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Effects of Positive Behavior Support Programs on Student Behaviors

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Effects of Positive Behavior Support Programs on Student Behaviors

by

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Doctor of Education

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Abstract

This study was conducted in order to examine the effects of a positive behavior intervention program in a middle-school setting. Over the course of many years, Rogers Middle School has had chronic discipline problems as evidenced by the number of behavioral referrals by teachers to the principals' offices. As discipline problems increased, student classroom performance seemed to decrease. In the school year 2002-03, Rogers Middle School implemented a program called Positive Behavior Intervention Support (PBIS) to address the discipline problems. The program objective was to improve student achievement by improving behaviors. This study allowed the researcher to examine the effectiveness of using PBIS to improve student behavior and increase academic achievement. The purpose of this study was to determine if there was a statistically significant difference in behaviors and academic achievement between two cohorts of students (one pre-PBIS and one post-PBIS) in a school with chronic discipline problems.

The hypothesis for this study was that PBIS used in place of punitive disciplinary measures will improve student behavior, as measured by student discipline referrals and that PBIS used in place of punitive disciplinary measures will increase academic achievement, as measured by Lexile reading scores and student grades.

Statistical analysis of behavioral referrals, grade point averages and Lexile reading scores comparing Cohort I (pre-PBIS) during the years 2003 to 2005 to Cohort II (post-PBIS) during the years 2005 to 2007 indicated that PBIS had no

statistically significant impact on student behavior or academic performance. School personnel were trained in the use of PBIS, but once implemented, the process was not measured or managed.

The most salient finding of this study, therefore, was the importance of successful program implementation. Ensuring the staff carries out the right strategies in the right way may improve the effectiveness of a PBIS program. Therefore, a recommendation for future research is to not only measure outcomes, but also and at the same time, measure the process. Such a study may show that the more the process is followed, the more behaviors and student achievement improve.

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Chapter I – Introduction

Background of the Study

For over a quarter of a century, the number one concern that faced America's public schools was discipline (Sprague et al., 2001). Controlling the behavioral climate of a public school has been a challenge that middle-school administrators and educators continue to face. Many schools in the United States, like Rogers Middle School in the Affton School District in St. Louis, Missouri, looked for solutions to the continuing problem of controlling the school's behavioral climate. Middle schools sought a solution that not only improved the safety of the students but also affected the learning environment of a building.

School administrators looked to provide an environment free of antisocial behavior and school violence, one that would also lead to increased academic performance. A safe environment for students, teachers, and staff members was essential to maintaining a positive school climate and culture. If the classrooms, hallways, cafeterias, and other areas in or around school buildings continued to host unacceptable student behaviors, alternative interventions were a necessity.

Rogers Middle School chose the Positive Behavior Intervention Support (PBIS) plan to implement and deal with problem behaviors. PBIS is a broad concept that describes a comprehensive, research-based, proactive approach to behavioral support aimed at producing comprehensive change for students with challenging behavior (Ruef, 1998). Lewis and Sugai (1999) suggested that an effective behavior support system is a proactive approach to preventing and responding to classroom and school discipline problems. Additionally, Lewis and

Sugai recommended that PBIS direct its attention toward developing and maintaining safe learning environments where teachers can teach and students can learn. They recommended the system emphasize team based planning and problem solving, an instructional approach to behavior and classroom management, active administrative support and participation, long term action planning, staff commitment, and on-going professional development. Furthermore, Lewis and Sugai believed PBIS solved problems such as defiance, insubordination, and fighting. Additionally, they recommended that the PBIS team address ineffective discipline practices such as lack of specialized behavior intervention, lack of staff support, negative school climate and high uses of suspensions and detentions.

Lewis and Sugai (1999) described the purpose of PBIS, which is to focus on enhancing communication, increase consistency and efficiency by collecting and disseminating information, implementing effective practices, influencing policy, reforms, and initiatives, and formalizing problem solving. They suggested PBIS focus on four system areas: school-wide discipline, classroom management, non-classroom supervision, and the individual student. Last, Lewis and Sugai suggested the following strategies be used when implementing PBIS school-wide discipline practices: social skills instruction, self-management, behavioral interventions and classroom management, functional assessment support plans, active supervision in non-classroom settings, and teacher assistance team planning and problem solving.

Rogers Middle School students who exhibited challenging behaviors often

repeated the same behaviors when administrators used only punitive measures to discipline. Instead of a punitive approach, PBIS suggests staff members be proactive and positive and serve as mentors. Safran and Oswald (2003) focused on three areas of PBIS: (a) school-wide support, (b) specific-area support, and (c) individual-student behavioral support. PBIS provided an effective process for developing individualized interventions for children in all three of these areas (Fox, Dunlap, & Cushing, 2002).

School-wide support includes all stakeholders as a part of the PBIS model. Teachers, administrators, cafeteria workers, and custodial staff were all part of the PBIS team. Specific-area support refers to areas in a school building where specific behaviors took place, such as hallways, classrooms, and cafeterias. Included in these specific areas of support were additional areas inside and outside of the building, such as on buses, at bus stops, and in common areas where students gathered. Individual-student behavioral support refers to the students who were likely to receive office discipline referrals due to the challenging behaviors they exhibited. A small percentage of students who exhibited far more severe behaviors received office referrals more frequently as compared to other students. These students offered more of a behavior challenge to administrators and building staff who were trying to maintain a safe and orderly environment where teaching and learning could take place.

Problem Statement

Over the course of many years, Rogers Middle School has had a history of chronic discipline problems as evidenced by the number of behavioral referrals

sent from staff members to the principals' offices. Due to large numbers of student behavior referrals, student classroom performance affected the schools' Adequate Yearly Progress (AYP), the percentage of students who reach academic proficiency and Annual Performance Review (APR), Missouri's procedure to determine school district accreditation. The researcher in this study sought to determine the effectiveness of using PBIS to improve student behavior and increase academic achievement.

Purpose Statement

The purpose of this study was to determine if there was a statistically significant difference in behaviors and academic achievement between two cohorts of students when positive behavior support systems were utilized in a school with chronic discipline problems. Because discipline referrals reached a high of 1500 per year at Rogers Middle School, an alternative discipline plan for chronic offenders was needed. In this study, behavioral referral data, grade point averages, and Lexile reading scores for the sixth grade treatment group of students were collected and analyzed from 2002 to 2005 for the purpose of determining the effectiveness of the PBIS plan. From 2004 to 2007, a second cohort of sixth grade students who were not treated with the PBIS plan had their behavioral referral data, grade point averages, and Lexile reading scores collected, analyzed and compared to the treatment group.

For the purposes of this study, sixth-grade students for whom traditional school discipline methods were likely to be ineffective were identified as a study group. The discipline records for each of these students exceeded ten per

semester. The type, number, and location of referrals on these and other students were collected in order to determine if appropriate interventions could curb discipline problems. Walker, Colvin, and Ramsey (1995) noted that by identifying students with severe behavior problems, school officials are able to take action and use proactive interventions to divert those students from an antisocial lifestyle. If these interventions took place at an early age and parents were a part of the intervention process, expectations were that, by the time these sixth-grade students became eighth-grade students, they would exhibit positive behavior patterns on a regular basis.

According to Tobin and Sugai (1996), in most situations where discipline problems are uncontrollable, interventions that are helpful to students with discipline problems included the use of mentors and tutors, social skills training, special education placements, systematic functional assessments, and behavior management interventions. The researcher in this study investigated whether positive interventions elicited positive responses and appropriate actions from students who showed continual problem behaviors. If students learned positive responses and practiced appropriate behaviors, could student achievement also be affected in a positive manner? Proven behavior interventions and positive responses to problem behaviors by principals and teachers seemed important to the Rogers Middle School Administration if their goals were to (a) have fewer referrals, (b) increase seat time in classrooms, and (c) and improve student academic success.

Scott (2001) showed that positive interventions reduced student referrals

and suspensions significantly when implemented over a two-year period at many middle schools that participated in the PBIS programs. Additionally, Scott found that as a result of decreased student behavior problems, researchers discovered that student seat time increased, and this increase of seat time translated into a gain of nearly thirty days of instructional time.

Independent Variable

In this research study, the independent variable was the set of positive interventions that reinforced and supported positive middle-school student behavior. One of these interventions used by staff members was advanced pre-corrections. Advanced pre-corrections were instructional strategies used by staff members for managing predicable behavior problems. An example of an advanced pre-correction would be a staff member recommending an appropriate student response to a potential problem situation. Additionally, teachers positively engaged students in classroom lessons by keeping them focused and on-task and not allowing inappropriate behaviors to ruin the learning environment. Some teachers simply wished students good morning and complimented them on what they were wearing or how they looked. The treatment group in this study experienced these behavior supports in response to their behaviors. Teachers of the control group used similar intervention strategies, but not on a consistent basis.

Dependent Variables

The dependent variables in this study were the behaviors exhibited by the middle-school students of Rogers Middle School in the Affton School District in

St. Louis, Missouri. In addition, staff members recorded grade-point averages and the Scholastic Reading Inventory Lexile scores to determine whether positive behavior by students affected academic achievement.

Hypotheses

Null hypothesis H_{01}. PBIS used in place of punitive disciplinary measures will not improved student behavior as measured by student discipline referrals.

H_{01a}: Educational staff at Rogers Middle School, when implementing PBIS will see no decrease in the number, type, location, and punishment of office referrals.

H_{01b}: Educational staff at Rogers Middle School, when implementing PBIS, will see the number, type, location and punishment of and for observed office referrals for the treatment group (Cohort I) be equal over time to the expected number of office referrals for the control group (Cohort II).

Alternative hypothesis H_1. PBIS used in place of punitive disciplinary measures will improve student behavior as measured by student discipline referrals

H_{1a}: Educational staff at Rogers Middle School, when implementing PBIS, will see a decrease in the number, type, location, and punishment of office referrals.

H_{1b} : Educational staff at Rogers Middle School, when implementing PBIS, will see the number, type, location, and punishment of observed office referrals for the treatment group (Cohort I) not be equal over time to the expected number of office referrals for the control group (Cohort II).

Null hypothesis H_{02}. PBIS used in place of punitive disciplinary measures will not increase academic achievement as measured by Lexile reading scores and student grades.

H_{02a}: The educational staff at Rogers Middle School, when implementing PBIS, will see the population variance of Lexile scores and grade point averages for the treatment group (Cohort I) be equal to the population variance of Lexile scores and grade point averages for the control group (Cohort II).

H_{02b}: The educational staff at Rogers Middle School, when implementing PBIS, will see the population mean of Lexile scores and grade point averages for the treatment group (Cohort I) be equal to the population mean of Lexile scores and grade point averages for the control group (Cohort II).

H_{02c}: The educational staff at Rogers Middle School, when implementing PBIS, will see Lexile scores and grade point averages for the treatment group (Cohort I) be equal over time to expected grade point averages and Lexile scores of the control group (Cohort II).

Alternative hypothesis H_2. PBIS, used in place of punitive disciplinary measures, will increase academic achievement as measured by Lexile reading scores and student grades.

H_{2a}: The educational staff at Rogers Middle School, when implementing PBIS, will see the population variance of Lexile scores and grade point averages for the treatment group (Cohort I) not be equal to the population variance of Lexile scores and grade point averages for the control group (Cohort II).

H_{2b}: The educational staff at Rogers Middle School, when implementing

PBIS, will see the population mean of Lexile scores and grade point averages for the treatment group (Cohort I) not be equal to the population mean of Lexile scores and grade point averages for the control group (Cohort II).

H_{2c}: The educational staff at Rogers Middle School, when implementing PBIS, will see Lexile scores and grade point averages for the treatment group (Cohort I) not be equal over time to expected grade point averages and Lexile scores of the control group (Cohort II).

Limitations of Study

Threats to comparative research consist of the lack of randomization and the inability to manipulate the independent variable. In this research study, random assignment of students was not possible because the groups were previously formed. Manipulation of the independent variables was not possible because the groups were already exposed to the independent variables.

Selection of sample. The first threat to the validity of the samples was subject characteristic threat. There was the likelihood that groups in this study were not equivalent because the researcher had no say in the selection or formation of the groups. Because of potential change in student populations and staff makeup, there was the likelihood that the groups compared over a three-year period would not be equivalent. Some students were older; girls' behaviors were different from boys' behaviors; and socioeconomic and ethnic groups' behaviors would differ from cohort to cohort. Thus, the results of this study identified relationships among the variables but were unable to prove cause and effect. Many students who attended Rogers Middle School in the Affton School

District were transient. Families moved in and out of the district. Consistency was a challenge. Repeating program goals and objectives to students on a regular basis was a challenge. Students who had attendance problems needed to hear verbal pre-corrections and other key phrases in order for them to be successful in the program.

Mortality. This study was limited by the movement of transient student populations in and out of the school district. Some students, who were original to the study, left at mid-year. Other students enrolled in the district at various times throughout the school year. Students who left the school district and moved into the district were similar in age, gender, and ethnicity with the losses being similar for both cohorts.

Location. Efforts were made by teachers to control and monitor key areas in the building and practice PBIS strategies in these areas. Data were collected for these areas and uploaded into the student information system for data analysis usage. Scholastic Reading Inventory assessments were administered in the Library Media Center on the same bank of computers.

Instrumentation. Students used Library Media Center computers for the Scholastic Reading Inventory assessments at the same time of the year, fall and spring. Secretaries, who reported only information required for the study, used student information system software to collect behavioral data.

Testing. Scholastic Reading Inventory (SRI) assessments were administered in the fall and spring of the year to all students in the study. This pre and post assessment data helped determine the effectiveness of the PBIS

strategies.

History. Two different groups of students over two different periods participated in this study. Any influence that affected student behavior and achievement was monitored and noted.

Maturation. The study spanned three-years for each cohort. The decision to compare two sixth grade cohorts' behavioral referrals and SRI scores helped to control the maturation threat of this study.

Attitude of subjects. The threat to internal validity in this study occurred when students did not respond to the PBIS strategies in a positive manner. In many cases, students still thought staff members treated them unfairly; thus, they believed the behaviors they exhibited were not their fault.

Implementer. In this study, each staff member was required to follow the same PBIS procedures. The threat to internal validity occurred when some staff members followed the procedures while other staff members disregarded the procedures and sent students directly to the office with a discipline referral.

To minimize threats to internal validity in this study, students were treated similarly and data was collected in a fair and unbiased manner. Threats were also controlled by (a) choosing the appropriate design of the study, (b) following an implementation plan, and (c) choosing the right instrumentation. Due to significant turnover of staff at Rogers Middle School, PBIS training for staff members was difficult to accomplish. Staff members did not consistently deliver the PBIS message to students, which was necessary for student buy-in to the program. In order for the program to be effective, staff needed to examine data

on a regular basis and practice proven PBIS strategies consistently.

Thus, if not all staff embraced the PBIS program, the message would be inconsistent. It was crucial that all team members communicated using proper dialogue and phrases with students on a consistent basis with no deviation of terminology.

Validity of instrumentation. Validity of instrumentation was appropriate for the population and fairly administered. The instrumentation in this study measured what it was suppose to measure.

> The SRI assessment has been the subject of four scientific validation studies. The SRI research ranges from a normed study with a sample of 512,224 students to an analysis of gender, race, and ethnic differences among 19,000 fourth through ninth grade students. High correlations with Stanford Achievement Test and North Carolina End-of-Grade Tests of Reading Comprehension strongly validate SRI as a measure of reading comprehension. (Scholastic Office of Educational Assistance, 2003, p. 2)

To help control implementation and instrumentation threats, standardized procedures and training were initiated to address data collector characteristics and data collection bias, as it pertained to grade point averages and discipline referrals. The same data collector analyzed data throughout the study. Instrumentation decay was minimized by the use of the student information database and computerized SRI Lexile scores.

The researcher analyzed student office referrals issued by staff members. Office personnel entered the data into the electronic student information system.

Computer-reading assessments were administered at the beginning and end of each school year and Lexile scores were downloaded into the student information system. Teachers entered students' grades from year-end report cards into the student information system. The researcher, in this study, had no influence over staff members who referred students, student assessment scores, or student grades. The bar graphs in Appendix A list the data collected in column fashion for the two cohorts for comparison purposes. The researcher collected and compared Rogers Middle School data over the same monthly periods for Cohort I from 2002-2003 through 2004-2005 to data for Cohort II from 2004-2005 through 2006-2007.

For comparison purposes, Lexile scores and grade point averages were not available for all students prior to their sixth grade year in school. Scholastic Reading Inventories did not become a mandatory assessment for all students until the 2002-03 school year. Thus, Lexile scores were only available for fifth grade students who were struggling readers. Administration did not calculate grade point averages for students until they reached middle school. The grade point averages were not available for the incoming sixth grade students in the 2002-03 school year. Because administrators recorded discipline routinely, they provided an inexpensive, readily available source of information about serious behavior problems (Shin, Ramsey, Walker, Steiber, & O'Neill, 1987).

Delimitations of Study

This researcher chose to investigate whether or not behavior support programs improved behavior and increased student achievement in a middle

school setting. Not directly relevant to this study were such areas as increased attendance, higher graduation rates, or improving ACT scores due to behavior interventions.

At the time of this study, Rogers Middle School consisted of sixth, seventh and eighth grade students. The subjects in this study were limited to two sixth grade cohorts with each group having approximately 200 students. The independent variables used in this study were suggested interventions from PBIS program directors. For this study to show statistical significance, a larger number of dependent variables were selected and analyzed for statistical treatment.

Definitions of Terms

Adequate Yearly Progress (AYP). The federal designation given to schools and school districts that indicates the percentage of students who reach academic proficiency.

