers. However, it should be noted that there were also fewer participants within these two groups than for White students. It is possible that with larger sample sizes for Back and Hispanic students, significant decreases in numbers of referrals for these groups may have been observed due to increased power. This may explain why, while there was a larger decrease in mean referrals for Black students than for white students, this change was found to be statistically significant for White students but not for Black students.

Limitations

There are several limitations to the current study that should be considered. First, there was limited sample size of several of the ethnic demographics, causing the sample population to have an uneven number of participants in each group, limiting the power of the study. Second, this school has a unique population of students from a variety of ethnic backgrounds and nationalities of origin. This may make it difficult to generalize the results of this study to other high schools, though it may be possibly to generalize results to other schools with similar populations. In addition, many different ethnic groups were collapsed under some of the categories used to record information by the school system, and out of necessity by the current study. As mentioned above, the school involved in this study has many first and second-generation Slavic immigrants within its population. However, this population was coded under the classification "White" by the school system due to the categories allowed within SWIS and state educational policy.

Therefore, the "White" demographic may truly be a unitary group or one characteristic of a typical "White" population due to the inclusion of students who may not be acculturated to the same extent as the other students within this demographic. In addition, because there was a limited sample size of many of the ethnic minorities contained within this school, it was necessary to collapse them into a single "Other" category in order to analyze the discipline referral data from these students in a meaningful way. As it turned out, the "Other" category was found to be significantly different than the other ethnicities in terms of number of referrals, and had more referrals than any of the other groups. However, because many subgroups were included in this one overarching category, it is difficult to ascertain the true significance of these results. It is possible that because the numbers of students within these groups was limited, they felt less a part of the mainstream population of the school, thus reducing their levels of school engagement.

The efficacy of PBIS, for the purposes of this study, was measured by number of discipline referrals. This allows for examination of how incidents, or at lease perceived incidents of misconduct, were impacted by the implementation of PBIS. However, this ignores other important factors of PBIS such as levels of school engagement, and increases in functional communication skills, specific skill performance, psychosocial skills, self-monitoring, social interaction and school engagement (Cohn, 2001; Conroy, et al., 2005).

Additionally, the data used were archival, and the specifics and fidelity of the PBIS intervention were not under control of the researcher and not randomly assigned. Therefore, there are a number of possible extraneous variables that could have affected

outcomes. For example, maturation effect, or differences in cohorts may be confounding variables. Also, while 9th and 12th graders were excluded to avoid error and because it would be impossible to pair these samples, it was also impossible to rule out attrition caused by families moving, student dropout, or death. Additionally, the exclusion of 9th and 12th grade means that significant subpopulations of age and maturity level were not included in the present study.

The participating school relied heavily upon anecdotal evidence (e.g. consultations with nearby schools) in order to design their own PBIS approach. It is possible that this information was not transferable to the participating school, due to differences in demographics or location. In addition, the school's execution of rewards was somewhat inconsistent. For example, while the school did not employ token economies on a school wide level, some teachers chose to do so in their individual classes. Also, celebrations varied widely based on weather and time in the daily schedule, and the final celebration was not conducted at all, due to lack of time, which may have undermined students' receptiveness to PBIS (PBIS Coordinator at participant school, personal communication, January 20, 2012). It is possible that with more consistent use of rewards, a larger effect may have been found.

Implications

Despite the limitations noted above, this study provides further information about the effectiveness of the first year of PBIS implementation at the high school level. These findings are important because they show that even after only one year of intervention and with inconsistent teacher buy in, it is possible to decrease discrepancies in the assignment of discipline referrals and lower overall numbers of referrals for all students.

The results of this study also suggest that PBIS can be effective at the high school level, where little prior research on PBIS has been conducted (Bohanon-Edmonson, et al., 2005; Tobin, 2006). If differences can be seen after the first year of implementation, it is likely that further improvements can be made if the intervention is continued with increased fidelity due to increased exposure to the intervention. An initial demonstration of efficacy may increase both teacher and student buy-in, and further strengthen the program.

Future Directions

Several additional areas of research and exploration can be built upon the findings of this study. First and foremost, the current study can be used to generate areas and ideas for improvement within the high school being studied. For example, that a significant decrease in referrals was found for White students and those classified as "Other," but not for Black and Hispanic students may be of concern. The current study can be used to generate discussion among school personnel about how to reach these students. A follow up study can then be conducted to see if these changes have made an impact.

Future studies could also examine the effectiveness of this intervention within the school across other demographic variables, such as gender, grade-level, and socioeconomic status. In addition, the effect of implementation of PBIS can be examined in order to determine its impact on specific problem behaviors and reasons for discipline referrals. It would be interesting to determine whether all problem behaviors were affected equally, or if certain behaviors or classes of behavior were affected more than others. Future research could also examine what, if any changes in levels of school

engagement, academic achievement, and prosocial behaviors occurred contingent with PBIS implementation. (Cohn, 2001; Conroy, et al., 2005).

A longitudinal study might also be beneficial in order to examine the continued effect of intervention. This would be useful to ensure that PBIS continues to be effective in lowering the number of discipline referrals for this school system. This would also allow for inclusion of the 9th and 12th grades in the study. The methods of the current intervention and study can also be duplicated at other schools with both similar and different populations. This would determine the effectiveness of PBIS across a variety of high school populations while hopefully also helping to lower disciplinary problems in other high schools.

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