Advance pre-corrections. Newcomer (2009) explains that advanced pre-corrections are instructional strategies for managing predicable behavior problems; these include verbal reminders, behavioral rehearsals, demonstrations of rule following and/or socially appropriate behaviors.

Annual Performance Review (APR). The state of Missouri's assessment procedure that determines which school districts receive state accreditation.

Behavior interventions. According to Clair (2003), behavior interventions are the prescribed plans under which students are exposed to alternative strategies such as stimuli, events, activities, or responses that cause the students to change, adapt, or alter the occurrence or the performance of a

behavior.

Climate. The social atmosphere of the learning environment in which students have different experiences, depending upon the protocols set by the teachers and administrators. Social environments are divided into three categories: (a) the relationship category includes involvement, affiliation with others in the classroom, and teacher support; (b) the personal growth or goal orientation category includes the personal development and self-enhancement of all members of the environment; and (c) the system maintenance and system change category includes the orderliness of the environment, the clarity of the rules, and the strictness of the teacher in enforcing the rules (Moos, 1979).

Functional behavioral assessment.

> A problem-solving process that addresses social-behavior problems of students. It relies on a variety of techniques and strategies that identify the purpose of specific problem behavior. This process helps Individual Education Plan team members select interventions that address the problem behavior. Functional behavioral assessment should be integrated, as appropriate, throughout the process of developing, reviewing, and, if necessary, revising a student's Individual Education Plan. (Center for Effective Collaboration and Practice, 2001, ¶ 1)

Lexile scores.

> A scientific approach to measuring reading and text on The Lexile Framework for Reading. There are two Lexile measures: The Lexile reader measure and the Lexile text measure. A Lexile reader measure

> represents a person's reading ability on the Lexile scale. A Lexile text measure represents a text's difficulty level on the Lexile scale. Both scores are reported on the same scale from a low of 0L to a high of 2000L. The higher the reader's Lexile measure represents a higher reading ability. The lower a book's Lexile text measure, the easier it is to comprehend. (MetaMetrics, 2008, p. 1)

Mentor. A person who teaches by example and helps students to achieve a task that is new to them. Sometimes the mentor leads by example; that is, he or she demonstrates skills in a practical manner and performs real work as the students observe and learn. Sometimes the mentor acts as a partner who asks questions of the students, helps students when needed, and builds confidence in students. On other occasions, he or she acts as a coach, encouraging students to improve their performance but intervening only when needed.

Office discipline referral. A document that teachers fill out and submit to an administrator to deal with a student's inappropriate behaviors. The document reflects the date and time, the behavior that took place, and the intervention used to try to change the student's behavior. The office discipline referral is useful in early detection and monitoring of different behavior problems in the school setting.

Positive behavior support. Consists of behavior interventions that help students achieve social and learning success in the school setting.

Positive Behavior Intervention Support (PBIS).

PBIS is a *framework* for creating and sustaining a school-wide behavior

> system. Unlike a behavior plan or program, the emphasis of the behavior *system* is on preventing problems and providing a comprehensive, consistent. . . . Structure [that] helps children develop internal control and self-discipline by organizing their world and providing age appropriate opportunities for them to make their own positive decisions. (Minneapolis Public Schools, 2008, p. 1)

Pre-corrections. Verbal reminders, behavioral rehearsals, demonstrations of rule following, and socially appropriate behaviors presented to students before a problem behavior is likely to occur (Colvin, Sugai, Good, & Lee, 1997).

Scholastic Reading Inventory.

> A computer-adaptive instrument for grades 1-12 that allows educators to quickly and accurately assess reading comprehension, monitor reading progress, and match students to appropriately challenging text. Teachers use test results to help place students at the best level in a reading program so they can read with success. Teachers receive multiple reading comprehension measures, including a Lexile. (Scholastic Office of Educational Assistance, 2003, p.1)

School-wide Positive Behavior Support. A major advance in school-wide discipline with the emphasis on school-wide systems, which include proactive strategies for defining, teaching, and supporting appropriate behavior by creating positive school environments. (Office of Special Education Programs, 2008, ¶ 2)

Transient. A person who is highly mobile; one who moves frequently from one area to another.

Tutor. A student, an educator, or a layperson who offers additional academic help outside of the regular school day to students in need. A tutor diagnoses student needs, monitors student progress, recommends materials and tasks, presents information, guides student practice, and provides feedback to the student.

Summary

Rogers Middle School, not unlike many other middle schools across the nation, experienced a large number of problem behaviors. To solve this dilemma, administration and staff chose to implement the PBIS program to improve behavior and increase student achievement. All staff members were trained to deliver the appropriate responses when problem behaviors were encountered.

During the 2002-2003 school year, the PBIS program started at Rogers Middle School. For the next two school years, until the end of 2004-2005, the program was in place for a cohort of sixth grade students. Statistical referral data, grades, and reading scores were analyzed to see the impact of the program on the treatment group. At the beginning of the 2004-2005 school year, a new cohort of sixth grade students entered Rogers Middle School and the program was terminated. Eighth grade teachers continued to implement PBIS interventions for the treatment group who were then eighth graders. For the next three-years, until they left the middle school in 2006-2007, there was no PBIS program in place for the post-PBIS cohort. Much like the first cohort, their behavior referrals, grades, and reading scores were analyzed to determine if the PBIS program made a statistically significant difference in the behavior and

achievement of the treatment group as compared to the control group.

The purpose of this study was to compare the two cohorts of students to determine if positive support interventions made a positive impact on student behaviors and student achievement. The null hypothesis for this study was that positive behavior support interventions used in place of punitive disciplinary measures will not improve student behavior as measured by student discipline referrals and will not increase academic achievement as measured by Lexile reading scores and student grades. The alternative hypothesis for this study was that positive behavior support interventions used in place of punitive disciplinary measures will improve student behavior as measured by student discipline referrals and will increase academic achievement as measured by Lexile reading scores and student grades.

The framing literature that relates to the topic will be reviewed in Chapter II. Chapter III will discuss methodology used to address the hypotheses. Results will be provided in Chapter IV. Chapter V will include discussions, conclusions, and recommendations.

Chapter II – Review of Literature

Sprague et al. (2001) found that in schools throughout the country, problem behaviors increase as administrators and teachers rely more on reactive and crisis management interventions to solve chronic problem behaviors. They also claimed that because of these reactive and crisis management interventions, discipline plans in middle schools are typically unclear and inconsistently implemented by administrators and teachers who lacked specialized skills to address severe problem behaviors.

The study attempted to determine if a positive behavior intervention plan, when implemented in a middle school as a replacement for reactive and crisis management interventions, will cause decreases in students' poor behavior and increases in their academic performance. The review of the framing literature for this study was in the following areas: problem behaviors and their effects, reactive and crisis management interventions, problem behavior solutions, and clear and consistent behavior plan results.

Problem Behaviors and Their Effects

Sprague et al. (2001) determined that the root of problem behaviors goes beyond rule breaking. Many of today's students need more than just sound and consistent discipline policies; they also needed positive behavioral instruction. Consequently, educators have sought new ways to move beyond traditional punishment and provide opportunities for all children to learn self-discipline. No school is immune from challenging student behaviors. These behaviors seem to exist in every school and community. According to Sprague et al. (2001), the

student behavior challenge has varied in intensity and frequency across schools, and the onset and development of antisocial behavior is associated with a variety of school, community, and family risk factors. This now leads one to believe that developing a program to address antisocial behavior is not just the responsibility of the school, but the family and community as well.

Fitzsimmons (1998) advocated for broader, proactive, positive school-wide discipline systems that include behavioral support. Further, he determined that a promising avenue for achieving the dual goals of teaching self-discipline and managing behavior is school-wide behavioral management. Gest and Gest (2005) realized how complex a task it was to establish and maintain appropriate classroom behavior. They suggested that for learning to take place in an uninterrupted manner, Boards of Education and school administration need to maintain an orderly educational setting. Gest and Gest further stated that a possible reason for behavior problems undermining instruction might come from removing students from the learning environment due to disciplinary actions.

Miller (1994) argued that despite the fact that overall violent crime had remained relatively stable from 1980 through 1994, violent juvenile crime continued to increase dramatically. These facts emphasize that preparing children and youth to succeed in a fast changing world is a significant challenge for families, schools, and community agencies. Fortunately, many children and youth adjust well to these changes and challenges. These children and youth acquire the necessary skills to function in society through support from school, family, peers, work, and community experiences. Sugai and Lewis (1996)

determined that success is associated with having appropriate models available, having their actions monitored regularly, having regular opportunities for academic and social success, and having access to meaningful feedback that guides adolescent behavior.

Sprague, Sugai and Walker (1998), Sugai and Horner, (2002), Taylor-Greene et al. (1997) agreed that antisocial behavior is considered the reoccurrence of violations affecting socially prescribed patterns of behavior. Further, student problem behavior can be effectively increased or decreased through intervention aimed at the action that immediately precedes or follows a behavioral response. This definition and premise form the basis of many behavioral programs. Sprague, Sugai and Walker (1998), observed that the same antecedent or consequence elicits different behaviors based on a student's history, culture, and intellectual functioning. For example, specific words of praise may be a strong positive reinforcement for some students in a classroom, but for others it may cause a negative reaction based on past-experience, such as the overuse of empty phrases such as "you should have known better."

Walker et al. (1995) stated that if antisocial behavior remains unchanged by the end of the third grade, the behavior that these students exhibit is a chronic condition much like diabetes. Walker et al. (1995) further said that the behavior is not curable but is manageable with the appropriate supports and continuing intervention.

According to Horner (2000), problem behaviors of middle school students frustrate not only administrators and classroom teachers but parents as well. In

an effort to address problem behaviors, educators and families indicated a need to work together in order to develop and implement effective behavioral support plans at the middle school level. Furthermore, PBIS addresses this need by implementing a broad range of systemic and individualized strategies for achieving important social and learning outcomes while preventing problem behavior. Horner, (2000), Lewis & Sugai (1999), Sugai et al., (2000), and Weigle, (1997) agreed that key attributes of PBIS include being proactive, making data based decisions, and using a problem-solving orientation model.

The importance of such plans are further magnified by the research of Walker et al. (1995), who provided a staggering list of results when interventions are not offered as behavior strategies in schools: (a) three-years after leaving school, 70% of antisocial youth are arrested; (b) The American Psychological Association (1993) Commission on Youth Violence reported that school dropouts commit 82% of crimes; and (c) the constancy of aggression over a decade is very high and shows a positive relationship to lower IQ's.

Additional research by the U.S Department of Justice & U.S. Department of Education in their National Educational Goals Panel Report (U.S. Department of Education, 1999) listed five essential areas relating to national school performance: (a) reading achievement at Grade 12 had decreased; (b) students' drug use had increased; (c) sale of drugs at school in grades 8, 10, and 12 had increased; (d) threats and injuries to public school teachers had increased; and (e) more teachers were reporting that disruptions in their classroom interfered with their teaching. Elias, Zins, Graczyk, and Weissberg (2003) noted that these

outcomes illustrate the clear link between school climate, school violence, and academic achievement. Furthermore, they concluded, “Academic success rests on a foundation of social-emotional competencies that must be nurtured as part mainstream education” (p. 304).

Lewis and Sugai (1999) explained why children and youth engage in challenging behavior. They established compelling evidence that parents and communities contributed to the development of the most severe forms of antisocial behavior. Further, they stated that by failing to provide prerequisites such as proper social skills, consistent support, and appropriate modeling of social interaction, parents are failing their children.

Leitman and Binnus (1993) reported that only half of American children who attend school feel safe in their school. Additionally, Rose and Gallup (1998) said one third of parents nationally do not think their children are safe at school or in their neighborhood. According to the U.S. Department of Education (1995), more than half of all crimes in the United States are committed by 5% to 7% of youth between 10 and 20 years of age. The Department also stated that eighth-grade students report that up to 16.9% of their peers bring weapons to school. Further, up to 25.6% of eighth-grade students are involved in a physical conflict with peers. Students who exhibit these behaviors need assistance in understanding appropriate responses to fellow students and staff members in order to keep the focus on the learning process.

The National Institute of Health (1989) reported that without effective behavioral support, students who exhibit problem behaviors face educational

isolation, vocational isolation, community isolation, social isolation, medical risk, and exposure to highly intrusive forms of control and treatment. Bryk and Driscoll (1988), Gottfredson (1987), and Gottfredson, Gottfredson and Hybl (1993) concur that when rules are consistent, students develop a respect for rules and laws and internalize beliefs that the system of governance works. The Conduct Problems Prevention Research Group (1992), in their comprehensive review of literature on reducing juvenile crime, indicated that schools and parents alike are successful in reducing students' problem behavior by implementing a proactive and early intervention program. Ziglar, Taussig, and Black (1992) concluded that early intervention/prevention programs are perhaps the best hope we have for reducing serious behavior challenges, particularly as children enter adolescence.

The research of Tolan, Gorman-Smith and Henry (2001) on school safety indicated that (a) early identification and intervention with at-risk children in schools is feasible; (b) the risk of dropping out of school, delinquency, violence, and other adjustment problems is high unless these children were helped; (c) academic recovery is difficult if early intervention is not provided; and (d) universal interventions need to be combined with interventions targeted to specific problems. According to Safran and Oswald (2003), there are a number of reasons for implementing a school-based PBIS plan: (a) collaborative teams use data such as office referrals, tardiness, attendance, and direct observation to establish school-wide priorities and pre-intervention baselines as well as intervention effectiveness; (b) universal school-wide PBIS utilizes multiple measures, including archival data, direct observation, teacher ratings, and

consumer satisfaction inventories, which result in extremely positive outcomes for many students across grade level; and (c) PBIS strategies are designed for specific settings (e.g., hallways, cafeterias, playgrounds, transitions), which demonstrate how active supervision in these areas can lead to positive change.

Reactive and Crisis Management Interventions

A goal of PBIS is to affect a positive and sustainable change in schools where problem behaviors occur. Relying on reactive and crisis management interventions reminds one of a popular definition of insanity, which is to continue to do the same thing repeatedly but expect different results. Throughout the years, educators were using reactive and crisis management interventions and finding that the results seemed to be the same. The interventions did not seem to make an impact on problem behaviors. A new plan was necessary. The Office of Special Education Programs (2008) and Skiba and Peterson (2000) found that the school-wide application of PBIS is an effective alternative to reactive, punishment-oriented approaches historically used by many schools. Furthermore, their research showed that inconsistent use of punishment in the absence of positive strategies is ineffective. Warren et al. (2006) said that educators, who made good use of PBIS strategies and comply with established Individuals with Disabilities Education Act guidelines, were likely to achieve safer, more disciplined schools, which encourages teachers to focus their time on teaching rather than managing student behaviors.

Sugai et al. (2000) stated that the successful improvement of student behavior relies on teachers, administrators, and staff members working as

partners to guide students in making the proper behavioral decisions. They also stated that the establishment of a team, such as school staff, administrators, and parents, serves to guide students' behaviors both in and out of school. Lewis and Sugai (1999) also stated that schools improve school-wide discipline by collecting and analyzing data to develop and monitor individual, class, and school interventions. They said this data helps school staff identify aspects of the school's environment that need change to prevent problem behaviors. They identified how a school team looks at data on disciplinary infractions and determines common times and locations of the most frequent problems. They then state that the team analyzes the causes and develops strategies to deal with those infractions. Lewis, Sugai, and Colvin (1998) observed staff members discussing the PBIS process and plans to carry out objectives during staff development days, faculty meetings, and team meetings. They noted that there was an expectation for staff members to work collaboratively to reduce problem behaviors.

Carr et al. (1999) (as cited in Turnbull et al., 2002) researched over 100 articles published between 1985 and 1996 that investigated the behavioral outcomes for individuals with impeding behavior and concluded

> Positive Behavior Intervention Support is successful in achieving at least an 80% reduction in impeding behavior for approximately two-thirds of the behavioral outcomes studied. The success of PBIS is enhanced when a functional assessment is carried out as the basis for planning the supports. Positive Behavior Intervention Support is more effective when

> significant people (for example, educators, and families) change their behavior as contrasted to when only the individual with impeding behavior changed. Positive Behavior Intervention Support was more effective when the environment is reorganized as contrasted to when the environment was not reorganized. Positive Behavior Intervention Support is more effective when it is carried out by significant people in the individual's life (for example, educators, and family) than by people who do not have ongoing relationships with the individual (for example, researchers and clinicians). Positive Behavior Intervention Support worked just as effectively with individuals who had multiple disabilities as with individuals who had a single disability. (p. 302)

Lewis and Sugai (1999) stated that students today, supported by caring administrators, work to improve their significant learning and behavioral problems with the help of positive behavior supports. Furthermore, they stated that these dedicated educators teach in communities that are unable to support the school and experience conditions that are often counterproductive to teaching and learning, but they continue to make a difference.

Those teachers who make a difference seem to have found that punitive discipline measures are ineffective, and these measures do not seem to improve behaviors of middle-school students. Building administrators, with the help of dedicated and concerned staff, continue to look for alternative methods of discipline. Mayer (1995) found that high rates of antisocial behavior in schools are associated with punitive disciplinary strategies. He stated that students lack

clarity about rules, expectations, and consequences. In many instances, there was a lack of staff support and failure to consider and accommodate individual differences. Gottfredson and Gottfredson (1996) reported that the least effective responses to violence in schools were counseling, psychotherapy, and punishment—all common school responses to problem behaviors. They also stated that a Positive Behavior Plan is of the utmost importance in order to make a difference in the teaching and learning atmosphere (Gottfredson & Gottfredson).

Mayer and Sulzer-Azeroff (1991) found that punishing problem behaviors without a school-wide system of support caused increased aggression, vandalism, truancy, tardiness, and dropping out. In addition, Reichle (1990) reported that problem behaviors are a major cause of exclusion from class and school for students with severe disabilities. Skiba and Rausch (2006) stated that *get tough* or *zero tolerance* approaches affected short-term removal of problem behavior but had little long-term benefit. They found that too many students who received punitive discipline were repeat offenders. They also noted that in many cases, students learned nothing from the punishment and likely repeated similar offenses in a matter of minutes or hours. Colvin, Kameenui, and Sugai (1993), Hawkins, Catalano, Kosterman, Abbott and Hill (1999), Mayer (1995), Walker and Eaton-Walker (2000), and Walker et al. (1996) all found many school practices contributed to the development or existence of antisocial behavior and the potential for violence. They also found that when there was an overemphasis on detecting individual child or youth characteristics that predicted violence or

disruption, many important systemic variables were often overlooked: (a) ineffective instruction that results in academic failure; (b) inconsistent and punitive classroom and behavior management practices; (c) lack of opportunity to learn and practice pro-social interpersonal and self-management skills; (d) unclear rules and expectations regarding appropriate behavior; (e) failure to effectively correct rule violations and reward adherence to them; (f) failure to individualize instruction and support to adapt to individual differences (e.g., ethnic and cultural differences, gender, disability); (g) failure to assist students from at-risk backgrounds (e.g., poverty, racial/ethnic minority members) in bonding with the schooling process; (h) disagreement and inconsistency of implementation among staff members; and (i) lack of administrator involvement, leadership, and support.

Colvin et al. (1993) noted that when a student misbehaved, the first line of response involved (a) increased monitoring and supervision of the student; (b) restating rules; and (c) delivering sanctions, such as referrals to the office, out-of-school suspension, and/or loss of privileges. He also stated that the administrators come to a point of frustration and attempt to establish a bottom line for disruptive students (usually referral or suspension). He stated that these tough responses produce immediate, but short-lived, relief for the school but do not facilitate the progress of the student who was already disengaged from the schooling process.

Sprague and Walker (2004) concluded that while punishment practices appeared to “work” in the short term, they merely removed the student for a

period, thus providing respite for school personnel and sometimes students. They found that, all too often, these practices lead to the assignment of exclusive responsibility for positive change to the student or family and thereby prevented meaningful school engagement and development of solutions. Sprague and Walker also found that the use of sanctions without an accompanying program of teaching and recognition for expected positive behavior merely displaces the problem elsewhere. Irvin, Tobin, Sprague, Sugai and Vincent (2004) stated that there is little evidence of the long-term effect these practices have on reducing antisocial behavior. In fact, Mayer (1995) suggested that schools using punishment practices alone promote more antisocial behavior than those with a firm, but fair discipline system.

Mayer (1995) showed that schools that use only punishment techniques for solving discipline concerns tended to have increased rates of vandalism, aggression, truancy, and ultimately school dropouts. He also stated that schools using excessive sanctions experience greater levels of vandalism and other forms of misbehavior. Mayer (1995), Sugai and Horner (1994), and Walker et al. (1996) all agreed that schools serve as ideal settings to organize efforts against the increased problems of children and youth who displayed antisocial behavior problems. Tobin, Sugai and Martin (2000) said that behavior problems of children and youth are dealt with by eliminating the problem quickly (i.e., removing the student via suspension or expulsion) rather than focusing on the administrative, teaching, and management practices that contributed to the problem. Gottfredson, Gottfredson and Czeh (2000) explained that the challenge to

administrators is how to give schools the capacity to adopt and sustain processes, organizational structures, and systems that enabled them to carry out effective interventions.

According to the U.S. Department of Health and Human Services (2001), the initial reaction of most administrators is to increase the amount of surveillance, toughen up, and apply zero tolerance sanctions. Additionally, the U.S. Department of Health and Human Services stated that administrators enforce exclusionary and alternative placements in anticipation of future problem behaviors. They also found that out-of-school suspensions were high, in-school suspensions were high, and alternative school placements were more than normal. None of these solutions improved student behaviors. According to Mayer (1995), one may see an immediate reduction in problem behaviors, but problem behaviors are likely to return with increased intensity and frequency. He stated that students reprimanded in a punitive way seem to come back to the school setting with a chip on their shoulders and something to prove to their classmates and staff members. Sugai, Horner and Gresham (2002) claimed that a PBIS program is an important approach to designing and sustaining effective teaching and learning environments for all students and their families.

Heineman, Dunlap, and Kincaid (2005) stated that where relatively intense and chronic behavior problems exist, PBIS strategies involve the use of functional behavioral assessments that encouraged proactive and educative interventions. Becker-Cottrill, McFarland and Anderson (2003) found that by establishing a functional behavior assessment staff, members determine how the

behaviors relate to various environmental events and what proper interventions are used. They continue to say that functional behavior assessments verify the seriousness of the problem, determine proper interventions, define the problem behavior, and determine causes of problem behaviors.

Lewis and Sugai (1999) demonstrated that practitioners, through a team process, reduced problem behaviors. They concluded that working together with a good plan leads students to understand that when teachers used positive interventions in a proactive manner, appropriate and well thought out responses were the norm. Students who did something nice for each other, kept their school clean, were respectful in the classroom, and reacted appropriately to positive interventions experienced a positive school experience.

Artesani and Mallar (1998) suggested the use of positive behavior supports to address challenging behaviors. Nelson, Martella and Marchan-Martella (2002) found that a good school-wide plan adjusts the ecological areas of the school or campus to better define these areas and make them safe. They also note that established clear and consistent behavioral expectations, periodic reviews of the expectations, active supervision assuring the expectations are followed, and effective disciplinary policies and procedures make the plan more effective. Last, they recommend that the plan incorporate a think-time strategy as a primary response to problem behaviors in the classroom.

Problem Behavior Solutions

Problem behaviors are not just a school concern. To make an impact on problem behaviors, parents and community members need to collaborate with

the school to bring about positive and sustainable change. Anderson (2002) stated that a good disciplinary system in a middle school must do more than impose control on students. He summarized discipline as follows:

> The practice of preventive discipline must first provide students a safe and stimulating environment in which opportunities to thrive and care for one another abound. When students do cross the line and break rules, the school must be prepared to respond judiciously if real change and personal growth are to occur. The student must experience immediate, restorative, logical and rehabilitative consequences. (p. 71)

Osher, Dwyer and Jackson (2002), Sugai et al. (2002), and Sprague and Golly (in press) stated that in order to prevent minor discipline problems, as well as more serious antisocial and violent incidents, many schools turn to a school-wide positive discipline approach, commonly referred to as a school-wide PBIS plan as a foundation for positive change. Colvin et al. (1993), Lewis and Sugai (1999), Sugai and Horner (2002), and Sugai et al. (2000) all found that school-wide PBIS plans are based on the assumption that when all school staff members within all school settings actively teach and consistently recognize and reinforce appropriate behavior, students with serious behavior problems will be fewer, and the school's overall climate will improve

According to Horner, Sugai, Todd and Lewis-Palmer (2005), school-wide PBIS is a prevention-focused alternative that blends socially valuable outcomes, research-based procedures, behavioral science, and a systems approach to reduce problem behavior and improve school climate. They also stated that

students who exhibit challenging behaviors have difficulty achieving success. Further, the PBIS team and the parents work together to create a climate, culture, and atmosphere in which students are successful.

Ruef (1998) found that PBIS strategies teach students appropriate ways to behave and respond to difficult and challenging situations. He claimed that a good PBIS plan works for teachers, students, and parents. Furthermore, it is a plan that takes advantage of sound educational best practice and analyzes the results of increased teaching and learning time, increased productivity, inclusion, and independence.

Ausdemore, Marchand-Martella and Martella (2008) found in the literature that the use of positive interventions in schools results in a change in the climate, culture, and academic environment of middle schools. Further, schools that implement school-wide PBIS make the shift from managing problem behavior centered on a reactive and aversive approach to one that is preventative and positive. Center on Positive Behavioral Interventions and Supports (2004) proposed that every child entering school needed behavior support.

Carr et al. (2002) found that one way educators dealt with troublesome behavioral concerns of students was to offer an alternative school-wide PBIS plan. He suggested that the PBIS plan was a broad approach for resolving problem behaviors based on person-centered values and empirically valid interventions. Furthermore, Carr et al. (2002) stated that this plan should rely on data-based decision making and team collaboration within the school and community setting. He recognized PBIS as “an evolving applied science using

educational methods to expand an individual's behavior repertoire, using systems change methods to redesign an individual's quality of life and, finally, minimize the individual's behavior" (p. 4).

Horner, Sugai, Todd, and Lewis-Palmer (2000) described PBIS as a new approach for students who are at risk and exhibit behavioral and emotional disorders. Jolivette, Stichter, Nelson, Scott and Liaupsin (2000) said the interventions are based on the premise that schools have to address the full range of behavioral issues and needs of the student population, including the use of behavioral strategies for students who prevent challenging behaviors, and intervene when such behaviors occur. Further, interventions based on PBIS focus on teaching desired replacement behaviors, which serve the same function as disciplining students for exhibiting undesirable behavior. They also claimed school-wide interventions are prerequisites to the success of more specific and individualized interventions and programs. Jolivette et al. (2000) stated that an effective implementation of PBIS support strategies follow these guiding principles: (a) use of problem solving school teams with administrative support, (b) implementation of prevention-focused, validated strategies based on team decisions, (c) matching both appropriate and inappropriate behaviors within the context which the behaviors occur, and (d) systematic reinforcement of and focus on appropriate behaviors within multiple school environments.

Dishion and Andrews (1995) recognized levels of proactive, positive behavioral support. The base of this support is adoption of a school-wide behavioral support plan. This plan is the foundation of the educational setting and

sets the requirements for orderly learning. This level of assistance is for all students who are in the school setting and form a cohesive approach to behavioral management. The next level of help is classroom behavioral management, which focuses on a consistent environment in which learning is taking place. The final levels of aid consist of comprehensive behavior support strategies, individual behavioral intervention, and finally alternative educational programming.

In many middle schools around the country, PBIS plans are being developed and put into place. Most schools in the United States are relatively safe places for children, youth, and the adults who teach and support these plans (U.S. Department of Justice & U.S. Department of Education, 1999, 2000). However, Kingery (1999) warned that fears about the personal safety of students, teachers, parents, and community members are very real and need addressing. It also is true that some schools have serious crime and violence problems, but most schools recognize problem behaviors taking the form of bullying, harassment, victimization, drug and alcohol abuse, the effects of family disruption, and poverty.

Horner (2000) further stated that the reason educators spend time and effort in the design of behavior support is the belief that this investment will result in behavior change that is in the best interest of the child. Horner found that administrators expect the implementation of such a plan will reduce the number of office referrals and create a positive school climate where student achievement is more important than student behaviors. Lewis and Sugai (1999)

noted that during PBIS strategy planning, team members ensure representative input and oversight for staff members affected by the school's discipline efforts. They said this input and oversight encourages team members to develop particular expertise in PBIS. Furthermore, they stated that regular planning meetings and a standard system of communication among team members facilitates the process of identifying the school's needs, allows team members to coordinate interventions that meet the needs of the staff and students, and protect the team's efforts and momentum from conflicts with other school activities.

According to Sugai et al. (2000), key features of PBIS included (a) clearly defining three to five universal behavioral expectations in simple, succinct, and positive ways; (b) explicitly teaching expectations so that all students know exactly what is expected of them; (c) extensively communicating the universal expectations on a school-wide basis (i.e., rewarding and acknowledging by catching students being good); (d) comprehensively implementing a school-wide positive reinforcement system; and (e) evaluating progress through a team process and making adaptations based on data.

According to Gable et al. (2003), the message is clear that schools should embrace PBIS, eschew punitive discipline practices, and rely on research-based interventions aligned with student behavior in the context in which it occurs. A positive behavior plan in place can make a difference in the attitudes of students, parents, and staff members who support such a plan.

Nelson et al. (2002) noted that schools that participate in these programs

reduce problem behaviors and improve academic achievement. Sprague et al. (1998), Sprague et al. (2001), Sugai et al. (2000) and Taylor-Greene et al. (1997) all found that targeted students who exhibited problem behaviors improved their academic performance. They extensively field-tested and researched the efficacy of school-wide PBIS approaches in reducing school behavior problems to promote a positive school climate. They noted that school-wide PBIS is a multiple-system approach that addresses the problems posed by antisocial students and copes with challenging forms of student behavior. They listed the key practices of school-wide PBIS as follows: (a) clear definitions of expected appropriate, positive behaviors are provided for students and staff members; (b) clear definitions of problem behaviors and their consequences are defined for students and staff members; (c) regularly scheduled instruction and assistance in desired positive social behaviors are provided that enable students to acquire the necessary skills for the desired behavior change; (d) effective incentives and motivational systems are provided to encourage students to behave differently; (e) staff commits to stay with the intervention over the long term and to monitor, support, coach, debrief, and provide booster lessons for students as necessary to maintain the achieved gains; (f) staff receives training, feedback, and coaching about effective implementation of the systems; and (g) systems for measuring and monitoring the intervention's effectiveness are established and carried out.

Clear and Consistent Behavior Plans

Teachers who are expected to follow through on behavior plans mandated by administration sometimes find the task difficult to accomplish. Clear and

consistent directions seem to allow teachers to implement such a plan. Turnbull et al. (2002) studied an emerging model of school-wide PBIS, in partnership with Central Middle School, an inner city school in the Kansas City, Kansas, School District and located in the heart of Kansas City, Kansas, in Wyandotte County. They found that Central Middle School educated approximately 762 students in the sixth through eighth grades. Furthermore, based on discipline referral data for the first 2 years of PBIS implementation at Central Middle School, Warren et al. (as cited in Turnbull et al.) found the total number of office discipline referrals decreased by 19%, the in-school conferences with students (i.e., vice principals and counselors sitting and discussing behavior problems with students) decreased by 23%, the timeouts when students were required to sit in the office for a period of time decreased by 30%, the in-school suspensions decreased by 12%, the short-term suspensions (students out of school for 1-5 days) decreased by 60%, and the out-of-school placements remained the same. Taylor-Greene et al. (1997) established that Fern Ridge Middle School in Elmira, Oregon, experienced a 42% drop in office referrals in one year's time after implementing PBIS strategies.

Colvin et al. (1993) found that effective behavioral supports increase schools' capacities for creating positive teaching and learning environments and reduced the occurrence of problem behaviors. Horner et al. (2005) stated that elementary schools show improvements in behavior, academic gains, and increases in instructional time. He said that teachers had fewer problems in classrooms; hallways were quieter and cafeterias were not places for students to

socialize and be out of control. Nelson et al. (2002) determined that participating schools in the PBIS programs showed consistent declines in suspensions, emergency removals, and office referrals.

Oswald, Safran and Johanson (2005) determined that important components of strong PBIS programs (e.g., positive practice, pre-correction, verbal praise, reinforcement, correction of inappropriate behavior, active supervision, discussion of behavior with students, and on-time dismissal) improved middle-school students' problematic hallway behaviors. They also noted those readily available and cost-effective techniques made school common areas safer and more orderly (e.g., signs and hand signals). Additionally, they found that during a 5-week PBIS intervention phase that covered 950 students, there was a reduction of 42.36% for baseline and treatment of problem behaviors.

Anderson (2002) found that preventive discipline involves four key areas: positive reinforcement, positive activities, vigilant supervision, and parental support. He claimed that parental involvement is the most important area of all because parents related PBIS programs with safe schools. Rao, Hoyer, Meehan, Young and Guerrera (2003) explained that PBIS strategies focus first on understanding the student and identifying the function or purpose of his or her behavior. When students are caught doing something good and are rewarded, they are told why they are being rewarded. Students understand before too long that doing good things for themselves and others provides a good feeling that helps them feel positive about themselves. Katz (1997) found that students are

motivated when they listen to and learn skills that they can apply for years to come.

Sugai et al. (2000) and Nakasato (2000) found that when administration implements a PBIS plan, classrooms are calmer and the learning atmosphere is positive. They also said schools that implement systems of school-wide PBIS report a reduction of 40-60% in discipline reports. They found that six elementary schools demonstrated drops in daily office referrals through the development of PBIS strategies. Bryk and Driscoll (1988) determined that effective schools share values with students regarding the school's mission and purpose, carry out multiple activities designed to promote pro-social behavior, and provide a caring, nurturing social climate involving collegial relationships among adults and students.

O'Donnell, Hawkins, Catalano, Abbot, and Day (1995) suggested that school administrators begin school-wide prevention activities early, commit to them, and never give them up. Loeber and Farrington (1998) claimed it is never too late or too early to support children and youth in schools. Scott (2001) demonstrated that 65% to 75% reductions in out-of-school suspensions and in-school detentions allow students to be more successful in class to the point of increasing standardized test scores. Scott described PBIS as a team-based system that facilitates student success and manages problem behaviors.

Kennedy et al. (2001) established that positive behavior supports are successful in reducing the problem behaviors of students with severe disabilities. He stated that these students crave positive attention and when support plans

are implemented with integrity, problem behaviors are reduced. He also claimed that when problem behaviors were positively affected, general education participation was either increased or maintained at maximal levels. Additionally he said that general education teachers are the primary support providers of this plan and administrators encourage and train these teachers to administer the plan in order to reap the rewards of positive behaviors. Carr et al. (1999) and Turnbull and Turnbull (1999) stated that PBIS was the sole and discrete focus of remediation of a student's inappropriate behavior in a clinical setting when a clinician used functional analysis. They further explained that PBIS emphasized a lifestyle focus in natural settings when implemented by teachers, families, and perhaps others, using an array of assessment and support procedures.

According to Walker, Irvin and Sprague (1997), schools that implement school-wide PBIS strategies aim to (a) create a positive school climate, (b) establish and teach behavioral expectations school-wide, and (c) teach mastery and demonstration of behavioral skills (e.g., compliance to school rules, safe and respectful peer-to-peer interactions, and academic effort/engagement). They claimed that educators expect effective and sustained implementation of these plans to create a responsive school climate that supports academic achievement and social development.

According to Gottfredson (1997); Gottfredson et al. (2000), and Walker et al. (1996), a solid research base exists that helps guide careful analysis of the administrative leadership, teaching, and management practices in schools where behavior plans are in place. They further stated in schools where there are

typically developing students who engage in few problematic behaviors and other students who engage in multiple destructive patterns, interventions targeting school-wide and individual approaches to discipline issues are necessary. They encouraged educators in schools and classrooms to adopt and sustain these effective PBIS practices. Gottfredson (1997); and Gottfredson et al. (2000); and Walker et al (1996) claimed that the biggest challenge educators face is to enhance, create, and sustain positive and effective schools. They found that even by creating resilient, engaged students and establishing clear expectations for learning and positive behavior, schools still have a need to provide firm but fair discipline.

Several studies demonstrated positive effects of PBIS, with some recent research showing success in urban settings. Netzel and Eber (2003) reported a 22% reduction in suspensions after one year of universal level implementation (e.g., teaching school-wide rules and recognizing and acknowledging appropriate student behavior) in an urban elementary school. Carr et al. (1999) found that positive interventions are proactive and prevent problem behaviors by altering situations before problems escalate. They said that teachers and administrators who continue to teach appropriate alternatives to middle school students constantly involve themselves in situations that take a sound rational mind to work through discipline issues. They also stated that by using a positive approach and proactive interventions, teachers and administrators help students understand what it takes to make good sound decisions. Colvin et al. (1993) found that a middle school using PBIS strategies had a fifty percent decrease in

office referrals and a decrease in the use of suspensions. In a similar study, Taylor-Greene et al. (1997) showed that over a two-year period there was a decrease in the average number of daily office referrals following PBIS program implementation. Further, Warren et al. (2003) reported a number of encouraging outcomes during the first full year of school-wide PBIS implementation, including a 20% decrease in office referrals, 23% decrease in time outs, and 57% decrease in short-term suspensions.

Horner and Carr (1997) suggested that researchers should not assume that they have learned all they need to know about the causes of problem behaviors. Rather, Ziglar et al. (1992) stated that it is time to continue to study problem behavior concerns and understand that intervention/prevention programs are perhaps the best hope for reducing serious behavior challenges of children who are about to enter adolescence. Likewise, Tolan and Guerra (1994) concluded that, once a pattern of antisocial behavior is established, no intervention strategy is effective in significantly reducing violent behavior among adolescents. Furthermore, Lewis and Sugai (1999) stated that children might come to school with a history that leads to further behavioral problems and schools must respond proactively and consistently to address these issues. They also suggested that current school discipline practices contribute to children and youths' patterns of problem behavior. Safran and Oswald (2003) claimed that PBIS offers schools a promising alternative not only to identify problems, but also to implement interventions. They found that PBIS helps schools reshape disciplinary practices.

Summary

A review of the framing literature seemed to support that today's students need more than consistent discipline policies; they need instruction on how to behave in a positive manner. There is evidence that parents and communities contribute to the development of the most severe forms of student antisocial behaviors. Further, by parents and communities failing to provide proper social skills, consistent support, and appropriate modeling of social interaction, parents are failing their children. To make an impact, parents, schools, and community need to collaborate to bring about positive and sustainable change. PBIS is a plan that focuses on teaching student strategies that help create a climate, culture, and atmosphere in which students will learn socially valuable outcomes and experience success. Nelson et al. (2002) noted that schools that participate in these programs reduce their problem behaviors and improve academic achievement.

School-wide PBIS is an effective alternative to reactive and crisis management interventions that have been used in schools and homes for years. Inconsistent use of punishment in the absence of positive strategies is ineffective and causes increased aggression, truancy, tardiness, and school dropouts. The PBIS program is designed to sustain effective teaching and learning environments for all students and their families. Four key areas of a positive behavior plan are positive reinforcement, positive activities, vigilant supervision, and parental support. After implementing a PBIS plan, classrooms are calmer, and the learning atmosphere is positive. Students who experience such a plan

share in the school's mission and purpose, experience positive social behaviors, and involve themselves in a nurturing school climate.

Chapter III will discuss the methodology of the study and describe the procedures used to address the hypotheses.

Chapter III – Methodology

Overview

From the 1999-2000 through the 2001-2002 school years, Rogers Middle School had no system in place to deal with problematic student behaviors. The behaviors became more challenging in the 2001-2002 school year. Teachers believed administrators were overlooking the poor behaviors of some students and not supporting the teachers in their efforts to maintain a safe and orderly school environment. Staff members sent the principal and assistant principal behavioral discipline referrals, naming students who misbehaved in classrooms, hallways, cafeteria, or other high-traffic areas in the school. Administrators used punitive measures to punish these students, believing the interventions they used would effectively control the poor behaviors.

This study analyzed the effectiveness of PBIS strategies implemented in place of punitive measures on middle school student behavior and middle school student achievement. The data gathered determined if PBIS strategies used in a middle school setting had an effect on reducing office referrals, increasing student grades, and increasing student reading scores. This chapter on methodology is divided into seven sections: subjects, research setting, research design, instrumentation, external validity procedures, and summary. The researcher in this study examined the office referrals, grade point averages, and Lexile reading scores over two three-year spans for two different cohorts of students. Cohort I was the treatment group and Cohort II was the control group. The dependent variable data was analyzed and then compared to determine if

the PBIS program made a statistically significant difference on behavior and academic achievement.

Subjects

An average of 612 students per year attended Rogers Middle School between 2002 and 2007. The school is located in the Affton School District in St. Louis, Missouri, in the southwest suburbs bordering the city of St. Louis, Missouri. The subjects in this study were two sixth-grade middle-school student cohorts. Staff at Rogers Middle School used the PBIS program on student Cohort I. This cohort consisted of approximately 200 students between the years of 2003-2005. Cohort II attended Rogers Middle School during 2005-2007. The PBIS strategies were not used on this cohort of 200 students.

At the time of the study, the school had a multi-cultural student population of approximately 600 consisting of 3% Asian, 11% Black (66 of which were part of the Voluntary Inter-District Choice Corporation), 1% Hispanic, 2% Indian, and 85% White with a 94% attendance rate. Rogers Middle School offered public education for sixth, seventh, and eighth-grade students of which 34% qualified for the free and reduced lunch program. Twenty percent of the students were language minority, of which 163 received English Language Learners educational services in reading, writing, and listening. Five percent of the students participated in the gifted program and 17% of the students qualified for Special School District services. Student-to-staff ratio was 16:1. The average teacher's salary was $51,000 and 100% of the teachers had teaching certificates.

Sampling Procedure

This study used the chi-squared goodness of fit method to determine if the null hypothesis, H_{01}, which stated PBIS used in place of punitive disciplinary measures will not improve student behavior as measured by student discipline referrals, would be accepted or rejected. Additionally, the *f*-test for equality of variances and *t*-test for two sample mean were used to determine if the second null hypothesis, H_{02}, which stated PBIS when used in place of punitive disciplinary measures will not increase academic achievement as measured by Lexile reading scores and student grades, would be accepted or rejected.

Data were compared for the two cohorts of students from the time they entered Rogers Middle School as sixth-grade students until the time they departed as graduates. The first cohort of students attended Rogers Middle School from 2002-2003 through 2004-2005. The second cohort attended Rogers Middle School from 2004-2005 through 2006-2007. Behavior and academic data from the study was entered into a Microsoft Excel spreadsheet. The chi-squared goodness of fit method calculated and compared the behavioral data of Cohort I and Cohort II to determine if the PBIS program made a statistically significant impact on student behavior. Additionally the study used the *f*-test, a Microsoft Excel Data Analysis tool, to determine equality of variances for the cohorts' grade point averages and Lexile SRI scores. The *t*-test for two sample mean calculated and compared data to determine if the PBIS program had a statistically significant impact on student achievement.

Research Setting

Rogers Middle School is located in the Affton School District in a multi-cultural middle-class community in St. Louis County, Missouri. Small businesses line the two major streets in the district. Many of the homes are brick with two bedrooms and have one-car garages. A number of low-cost apartments are located in the district, and many single-parent families live in these residences.

Students at Rogers Middle School met AYP one time in Communication Arts in the last five years. They met AYP two times in the last five years in Mathematics. The APR for the district, as measured by the state of Missouri, accredited the district with distinction four out of the last five years.

Research Design

The type of research used in this study was causal comparative. The researcher collected, studied, and analyzed student discipline referrals, Lexile reading scores, and students' grades to determine if there was a relationship between the PBIS independent variables and the dependent variables of student behavioral referrals, student reading scores, and student grades. The student cohorts in this study were the 2002-2003 sixth-grade class and the 2004-2005 sixth-grade class.

The researcher in this study examined historical behavioral referrals, assessment scores, and grade point averages collected over three-years (2002-03 to 2004-05) for Cohort I, the treatment group, and compared that data with data collected over a similar three-year period (2004-05 to 2006-07) for Cohort II, the control group. For three-years (2002-2003 through 2004-2005), students in

Cohort I at Rogers Middle School participated in the PBIS program. At the start of the 2004-2005 school year, a new administrator decided to end the program because of a perceived lack of effectiveness. Eighth grade teachers continued to follow PBIS program plans with their students. From 2004-05 to 2006-07, the PBIS was not introduced to the sixth grade student Cohort II. This study hypothesized that the PBIS program was a valid and reliable program that would positively affect student behavior and achievement.

Instrumentation

Walker, Cheney, Stage, Blum and Horner (2005) stated that discipline referrals were a tool that could be used to identify students who were at risk for school failure. The instrumentation used in this research project was the school's student data base system, which collected and stored office referral data, Lexile reading scores, and grade point averages. Office referral data reflected the time and date staff members wrote office referrals, the number of office discipline referrals generated, location of the referrals, the interventions used to deal with the referrals, and the type of problem behaviors exhibited by students. Also collected and analyzed were the reading Lexile scores and grade point averages of the two cohorts. Teachers derived the Lexile reading scores from a computerized assessment used to measure students' reading ability. These assessments were used to determine if student academic performance improved because of the behavior supports in place. The grade-point averages determined if PBIS strategies increased classroom seat time due to fewer in-school or out-of-school suspensions and if this increased time made a significant difference in

student performance. All data were collected and entered into an Excel spreadsheet for the purpose of creating appropriate graphs and charts to offer comparisons.

Validity of instrumentation. According to Salvia and Ysseldyke (1998) , the SRI is a “research-based program, which has been the subject of six validation studies ranging from a norming study to an analysis of gender, race and ethnic differences among fourth-through ninth grade students” (p.1). The SRI assessment measured reading achievement for the students in both cohorts. The student information system allowed for the collection of office referrals and grade point averages. This data was determined to be valid, reliable, and objective. To help control implementation and instrumentation threats, standardized procedures and training were initiated to address data collector characteristics and data collection bias, as it pertained to grade point averages and discipline referrals.

The same data collector was used to analyze data throughout the study. Instrumentation decay was minimized by the use of the student information database and computerized SRI Lexile scores. The researcher in this study collected student office referrals issued by staff members, which office personnel entered into the electronic student information system. Staff members administered computer-reading Lexile assessments at the beginning and end of each school year. The end of the year assessment was used in this study to determine the effectiveness of the PBIS program on student achievement. Teachers entered students’ grades into the student information system. The

system calculated these grades into grade point averages that were used in this study to also determine the effectiveness of the PBIS program on student achievement.

The primary investigator of this study had no influence over staff members who wrote student referrals, administered student assessment scores, or graded students' work. The bar graphs in Chapter IV list the data collected in column fashion for the two cohorts for comparison purposes. The Rogers Middles School data were collected for Cohort I from 2002-2003 through 2004-2005 and compared to data for Cohort II from 2004-2005 through 2006-2007. Both collections were collected over the same monthly periods.

Reliability of instrumentation. According Knutson (n.d.), there is a strong correlation (ranging from .79 to .82) between SRI assessments and California Standards Test for English-Language Arts. When the SRI is administered in a systematic way, the results of the SRI statistically correlate to the end-of year California Standards Test results. Thus, implementing the SRI assessment and using the data from the assessment to drive instruction seemed to support the school district's goal of ensuring that all students achieve reading success.

The instrumentation in this study was administered to the appropriate groups. The SRI assessment data used in the study was criterion based and norm referenced. The researcher in this study relied on teachers being consistent and fair over the years in the application of the discipline policies within the school. Staff members administered the SRI assessment on student computers. These computers automatically recorded scores. The scores were then

downloaded to the student information system data bank. Teachers had access to final scores only and had no influence.

Teachers calculated the grades for their students and entered them into the student information system. The researcher used the calculated grade-point averages based on the year-end grades given to the students. Based on the information accumulated during similar three-year time spans for both student cohorts, the researcher grouped, ranked, and evaluated findings for future use. Wentzel (1993) examined the link between social responsibility and academic motivation. She reported relatively high correlations between mastery, evaluation, and social responsibility goals. Thus, it appears that the pursuit of social responsibility goals was linked to the pursuit of academic goals. Malecki and Elliott (2002) extended the work of Wentzel with standardized measures completed by multiple informants asking parents, teachers, and students to explore relationships between social behaviors and academic outcomes. Malecki and Elliott found that social skills were a significant predictor of academic competence. Like Wentzel (1993), Malecki and Elliott concluded that social skills had a significant predictive relationship with academic outcomes.

External Validity

The results of this study can apply to other generalized settings due to the large and random sampling of both the treatment and control groups studied. Other middle schools may find this data appropriate and useful when making decisions regarding programs that address student problem behaviors. The data used in this study were readily available (e.g., office referral data) and commonly

used achievement information (e.g., grade point averages and Lexile reading scores) that would allow for comparison to similar studies in similar settings.

Procedures

Because of the chronic discipline problems at Rogers Middle School and the seemingly questionable methods used to control poor behaviors, the researcher in this study examined how positive interventions might elicit positive responses from students who showed continued problematic behaviors. The researcher predicted that these positive responses and appropriate actions from students would translate to fewer referrals, increased classroom time for students, and improved student academic success.

Administrators at Rogers Middle School seemed to discipline repeat offenders numerous times without seeing positive outcomes. The discipline was mostly punitive with no lasting effect on the students. Because administrators did not use positive interventions or positive reinforcement, students became angry, thought staff members did not care about them, and continued a pattern of poor behavior. Dishion and Andrews (1995) documented a strong link between inconsistent and harsh behavior management practices at home and school with repeat behavior offenders. This form of behavior management—in place for years at Rogers Middle School—seemed to be ineffective. Discipline measures used twenty to thirty years ago did not seem to work on today's students.

In January of 2002, the poor student behaviors at Rogers Middle School caused teachers and administrators to consider alternative methods for disciplining students. The assistant principal and guidance director attended a

PBIS workshop sponsored by the Special School District in St. Louis, Missouri. They agreed on a positive intervention program to create positive behaviors at Rogers Middle School. They shared the information with the building principal and key staff members and decided to implement the positive intervention approach to discipline in their building.

Minke and Anderson (2005) stated that if all goes as expected, PBIS offers a structured approach to addressing children's behavior from the individual level to the school-wide level. They encouraged administrators to include all relevant stakeholders (especially families) in actively planning, implementing, and evaluating the supports provided. They found that empirical literature strongly supported parent involvement in education, which could lead to substantial benefits (e.g., greater academic success for children). Minke and Anderson also mentioned that the value of collaborating frequently, particularly in the context of working with students with more severe disabilities, was a key component of PBIS strategies.

In May of 2002, facilitators from Special School District presented a PBIS overview to the staff of Rogers Middle School. Staff members were impressed with the discipline alternatives presented. After this meeting and additional collaboration among staff members and other key personnel, the Rogers Middle School faculty committed itself to the implementation of a 3-year Positive Behavior Support Program. Key staff members and administrators studied and trained through the summer of 2002. Although staff members expected the program to alleviate problems, they knew the only way to make the program work

effectively was for all stakeholders to be fully committed to the program. Personnel from the Special School District of St. Louis, Missouri, trained this group, which consisted of teacher leaders, counselors, classified staff, administrators, and parents. Ten Rogers Middle School stakeholders attended the Special School District's training. The group included a representative from each grade level and or department, as well as a parent, support staff, one assistant principal, and a counselor. The team met bi-monthly over the summer to plan their PBIS program for the school year.

Horner, Sugai, Todd, and Lewis-Palmer (2000) stated that the administrator's first goal is to develop a positive plan of action to deal with challenging behaviors. They suggested that PBIS was the recommended plan for dealing with these challenging behaviors. They noted that before the implementation of such a plan, it was important to list key elements on which staff could agree and that should be part of this positive behavior support plan: (a) learn how the student perceives or experiences events in his or her own environment, (b) invest in preventing occurrences of problem behavior, (c) teach the most powerful behavior support strategies in schools, (d) avoid rewarding problem behavior, (e) reward positive behaviors, and (f) know what to do in the most difficult situations.

At the opening meetings for the 2002-2003 school year, Special School District facilitators and the PBIS committee trained the Rogers Middle School staff on the PBIS procedures. The staff trained as a whole during the back-to-school meetings. Following this training, Rogers Middle School staff implemented

the PBIS program for the first time. The staff and administrators expected this program to curb the challenging behaviors that were adversely affecting school climate and student achievement.

The school year began with staff members familiarizing all students with the PBIS procedures on the first day in first-hour classes. Throughout the year, staff chose lessons on character education, which teachers then taught during weekly advisory hours. Teachers taught students the proper way to respond to all staff members and their classmates. Not all was easy during the first semester. It took time for both students and staff members to become comfortable with the process. A key issue that could lead to potential failure of the program was staff members not following the PBIS strategies and lessons.

Sugai et al. (2002) found that through the implementation of a PBIS program a process would evolve that supported the achievement of socially and educationally important outcomes for all students. The early intervention program became a staple at Rogers Middle School. Teams of teachers, counselors, and administrators named their positive behavior program Project Respect. This program was a proactive, four-prong approach that encouraged students to make sound decisions and show respect for themselves, others, property, and learning.

Rogers Middle School Student and Teacher Handbooks helped explain the guiding principles of the PBIS program in case students, staff, and parents lost sight of the over-arching goals: (a) the behavior must be observable and (b) the intensity of the behavior support plans must match the intensity of the problem behavior. The handbooks also explained that local expertise is available

to (a) conduct fluent functional behavioral assessment-behavioral support plans; (b) facilitate sufficient development, implementation, and evaluation of PBIS; (c) collect and analyze student performance data;
(d) develop academic and social behavior support plans based on research-validated practices; (e) make data-driven decisions; and (f) help staff understand feedback on their implementation of behavior intervention plans.

When staff members noticed students displaying positive behavior or responses, they rewarded them with a “Cougar Award” that could be redeemed for “Cougar Merchandise.” Cougar Awards were recognition for behavior that showed respect towards self, others, learning, and property. Academic success was rewarded in other ways (e.g., honor rolls or certificates of merit) because Cougar Awards recognized only positive behavior. Once a student received a Cougar Award, it became the permanent possession of the student. When a student received a Cougar Award, it was important that the person giving the award used respect language to tell the child the specific reason for the award. For example, Joey loses control over the large amount of books he is carrying and drops them in the hallway. Mary Ann stops to help Joey gather his belongings. The teacher acknowledges Mary Ann’s actions with a Cougar Award. The teacher tells her, “Mary Ann, I really appreciate how you helped Joey pick up his books. That’s a nice way to show respect for others.” Cougar Awards were only one component of the PBIS plan implemented at Rogers Middle School. Nevertheless, teachers and administrators were aware that the school’s discipline policy was in force to handle inappropriate behaviors that required

disciplinary action immediately.

Another component of the PBIS Plan was implementation of a mentoring program. The mentoring program at Rogers Middle School allowed for behavior teams to examine office referral data and identify students with behavior problems who received ten or more office referrals, classified as repeat offenders. The positive behavior coach paired students with appropriate faculty or staff members, and the pairs met on a weekly basis to discuss positive student responses to interventions used in the program. In addition to the mentoring program, school-wide character education lesson plans were taught in all advisories and were linked to the character education curriculum. “Give Me Five” was the universal attention signal taught to students. Teachers would raise their hands, with palms toward the students, and fingers spread and ask, “Give me five”? Staff members expected all students to raise their hands in preparation to show respect to a potential speaker. This signal was portable, seen, heard, and used throughout the school. Teachers and administrators used this signal in classrooms, the cafeteria, during assemblies, and fire drills—whenever important information needed to be shared with students.

To guarantee the success of the PBIS program, it was essential that a PBIS Coach worked with both students and staff to keep the program goals fresh in everyone’s mind. The PBIS Coach regularly consulted with teachers who interacted with students showing chronic behavior patterns. The coach worked with teachers to develop individual behavior plans for these students. The plans consisted of administering and analyzing Functional Behavioral Assessments

and developing PBIS plans for the students who were at risk. By collecting and analyzing office referral data, the effectiveness of the plan was determined.

At Rogers Middle School, staff members taught positive lesson topics during advisory and encouraged appropriate behaviors and responses in heavily populated areas. To encourage and support positive behaviors, PBIS teams targeted certain building areas for interventions. The cafeteria, hallways, and classrooms were the areas where positive student behaviors were encouraged and rewarded.

Staff members were encouraged to share lesson plans throughout the year with their colleagues and team-teach these lessons at appropriate times. During the beginning stages of the program, students who received referrals migrated to the school's office. Because of the congestion in the office area, due to students' referrals and general office business, alternative locations became necessary for students to receive their interventions. Extra classrooms designated as alternative referral locations helped alleviate the crowded office situation. Administrators encouraged teams to review data and procedures regularly. Teams were also encouraged to maintain the staff-implemented mandatory weekly advisory and to continue the use of increased visual supports along with the increased numbers of incentives, rewards, and staff training during summer. Building administration expected teachers who followed the PBIS guidelines to experience a manageable and successful program.

The data and results of this study directed the future use of discipline programs in the District. By collecting data over two different three-year spans,

administrators and staff members could determine if PBIS was a determining factor in improving behavior and increasing student achievement. The results of this study along with administration, teacher, and student responses would determine if the program would continue in the future.

Summary

According to Lee, Smith, Perry and Smylie (1999), previous studies of schools have found that economically disadvantaged students, especially those of color, perform better when teachers match high expectations with warm and safe environments and social supports. This study compared behavior referral data from year to year using the chi-squared goodness of fit to determine if student behaviors significantly improved due to the PBIS model. The study also compared student-assessment data using the *f*-test for equality of variances and *t*-test for two sample mean from year to year to establish if student achievement significantly improved due to the PBIS model. After the implementation of the PBIS strategies on the treatment group, data were examined to determine if the behaviors and achievement of the treatment group was statistically and significantly different from those of students in the control group.

The independent variables used in this study were a number of PBIS interventions that educational staff used for problem behaviors. Administrators and team leaders encouraged staff members to participate with the expectation that they would use positive interventions when dealing with challenging student behaviors. Tables and graphs helped compare each cohort and reflected results of the chi-squared goodness of fit, *f*-test for equality of variances, and the *t*-test

for two sample mean. By analyzing the number of referrals, targeted behaviors, targeted location of referrals, SRI scores, student grades, and frequency of student referrals, the *t*-test for two sample mean indicated that the study and results were reliable.

Safran and Oswald (2003) found that PBIS programs represented a major departure from traditional reactive discipline practices. The PBIS model used in this study allowed staff members to play an active role in determining how they would intervene when students acted inappropriately. Analyzing and comparing office referrals, reading scores, and grades to the years when traditional reactive discipline was in place provided the opportunity to determine if a behavior program would be effective in a middle school setting.

Chapter IV will report the study findings. Chapter V will offer discussions, conclusions, and recommendations.

Chapter IV – Results

In this study, Positive Behavior Support was not a specific practice or curriculum. This program was a general approach to preventing problem behavior. During the years 2002 through 2005, Rogers Middle School administrators did not limit the PBIS program to any particular group of students. However, for this study the PBIS program concentrated on the 2002-03 sixth grade cohort and offered proven behavioral practices and effective instructional design.

At Rogers Middle School, building-based teams gave students defined expectations known as effective behavioral support. Staff and administration attempted to implement the effective behavioral supports consistently. These effective behavior supports were specific for classroom interventions and individual student level interventions and were introduced to students on a daily basis. The expectation at Rogers Middle School was that problem behaviors had clear consequences and students would learn appropriate behaviors and acknowledge publicly when their behaviors were inappropriate. Staff members received recommendations from the PBIS Coach on how to respond to student behaviors based on analyzing data that was entered into the student information system database. This allowed staff to adjust and fine tune appropriate and consistent responses to the behaviors.

Implementation of this program promoted positive interactions between teachers and students. The success of this program depended on accurate, specific, and descriptive feedback from teachers to students. Teachers provided

praise for correct academic responses from students, encouraged appropriate social behaviors of students, monitored students' on-task behaviors in the classroom, and worked to eliminate disruptive student behavior.

Results

In this chapter the researcher presents the results of behavioral data and academic data gathered for two student cohorts over three-year spans. The behavioral referral data were collected through the student information system. Additional academic data, in the form of Lexile reading scores and grade-point averages, collected through the student information system allowed for the evaluation of academic performance. The *f*-test to determine equality of variances and the *t*-test for two sample mean compared the findings of the cohort Lexile scores for three-years and cohort grade point averages for three-years.

Data Analysis for Behavioral Referrals

The total number of yearly referrals written from 2002-2003 through 2004-05 for Cohort I were analyzed by using the chi-squared goodness of fit. The total number of referrals for students in Cohort I, from the time they entered the middle school as sixth-grade students (2002-2003 through 2004-2005) until the time they graduated as eighth-grade students, are displayed in Figure 1, by school year. The numbers of referrals per year for Cohort I decreased by 15% from 2002-2003 to 2004-2005 when Rogers Middle School implemented School-wide Positive Behavior Supports.

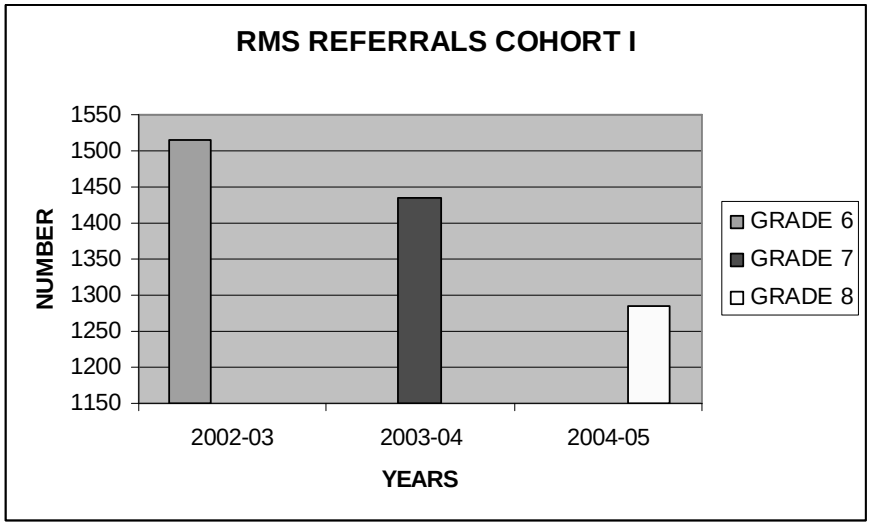

Figure 1. Rogers Middle School (RMS) Referrals for Cohort I by school year.

The Figure 1 data are presented in Table 1.

Table 1

Cohort I Treatment Group Yearly Referrals

Variable	Observed	Expected
Referrals Year 1	1515	1412
Referrals Year 2	1436	1412
Referrals Year 3	1284	1412
Total	4235	4236

Observations	4236
Df	2
Chi-squared	19.539
p value	0.001

χ^2 (2, N = 4236) = 19.525, $p \leq .001$

In Table 1, the calculated chi-squared goodness of fit, indicates the p-value was less than .05, thus, the null hypothesis (H_{01}), which stated PBIS used in place of punitive disciplinary measures will not improve student behavior as measured by student discipline referrals, was rejected because there was a change.

The null hypothesis (H_{01a}), which stated, educational staff at Rogers

Middle School, when implementing PBIS, will see no decrease in the number of discipline referrals, was rejected because there was a change.

The null hypothesis (H_{01b}), which stated educational staff at Rogers Middle School, when implementing PBIS, will see the number of observed referrals for the treatment group (Cohort I) be equal over time to the expected number of office referrals for the control group (Cohort II), was rejected because there was a change. The total number of yearly referrals written from 2002-2003 through 2004-05 for Cohort I was analyzed using the chi-squared goodness of fit.

Displayed in Figure 2, by school year, is the total number of referrals for students in Cohort II from the time they entered the middle school as sixth-grade students (2004-2005 through 2006-2007). When the numbers of referrals per year were compared for Cohort II, the number of referrals per year had increased by 15% from 2004-2005 to 2006-2007, when school-wide positive behavior supports were no longer used. School personnel, who evaluate student behavior and the behavioral climate of schools, often use office discipline referrals. Researchers often find office discipline referrals to be a valid indicator of school-wide behavioral climate, the effects of school-wide behavioral interventions, and the differing behavior support needs across schools (Irvin, Tobin, Spague, Sugai, & Vincent, 2004).

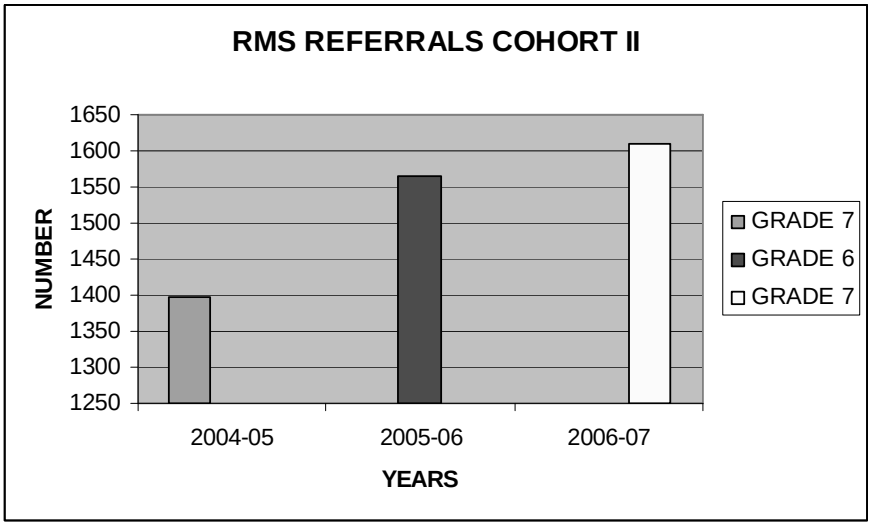

Figure 2. Rogers Middle School (RMS) Referrals for Cohort II by school year.

The Figure 2 data are presented in Table 2.

Table 2

Cohort II Control Group Yearly Referrals

Variable	Observed	Expected
Referrals Year 1	1396	1523
Referrals Year 2	1564	1523
Referrals Year 3	1609	1523
Total	4569	4569

Observations	4569
Df	2
Chi-squared	16.55
p value	0.001

χ^2 (2, N = 4569) = 16.55, $p \leq .001$

In Table 2, the calculated chi-squared goodness of fit indicates the p-value was less than .05, thus, the null hypothesis (H_{01}), which stated PBIS used in place of punitive disciplinary measures will not improve student behavior as measured by student discipline referrals, was rejected because there was a change.

The null hypothesis (H_{01a}), which stated educational staff at Rogers Middle

School, when implementing PBIS, will see no decrease in the number of discipline referrals, was rejected because there was a change.

The null hypothesis (H_{01b}), which stated educational staff at Rogers Middle School, when implementing PBIS, will see the number of observed referrals for the treatment group (Cohort I) be equal over time to the expected number of office referrals for the control group (Cohort II), was rejected because there was a change. The total numbers of yearly referrals written from 2004-2005 through 2006-07 for Cohort II were analyzed using the chi-squared goodness of fit.

Figure 3 displays a comparison of disruptive referrals for both Cohorts I and II during two different three-year time-frames in which data were collected.

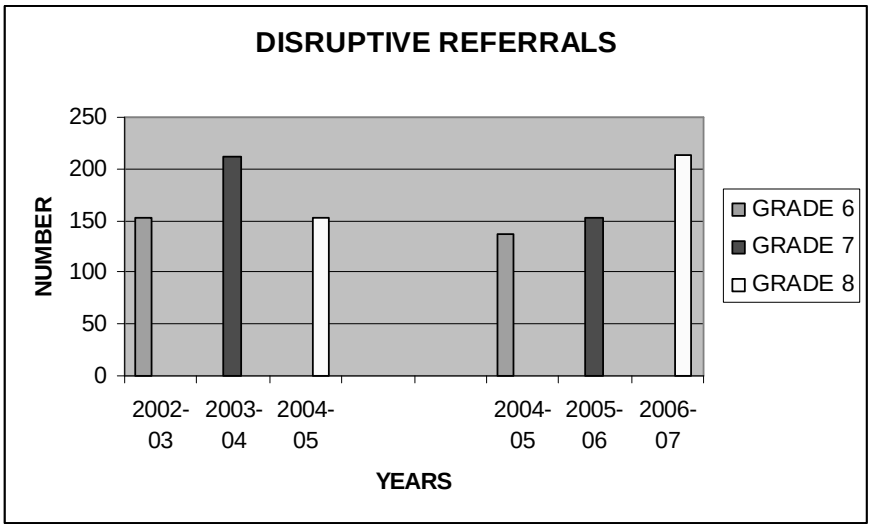

Figure 3. Comparison of Cohort I and Cohort II disruptive referrals by year.

The referrals written for classroom disruption from 2002-2003 through 2004-05 for Cohort I were analyzed by using the chi-squared goodness of fit. The results are presented in Table 3.

Table 3

Cohort I Treatment Group Classroom Disruption Referrals

Variable	Observed	Expected
Disruption Year 1	152	172
Disruption Year 2	211	172
Disruption Year 3	153	172
Total	516	
Observations	3	
df	2	
Critical Value	5.991	
Chi-squared Value	.00131	

Table 3 indicates the calculated chi-squared value of .00131 was less than the alpha value of 5.991, thus, the null hypothesis (H_{01}), which stated PBIS used in place of punitive disciplinary measures will not improve student behavior as measured by student discipline referrals, was accepted because there was no change.

The null hypothesis (H_{01a}), which stated educational staff at Rogers Middle School, when implementing PBIS, will see no decrease in the number of discipline referrals, was accepted because there was no change.

The null hypothesis (H_{01b}), which stated educational staff at Rogers Middle School, when implementing PBIS, will see the number of observed referrals for the treatment group (Cohort I) be equal over time to the expected number of office referrals for the control group (Cohort II), was accepted because there was no change.

The referrals written for classroom disruption from 2004-2005 through 2006-07 for Cohort II were analyzed by using the chi-squared goodness of fit. The results are presented in Table 4.

Table 4

Cohort II Control Group Classroom Disruption Referrals

Variable	Observed	Expected
Disruption Year 1	137	167
Disruption Year 2	152	167
Disruption Year 3	213	167
Total	502	
Observations	3	
Df	2	
Critical Value	5.991	
Chi-squared Value	6.1064	

Table 4 indicates the calculated chi-squared value of 6.1064 was greater than the critical value of 5.991, thus, the null hypothesis (H_{01}), which stated PBIS used in place of punitive disciplinary measures will not improve student behavior as measured by student discipline referrals, was rejected because there was a change.

The null hypothesis (H_{01a}), which stated educational staff at Rogers Middle School, when implementing PBIS and while dealing with problem behaviors of middle school students will see no decrease in the number of discipline referrals, was rejected because there was a change.

Then null hypothesis (H_{01b}), which stated educational staff at Rogers Middle School, when implementing PBIS, will see the number of observed referrals for the treatment group (Cohort I) be equal over time to the expected number of office referrals for the control group (Cohort II), was rejected because there was a change.

Figure 4 displays a comparison of disrespect referrals for both Cohort I and Cohort II during two different three-year time-frames in which data was collected.

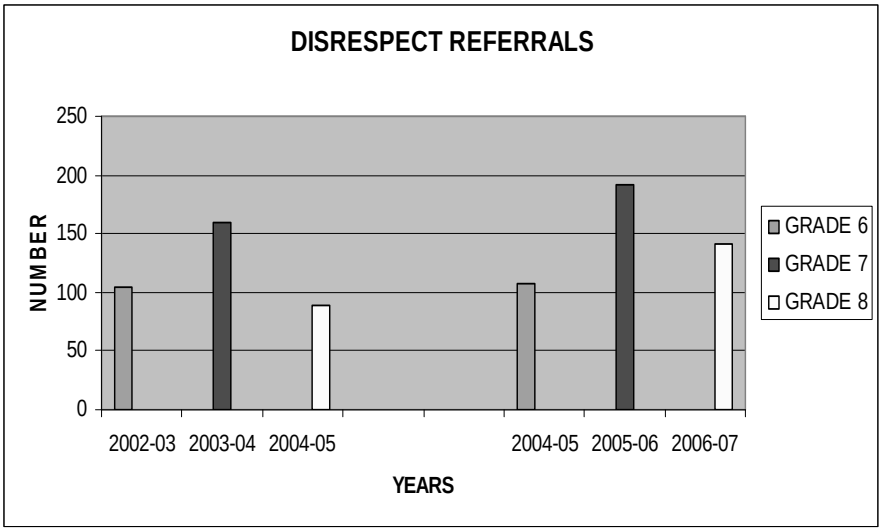

Figure 4. Comparison of disrespect referrals from 2002-05 to 2004-07.

The referrals written for disrespect from 2002-2003 through 2004-05 for Cohort I were analyzed by using the chi-squared goodness of fit. The results are presented in Table 5.

Table 5

Cohort I Treatment Group Disrespect Referrals

Variable	Observed	Expected
Disrespect Year 1	104	118
Disrespect Year 2	160	118
Disrespect Year 3	89	118
Total	353	
Observations	3	
Df	2	
Critical Value	5.991	
Chi-squared Value	7.0067	

Table 5 indicates the calculated chi-squared value of 7.0067 was greater than the critical value of 5.991, thus, the null hypothesis (H_{01}), which stated PBIS used in place of punitive disciplinary measures will not improve student behavior as measured by student discipline referrals, was rejected because there was a

change.

The null hypothesis (H_{01a}), which stated educational staff at Rogers Middle School, when implementing PBIS, will see no decrease in the number of discipline referrals, was rejected because there was a change.

The null hypothesis (H_{01b}), which stated educational staff at Rogers Middle School, when implementing PBIS, will see the number of observed referrals for the treatment group (Cohort I) be equal over time to the expected number of office referrals for the control group (Cohort II), was rejected because there was a change.

The referrals written for disrespect, from 2004-2005 through 2006-07, for Cohort II were analyzed by using the chi-squared goodness of fit. The results are presented in Table 6.

Table 6

Cohort II Control Group Disrespect Referrals

Variable	Observed	Expected
Disrespect Year 1	107	147
Disrespect Year 2	192	147
Disrespect Year 3	141	147
Total	440	
Observations	3	
Df	2	
Critical Value	5.991	
Chi-squared Value	3.9084	

Table 6 indicates the calculated chi-squared value of 3.9084 was less than the critical value of 5.991, thus, the null hypothesis (H_{01}), which stated PBIS used in place of punitive disciplinary measures will not improve student behavior as measured by student discipline referrals, was accepted because there was no change.

The null hypothesis (H_{01a}), which stated educational staff at Rogers Middle School, when implementing PBIS and while dealing with problem behaviors of middle school students, will see no decrease in the number of discipline referrals, was accepted because there was no change.

The null hypothesis (H_{01b}), which stated educational staff at Rogers Middle School, when implementing PBIS, will see the number of observed referrals for the treatment group (Cohort I) be equal over time to the expected number of office referrals for the control group (Cohort II), was accepted because there was no change.

The referrals written for tardiness from 2002-2003 through 2004-05 for Cohort I were analyzed by using the chi-squared goodness of fit. The results are presented in Table 7.

Figure 5 displays a comparison of tardiness referrals for both Cohorts I and II during two different three-year time-frames in which data was collected.

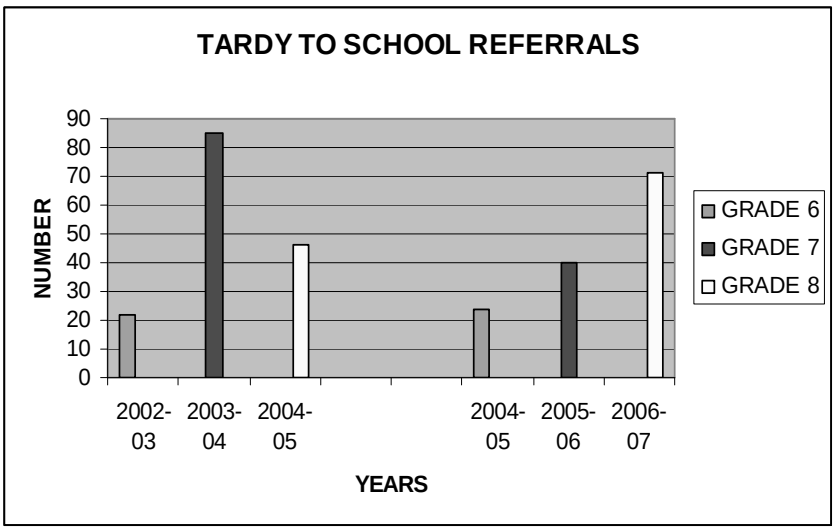

Figure 5. Comparison of Cohort I and Cohort II tardy-to-school referrals by year.

Table 7

Cohort I Treatment Group Tardy to School Referrals

Variable	Observed	Expected
Tardy to Sch Year 1	22	51
Tardy to Sch Year 2	85	51
Tardy to Sch Year 3	46	51
Total	153	
Observations	3	
df	2	
Critical Value	5.991	
Chi-squared Value	2.4589	

Table 7 indicates the calculated chi-squared value of 2.4589 was less than the critical value of 5.991, thus, the null hypothesis (H_{01}), which stated PBIS used in place of punitive disciplinary measures will not improve student behavior as measured by student discipline referrals, was accepted because there was no change.

The null hypothesis (H_{01a}), which stated educational staff at Rogers Middle School, when implementing PBIS, will see no decrease in the number of discipline referrals, was accepted because there was no change.

The null hypothesis (H_{01b}), which stated educational staff at Rogers Middle School, when implementing PBIS, will see the number of observed referrals for the treatment group (Cohort I) be equal over time to the expected number of office referrals for the control group (Cohort II), was accepted because there was no change.

The referrals written for tardiness from 2004-2005 through 2006-07 for Cohort II were analyzed by using the chi-squared goodness of fit. The results are presented in Table 8.

Table 8

Cohort II Control Group Tardy to School Referrals

Variable	Observed	Expected
Tardy to Sch Year 1	24	45
Tardy to Sch Year 2	40	45
Tardy to Sch Year 3	70	45
Total	134	
Observations	3	
Df	2	
Critical Value	5.991	
Chi-squared Value	5.4373	

Table 8 indicates the calculated chi-squared value of 5.4373 was less than the critical value of 5.991, thus, the null hypothesis (H_{01}), which stated PBIS used in place of punitive disciplinary measures will not improve student behavior as measured by student discipline referrals, was accepted because there was no change.

The null hypothesis (H_{01a}), which stated educational staff at Rogers Middle School, when implementing PBIS, will see no decrease in the number of discipline referrals, was accepted because there was no change.

The null hypothesis (H_{01b}), which stated educational staff at Rogers Middle School, when implementing PBIS, will see the number of observed referrals for the treatment group (Cohort I) be equal over time to the expected number of office referrals for the control group (Cohort II), was accepted because there was no change.

The referrals written for tardiness from 2002-2003 through 2004-05 for Cohort I were analyzed by using the chi-squared goodness of fit. The results are presented in Table 9.

Figure 6 displays a comparison of tardy to class referrals for both Cohorts I and II during two different three-year time-frames in which data was collected.

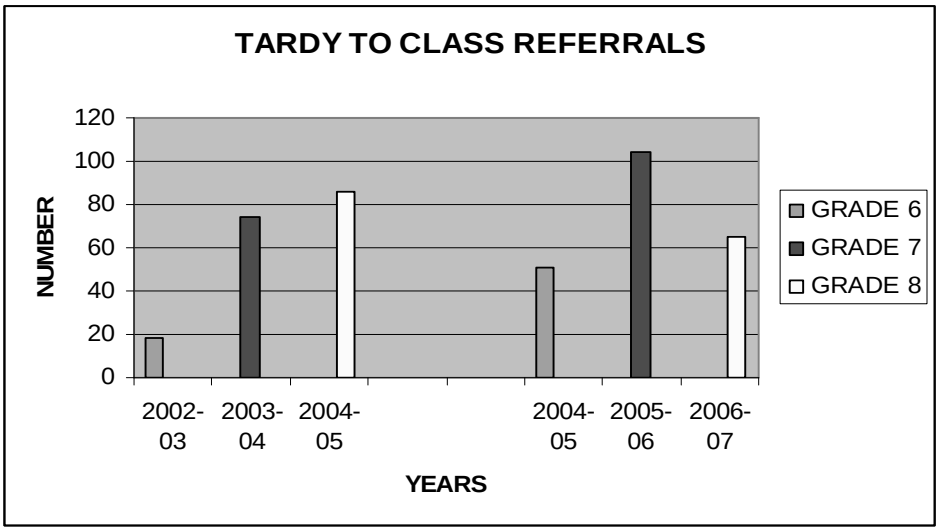

Figure 6. Comparison of Cohort I and Cohort II tardy-to-class referrals by year.

Table 9

Cohort I Treatment Group Tardy to Class Referrals

Variable	Observed	Expected
Tardy to Class Year 1	18	59
Tardy to ClassYear 2	74	59
Tardy to Class Year 3	86	59
Total	178	
Observations	3	
df	2	
Critical Value	5.991	
Chi-squared Value	2.0044	

Table 9 indicates the calculated chi-squared value of 2.0044 is less than the critical value of 5.991, thus, the null hypothesis (H_{01}), which stated PBIS used in place of punitive disciplinary measures will not improve student behavior as measured by student discipline referrals, was accepted because there was no change.

The null hypothesis (H_{01a}), which stated educational staff at Rogers Middle

School, when implementing PBIS, will see no decrease in the number of discipline referrals, was accepted because there was no change.

The null hypothesis (H_{01b}), which stated educational staff at Rogers Middle School, when implementing PBIS, will see the number of observed referrals for the treatment group (Cohort I) be equal over time to the expected number of office referrals for the control group (Cohort II), was accepted because there was no change.

The referrals written for tardiness from 2004-2005 through 2006-07 for Cohort II were analyzed by using the chi-squared goodness of fit. The results are presented in Table 10.

Table 10

Cohort II Control Group Tardy to Class Referrals

Variable	Observed	Expected
Tardy to Class Year 1	51	73
Tardy to ClassYear 2	104	73
Tardy to Class Year 3	65	73
Total	220	
Observations	3	
Df	2	
Critical Value	5.991	
Chi-squared Value	3.2456	

Table 10 indicates the calculated chi-squared value of 3.2456 is less than the critical value of 5.99, thus, the null hypothesis (H_{01}), which stated PBIS used in place of punitive disciplinary measures will not improve student behavior as measured by student discipline referrals, was accepted because there was no change.

The null hypothesis (H_{01a}), which stated educational staff at Rogers Middle

School, when implementing PBIS, will see no decrease in the number of discipline referrals, was accepted because there was no change.

The null hypothesis (H_{01b}), which stated educational staff at Rogers Middle School, when implementing PBIS will see the number of observed referrals for the treatment group (Cohort I) be equal over time to the expected number of office referrals for the control group (Cohort II), was accepted because there was no change.

The referrals written for classroom work, from 2002-2003 through 2004-05 for Cohort II, were analyzed by using the chi-squared goodness of fit. The results are presented in Table 11.

Figure 7 displays a comparison of behavior referrals for both Cohorts I and II during two different three-year time-frames in which data was collected.

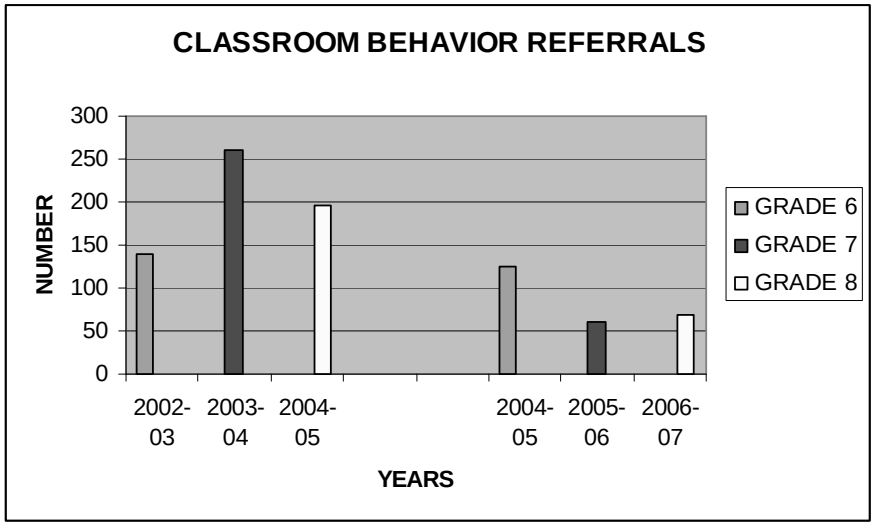

Figure 7. Comparison of Cohort I and Cohort II behavior referrals by year.

Table 11

Cohort I Treatment Group Classroom Work Referrals

Variable	Observed	Expected
Work Referrals Year 1	139	198
Work Referrals Year 2	261	198
Work Referrals Year 3	195	198
Total	595	
Observations	3	
df	2	
Critical Value	5.991	
Chi-squared Value	6.6022	

Table 11 indicates the calculated chi-squared value of 6.6022 was greater than the critical value of 5.991, thus, the null hypothesis (H_{01}), which stated PBIS used in place of punitive disciplinary measures will not improve student behavior as measured by student discipline referrals, was rejected because there was a change.

The null hypothesis (H_{01a}), which stated educational staff at Rogers Middle School, when implementing PBIS, will see no decrease in the number of discipline referrals, was rejected because there was a change.

The null hypothesis (H_{01b}), which stated educational staff at Rogers Middle School, when implementing PBIS, will see the number of observed referrals for the treatment group (Cohort I) be equal over time to the expected number of office referrals for the control group (Cohort II), was rejected because there was a change.

Classroom work referrals were influenced by the PBIS program. Fewer referrals were written for students who refused to work in the classroom. This

may indicate that teachers learned how to use rewards in the classroom to encourage students to complete their work.

The referrals written for classroom work, from 2004-2005 through 2006-07 for Cohort II, were analyzed by using the chi-squared goodness of fit. The results are presented in Table 12.

Table 12

Cohort II Control Group Classroom Work Referrals

Variable	Observed	Expected
Work Referrals Year 1	125	85
Work Referrals Year 2	60	85
Work Referrals Year 3	69	85
Total	254	
Observations	3	
df	2	
Critical Value	5.991	
Chi-squared Value	4.5904	

Table 12 indicates the calculated chi-squared value of 4.5904 was less than the critical value of 5.991, thus, the null hypothesis (H_{01}), which stated PBIS used in place of punitive disciplinary measures will not improve student behavior as measured by student discipline referrals, was accepted because there was no change.

The null hypothesis (H_{01a}), which stated educational staff at Rogers Middle School, when implementing PBIS, will see no decrease in the number of discipline referrals, was accepted because there was no change.

The null hypothesis (H_{01b}), which stated educational staff at Rogers Middle School, when implementing PBIS, will see the number of observed referrals for the treatment group (Cohort I) be equal over time to the expected number of

office referrals for the control group (Cohort II), was accepted because there was no change.

The referrals written for fighting from 2002-2003 through 2004-05 for Cohort I were analyzed by using the chi-squared goodness of fit. The results are presented in Table 13.

Figure 8 displays a comparison of fighting referrals, for both Cohorts I and II, during two different three-year time-frames in which data was collected.

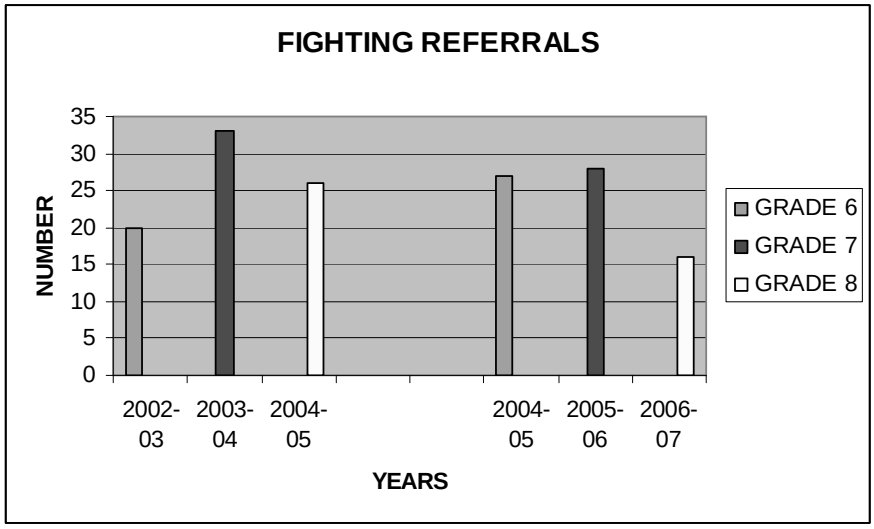

Figure 8. Comparison of Cohort I and Cohort II fighting referrals by year.

Table 13

Cohort I Treatment Group Fighting Referrals

Variable	Observed	Expected
Fighting Ref Year 1	20	26
Fighting Ref Year 2	33	26
Fighting Ref Year 3	26	26
Total	79	
Observations	3	
df	2	
Critical Value	5.991	
Chi-squared Value	0.1950	

Table 13 indicates the calculated chi-squared value of 0.1950 was less than

the critical value of 5.991, thus, the null hypothesis (H_{01}), which stated PBIS used in place of punitive disciplinary measures will not improve student behavior as measured by student discipline referrals, was accepted because there was no change.

The null hypothesis (H_{01a}), which stated educational staff at Rogers Middle School, when implementing PBIS, will see no decrease in the number of discipline referrals, was accepted because there was no change.

Thus, null hypothesis (H_{01b}), which stated educational staff at Rogers Middle School, when implementing PBIS, will see the number of observed referrals for the treatment group (Cohort I) be equal over time to the expected number of office referrals for the control group (Cohort II), was accepted because there was no change.

The referrals written for fighting, from 2004-2005 through 2006-07 for Cohort II, were analyzed by using the chi-squared goodness of fit. The results are presented in Table 14.

Table 14

Cohort II Control Group Fighting Referrals

Variable	Observed	Expected
Fighting Ref Year 1	27	27
Fighting Ref Year 2	28	27
Fighting Ref Year 3	16	27
Total	71	
Observations	3	
df	2	
Critical Value	5.991	
Chi-squared Value	0.1565	

Table 14 indicates the calculated chi-squared value of 0.1565 was less

than the critical value of 5.991, thus, the null hypothesis (H_{01}), which stated PBIS used in place of punitive disciplinary measures will not improve student behavior as measured by student discipline referrals, was accepted because there was no change.

The null hypothesis (H_{01a}), which stated educational staff at Rogers Middle School, when implementing PBIS, will see no decrease in the number of discipline referrals, was accepted because there was no change.

The null hypothesis (H_{01b}), which stated educational staff at Rogers Middle School, when implementing PBIS, will see the number of observed referrals for the treatment group (Cohort I) be equal over time to the expected number of office referrals for the control group (Cohort II), was accepted because there was no change.

The referrals written for bullying from 2002-2003 through 2004-05 for Cohort I were analyzed by using the chi-squared goodness of fit. The results are presented in Table 15.

Figure 9 displays a comparison of bullying referrals, for both Cohorts I and II, during two different three-year time-frames in which data was collected.

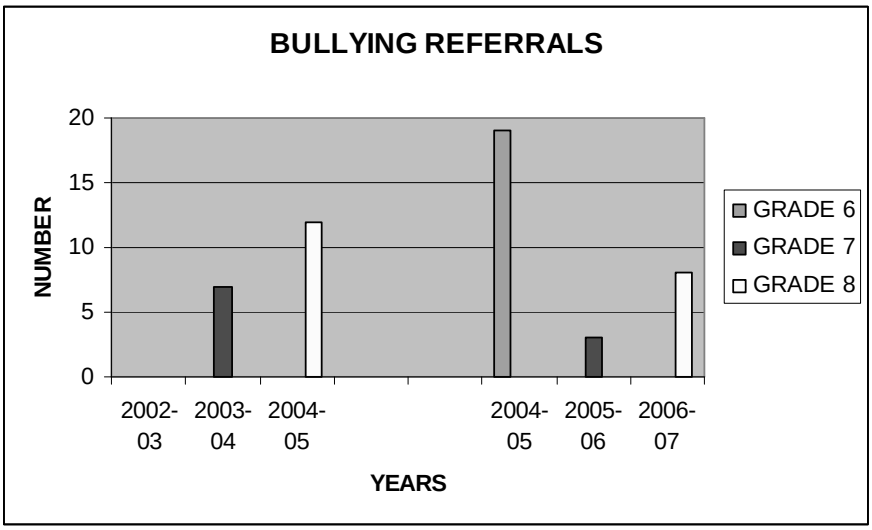

Figure 9. Comparison of Cohort I and Cohort II bullying referrals by year.

Table 15

Cohort I Treatment Group Bullying Referrals

Variable	Observed	Expected
Bullying Ref Year 1	0	6
Bullying Ref Year 2	7	6
Bullying Ref Year 3	12	6
Total	19	
Observations	3	
df	2	
Critical Value	5.991	
Chi-squared Value	0.00228	

Table 15 indicates the calculated chi-squared value of 0.00228 was less than the critical value of 5.991, thus, the null hypothesis (H_{01}), which stated PBIS used in place of punitive disciplinary measures will not improve student behavior as measured by student discipline referrals, was accepted because there was no change.

The null hypothesis (H_{01a}), which stated educational staff at Rogers Middle School, when implementing PBIS, will see no decrease in the number of discipline referrals, was accepted because there was no change.

The null hypothesis (H_{01b}), which stated educational staff at Rogers Middle School, when implementing PBIS, will see the number of observed referrals for the treatment group (Cohort I) be equal over time to the expected number of office referrals for the control group (Cohort II), was accepted because there was no change.

The referrals written for bullying, from 2004-2005 through 2006-07 for Cohort II, were analyzed by using the chi-squared goodness of fit. The results are presented in Table 16.

Table 16

Cohort II Control Group Bullying Referrals

Variable	Observed	Expected
Bullying Ref Year 1	27	24
Bullying Ref Year 2	28	24
Bullying Ref Year 3	16	24
Total	71	
Observations	3	
Df	2	
Critical Value	5.991	
Chi-squared Value	0.1566	

Table 16 indicates the calculated chi-squared value of 0.1566 was less than the critical value of 5.991, thus, the null hypothesis (H_{01}), which stated PBIS used in place of punitive disciplinary measures will not improve student behavior as measured by student discipline referrals, was accepted because there was no change.

The null hypothesis (H_{01a}), which stated educational staff at Rogers Middle School, when implementing PBIS will see no decrease in the number of discipline referrals, was accepted because there was no change.

The null hypothesis (H_{01b}), which stated educational staff at Rogers Middle School, when implementing PBIS, will see the number of observed referrals for the treatment group (Cohort I) be equal over time to the expected number of office referrals for the control group (Cohort II), was accepted because there was no change.

The referrals written for stealing from 2002-2003 through 2004-05 for Cohort I were analyzed by using the chi-squared goodness of fit. The results are presented in Table 17.

Figure 10 displays a comparison of stealing referrals for both Cohort I and Cohort II during two different three-year time-frames in which data was collected.

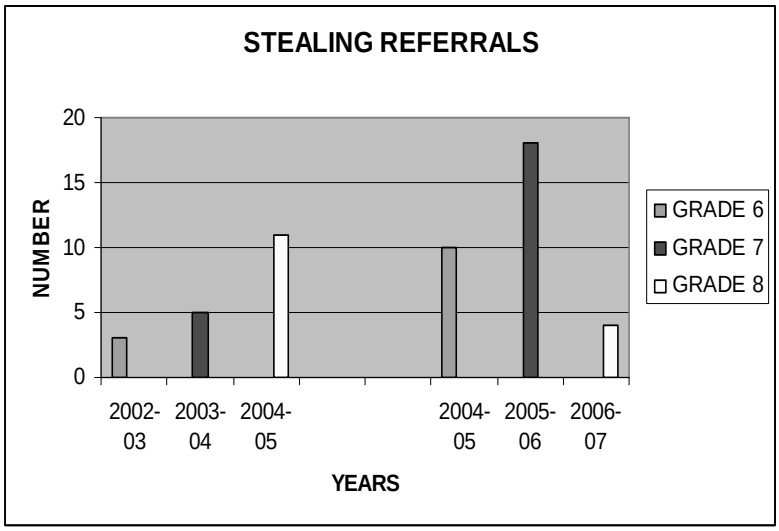

Figure 10. Comparison of Cohort I and Cohort II stealing referrals by year.

Table 17

Cohort I Treatment Group Stealing Referrals

Variable	Observed	Expected
Stealing Ref Year 1	3	6
Stealing Ref Year 2	5	6
Stealing Ref Year 3	11	6
Total	19	
Observations	3	
Df	2	
Critical Value	5.991	
Chi-squared Value	0.05411	

Table 17 indicates the calculated chi-squared value of 0.05411 was less than the critical value of 5.991, thus, the null hypothesis (H_{01}), which stated PBIS used in place of punitive disciplinary measures will not improve student behavior as measured by student discipline referrals, was accepted because there was no change.

The null hypothesis (H_{01a}), which stated educational staff at Rogers Middle School, when implementing PBIS, will see no decrease in the number of discipline referrals, was accepted because there was no change.

The null hypothesis (H_{01b}), which stated educational staff at Rogers Middle School, when implementing PBIS, will see the number of observed referrals for the treatment group (Cohort I) be equal over time to the expected number of office referrals for the control group (Cohort II), was accepted because there was no change.

The referrals written for stealing, from 2004-2005 through 2006-07 for Cohort II, were analyzed by using the chi-squared goodness of fit. The results are presented in Table 18.

Table 18

Cohort II Control Group Stealing Referrals

Variable	Observed	Expected
Stealing Ref Year 1	10	11
Stealing Ref Year 2	18	11
Stealing Ref Year 3	4	11
Total	32	
Observations	3	
Df	2	
Critical Value	5.991	
Chi-squared Value	0.0111	

Table 18 indicates the calculated chi-squared value of 0.0111 was less than the critical value of 5.991, thus, the null hypothesis (H_{01}), which stated PBIS used in place of punitive disciplinary measures will not improve student behavior as measured by student discipline referrals, was accepted because there was no change.

The null hypothesis (H_{01a}), which stated educational staff at Rogers Middle School, when implementing PBIS, will see no decrease in the number of discipline referrals, was accepted because there was no change.

The null hypothesis (H_{01b}), which stated educational staff at Rogers Middle School, when implementing PBIS, will see the number of observed referrals for the treatment group (Cohort I) be equal over time to the expected number of office referrals for the control group (Cohort II), was accepted because there was no change.

When these data results were analyzed, they indicated that the null hypothesis (H_{01}) was rejected in three areas: total referrals, disrespect referrals, and classroom work referrals for the treatment group. Other data results for the

treatment group accepted the null hypothesis. The analysis of the behavioral referrals in this study with chi-squared goodness of fit seemed to indicate that the PBIS program played a minimal role in influencing student behavior at Rogers Middle School.

Data Analysis for Actions Taken by Administrators

Another important indicator of the success of the PBIS program in schools is the actions taken by administrators from year to year. In Tables 19, 20, 21 and 22, the researcher determined if actions by administrators were less punitive over the years due to PBIS.

The number of in-school suspension actions taken by administrators from 2002-2003 through 2004-05 for Cohort I was analyzed by using the chi-squared goodness of fit. The results are presented in Table 19.

Figure 11 displays a comparison of in-school suspensions for both Cohort I and Cohort II during two different three-year time-frames in which data were collected.

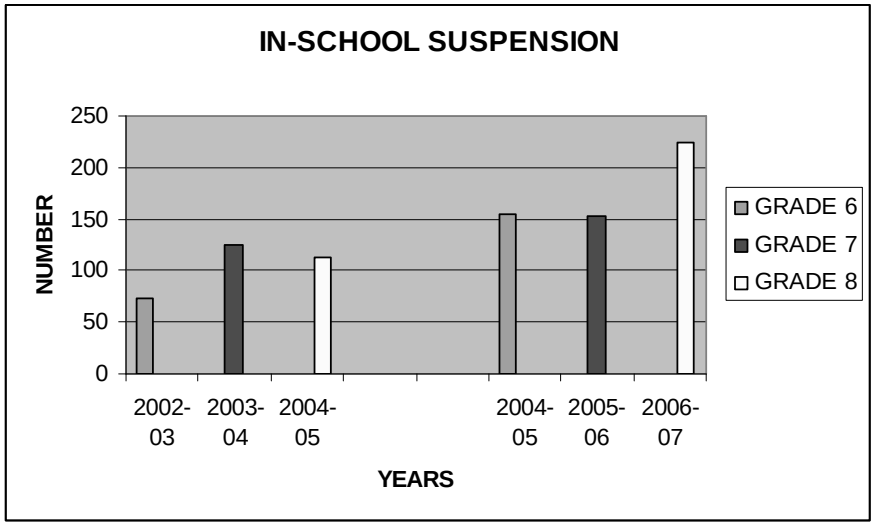

Figure 11. Comparison of Cohort I and Cohort II in-school suspension (ISS).

Table 19

Cohort I Treatment Group ISS Actions

Variable	Observed	Expected
ISS Year 1	73	104
ISS Year 2	125	104
ISS Year 3	113	104
Total	311	
Observations	3	
Df	2	
Critical Value	5.991	
Chi-squared Value	0.0008	

Table 19 indicates the calculated chi-squared value of 0.0008 was less than the critical value of 5.991, thus, the null hypothesis (H_{01}), which stated PBIS used in place of punitive disciplinary measures will not improve student behavior as measured by student discipline referrals, was accepted because there was no change.

The null hypothesis (H_{01a}), which stated educational staff at Rogers Middle School, when implementing PBIS, will see no decrease in the number of discipline referrals, was accepted because there was no change.

The null hypothesis (H_{01b}), which stated educational staff at Rogers Middle School, when implementing PBIS, will see the number of observed referrals for the treatment group (Cohort I) be equal over time to the expected number of office referrals for the control group (Cohort II), was accepted because there was no change.

The number of in-school suspension actions taken by administrators, from 2004-2005 through 2006-07 for Cohort II, was analyzed by using the chi-squared goodness of fit. The results are presented in Table 20.

Table 20

Cohort II Control Group ISS Actions

Variable	Observed	Expected
ISS Year 1	154	177
ISS Year 2	153	177
ISS Year 3	224	177
Total	531	
Observations	3	
df	2	
Critical Value	5.991	
Chi-squared Value	8.9564	

Table 20 indicates the calculated chi-squared value of 8.9564 was more than the critical value of 5.991, thus, the null hypothesis (H_{01}), which stated PBIS used in place of punitive disciplinary measures will not improve student behavior as measured by student discipline referrals, was rejected because there was a change.

The null hypothesis (H_{01a}), which stated educational staff at Rogers Middle School, when implementing PBIS, will see no decrease in the number of discipline referrals, was rejected because there was a change.

The null hypothesis (H_{01b}), which stated educational staff at Rogers Middle School, when implementing PBIS, will see the number of observed referrals for the treatment group (Cohort I) be equal over time to the expected number of office referrals for the control group (Cohort II), was rejected because there was a change. Administrators' use of in-school suspension interventions for the control group increased over time and became more punitive in nature.

The number of out-of-school suspension actions taken by administrators from 2002-2003 through 2004-05 for Cohort I was analyzed by using the chi-

squared goodness of fit. The results are presented in Table 21.

Figure 12 displays a comparison of out-of-school suspensions for both Cohort I and II during two different three-year time-frames in which data were collected.

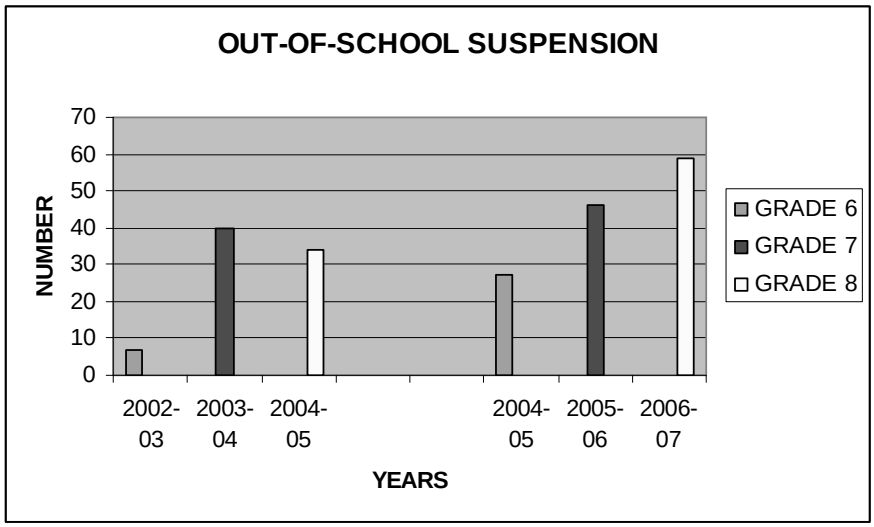

Figure 12. Comparison of Cohort I and Cohort II out-of-school suspension (OSS) by year.

Table 21

Cohort I Control Group OSS Actions

Variable	Observed	Expected
OSS Year 1	7	27
OSS Year 2	40	27
OSS Year 3	34	27
Total	81	
Observations	3	
Df	2	
Critical Value	5.991	
Chi-squared Value	1.0708	

Table 21 indicates the calculated chi-squared value of 1.0708 was less than the critical value of 5.991, thus, the null hypothesis (H_{01}), which stated PBIS used in place of punitive disciplinary measures will not improve student behavior

as measured by student discipline referrals, was accepted because there was no change.

The null hypothesis (H_{01a}), which stated educational staff at Rogers Middle School, when implementing PBIS, will see no decrease in the number of discipline referrals, was accepted because there was no change.

The null hypothesis (H_{01b}), which stated, educational staff at Rogers Middle School, when implementing PBIS, will see the number of observed referrals for the treatment group (Cohort I) be equal over time to the expected number of office referrals for the control group (Cohort II), was accepted because there was no change.

Administrators' use of out-of-school suspensions for the treatment group did not decrease while the PBIS program was in place, but actually increased. The number of out-of- school suspension actions taken by administrators from 2004-2005 through 2006-07 for Cohort II was analyzed by using the chi-squared goodness of fit. The results are presented in Table 22.

Table 22

Cohort II Control Group Out-of-School Suspension (OSS) Actions

Variable	Observed	Expected
OSS Year 1	27	44
OSS Year 2	46	44
OSS Year 3	59	44
Total	132	
Observations	3	
df	2	
Critical Value	5.991	
Chi-squared Value	0.0028	

Table 22 indicates the calculated chi-squared value of 0.0028 was less

than the critical value of 5.991, thus, the null hypothesis (H_{01}), which stated PBIS used in place of punitive disciplinary measures will not improve student behavior as measured by student discipline referrals, was accepted because there was no change.

The null hypothesis (H_{01a}), which stated educational staff at Rogers Middle School, when implementing PBIS, will see no decrease in the number of discipline referrals, was accepted because there was no change.

The null hypothesis (H_{01b}), which stated educational staff at Rogers Middle School, when implementing PBIS, will see the number of observed referrals for the treatment group (Cohort I) be equal over time to the expected number of office referrals for the control group (Cohort II), was accepted because there was no change.

Administrators' use of out-of-school suspensions for the control group did not decrease, but rather increased over a three-year period.

Based on these findings, the PBIS program at Rogers Middle School for the treatment group (Cohort I) did not seem to make a difference in limiting the punitive interventions of in-school suspension and out-of-school suspension used by administrators to discipline students. The null hypothesis (H_{01}) was accepted in three out of the four data tables. The null was rejected because of an increase in in-school suspension usage for the control group. These findings were significant in that they translated to less classroom seat time for students in the treatment group. Thus, the PBIS program at Rogers Middle School offered no reduction in either in-school and out-of-school suspensions and offered no

significant increase in student classroom seat time.

Data Analysis for Behavior Referrals in Problem Locations

In the PBIS program, the location where discipline issues took place was an important factor in monitoring the program's effectiveness. By reducing problem behaviors in key areas of a school building, administrators believed proper interventions would lead to increased safety and improved academic achievement. The following data results isolated two problem areas of the school, the classroom and the hallways. These areas were chosen because of the frequency of referrals in these locations.

The number of hallway referrals for the treatment group (Cohort I) from 2002-2003 through 2004-05 were analyzed by using the chi-squared goodness of fit. The results are presented in Table 23.

Figure 13 displays a comparison of hallway referrals for both Cohorts I and II during two different three-year time-frames in which data were collected.

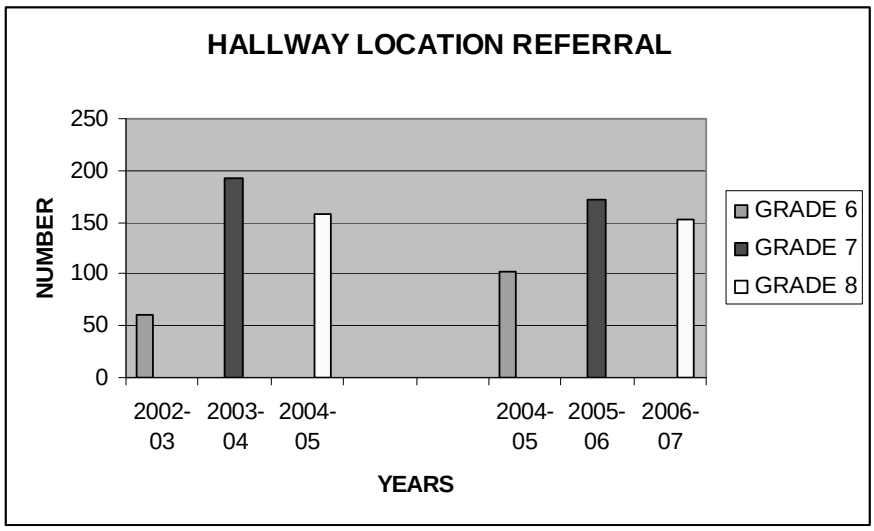

Figure 13. Comparison of hallway location referrals for Cohort I and Cohort II per year.

Table 23

Cohort I Treatment Group Hallway Location

Variable	Observed	Expected
Hallway Year 1	60	137
Hallway Year 2	192	137
Hallway Year 3	158	137
Total	410	
Observations	3	
df	2	
Critical Value	5.991	
Chi-squared Value	1.2846	

Table 23 indicates the calculated chi-squared value of 1.2846 was less than the critical value of 5.991, thus, the null hypothesis (H_{01}), which stated PBIS used in place of punitive disciplinary measures will not improve student behavior as measured by student discipline referrals, was accepted because there was no change.

The null hypothesis (H_{01a}), which stated educational staff at Rogers Middle School, when implementing PBIS, will see no decrease in the number of discipline referrals, was accepted because there was no change.

The null hypothesis (H_{01b}), which stated educational staff at Rogers Middle School, when implementing PBIS, will see the number of observed referrals for the treatment group (Cohort I) be equal over time to the expected number of office referrals for the control group (Cohort II), was accepted because there was no change. Hallway referrals were not reduced by implementation of the PBIS program for the treatment group (Cohort I).

The numbers of hallway referrals for the control group (Cohort II) from 2004-2005 through 2006-07 were analyzed by using the chi-squared goodness

of fit. The results are presented in Table 24.

Table 24

Cohort II Control Group Hallway Location

Variable	Observed	Expected
Hallway Year 1	102	142
Hallway Year 2	172	142
Hallway Year 3	152	142
Total	426	
Observations	3	
df	2	
Critical Value	5.991	
Chi-squared Value	0.00010	

Table 24 indicates the calculated chi-squared value of 0.00010 was less than the critical value of 5.991, thus, the null hypothesis (H_{01}), which stated PBIS used in place of punitive disciplinary measures will not improve student behavior as measured by student discipline referrals, was accepted because there was no change.

The null hypothesis (H_{01a}), which stated educational staff at Rogers Middle School, when implementing PBIS, will see no decrease in the number of discipline referrals, was accepted because there was no change.

The null hypothesis (H_{01b}), which stated educational staff at Rogers Middle School, when implementing PBIS, will see the number of observed referrals for the treatment group (Cohort I) be equal over time to the expected number of office referrals for the control group (Cohort II), was accepted because there was no change.

Hallway behaviors continued to a problem at Rogers Middle School whether the PBIS program was implemented or not implemented.

The numbers of classroom referrals for the treatment group (Cohort I) from 2002-2003 through 2004-05 were analyzed by using the chi-squared goodness of fit. The results are presented in Table 25.

Figure 14 displays a comparison of classroom referrals for both Cohorts I and II during two different three-year time-frames in which data were collected.

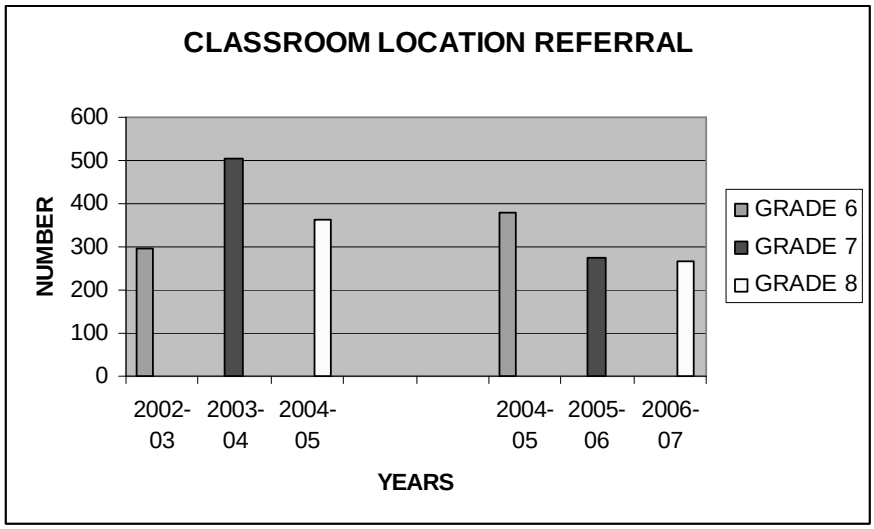

Figure 14. Comparison of classroom location referrals for Cohort I and Cohort II per year.

Table 25

Cohort I Treatment Group Classroom Location

Variable	Observed	Expected
Class Year 1	296	388
Class Year 2	506	388
Class Year 3	363	388
Total	1165	
Observations	3	
df	2	
Critical Value	5.991	
Chi-squared Value	1.3200	

Table 25 indicates the calculated chi-squared value of 0.00010 was less than the critical value of 5.991, thus, the null hypothesis (H_{01}), which stated PBIS

used in place of punitive disciplinary measures will not improve student behavior as measured by student discipline referrals, was accepted because there was no change.

The null hypothesis (H_{01a}), which stated educational staff at Rogers Middle School, when implementing PBIS, will see no decrease in the number of discipline referrals, was accepted because there was no change.

The null hypothesis (H_{01b}), which stated educational staff at Rogers Middle School when implementing PBIS will see the number of observed referrals for the treatment group (Cohort I) be equal over time to the expected number of office referrals for the control group (Cohort II), was accepted because there was no change. The PBIS program did not positively affect classroom behaviors at Rogers Middle School.

The classroom referrals for the control group (Cohort II) from 2004-2005 through 2006-07 were analyzed by using the chi-squared goodness of fit. The results are presented in Table 26.

Table 26

Cohort II Control Group Classroom Location

Variable	Observed	Expected
Class Year 1	378	240
Class Year 2	276	240
Class Year 3	267	240
Total	721	
Observations	3	
df	2	
Critical Value	5.991	
Chi-squared Value	8.6534	

Table 26 indicates the calculated chi-squared value of 8.6534 was greater

than the critical value of 5.991, thus, the null hypothesis (H_{01}), which stated PBIS used in place of punitive disciplinary measures will not improve student behavior as measured by student discipline referrals, was rejected because there was a change.

The null hypothesis (H_{01a}), which stated educational staff at Rogers Middle School when implementing PBIS, will see no decrease in the number of discipline referrals, was rejected because there was a change.

The null hypothesis (H_{01b}), which stated educational staff at Rogers Middle School, when implementing PBIS, will see the number of observed referrals for the treatment group (Cohort I) be equal over time to the expected number of office referrals for the control group (Cohort II), was rejected because there was a change.

The PBIS program did not positively affect classroom behaviors at Rogers Middle School. During this period, classroom teachers were encouraged to attend workshops and use data proven classroom management interventions to control student behaviors in the classroom.

As the researcher analyzed location of referral data, the conclusion was that PBIS did not play a role in controlling problem behaviors in hallway and classroom locations.

Data Analysis for Lexile Reading Scores and Grade Point Averages

Student Lexile reading scores and grade point averages were important factors in determining the effectiveness of the PBIS Program at Rogers Middle School. The following tables and figures display data to determine if PBIS made

a significant impact on Lexile scores and grade point averages. Figure 15 indicates the grade-point averages for Cohort I over three-years. Student grade-point averages increased by 14% when Rogers Middle School implemented School-Wide PBIS from 2002-2003 to 2004-2005.

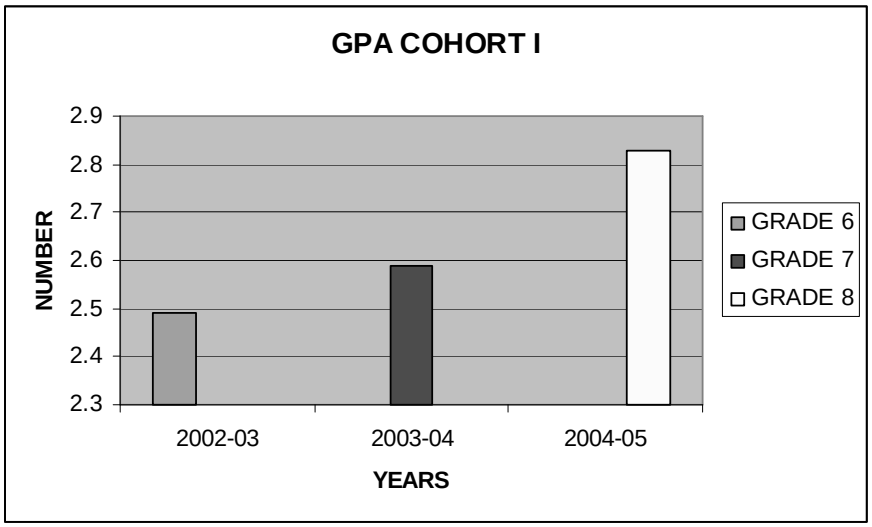

Figure 15. Grade-point averages for Cohort I by school year.

Figure 16 indicates the grade-point averages for Cohort II over three-years. Student grade-point averages decreased by 5% over the three-year period from 2004-2005 to 2006-2007, when Rogers Middle School did not implement School-Wide PBIS.

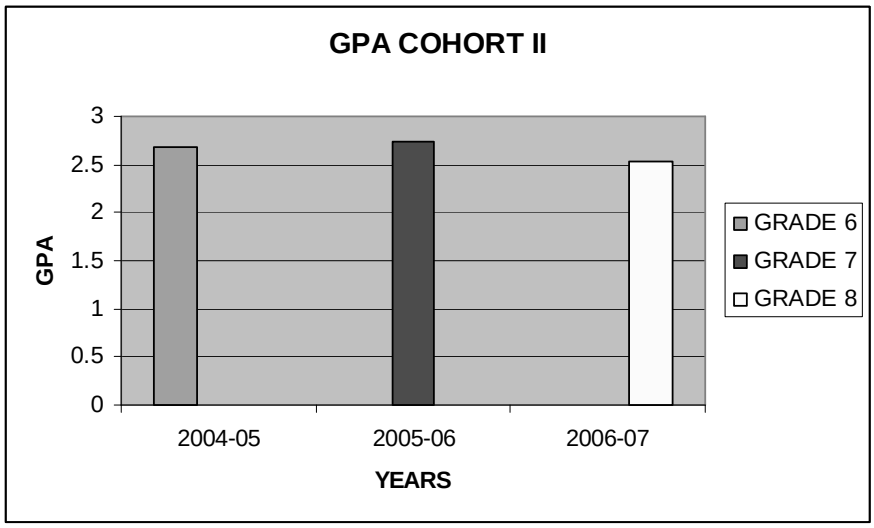

Figure 16. Grade-point averages for Cohort II by school year.

Table 27 indicates the *f*-test for equality of variances of grade point averages for the treatment group (Cohort I) 2002-2003 as compared to the control group (Cohort II) 2004-2005.

Table 27

f-Test for Equality of Variances Treatment Group vs. Control Group GPAs

Variable	Control 2004-05	Treatment 2002-03
Mean	2.695654	2.504906
Variance	0.863064	0.840599
Observations	214	224
Df	213	223
F	1.026726	
P(F<=f) one tail	0.422505	
F Critical	1.249847	

The null hypotheses H_o: $\sigma_t^2 = \sigma_c^2$ and H_1: $\sigma_t^2 \neq \sigma_c^2$ were established with H_o as the claim. It was found that p value of 0.422505 was greater than alpha value 0.05; therefore, the variances were determined to be equal based on the *f*-test. The researcher then conducted a *t*-test for two sample mean. The results are presented in Table 28.

Table 28

t-Test for Two Sample Mean Treatment Group vs. Control Group GPAs

Variable	Control 2004-05	Treatment 2002-03
Mean	2.695654	2.504906
Variance	0.863064	0.840599
Observations	214	224
Pooled Variances	0.851574	
Hypothesize	0	
df	436	
t Stat	2.162433	
P(T<=t) one tail	0.015564	
t Critical one tail	1.648356	
P(T<=t) two tail	0.031128	
t Critical two tail	1.96542	

In the area of GPAs, null hypothesis (H_{02}), stated PBIS used in place of punitive disciplinary measures will not increase academic achievement as measured by Lexile reading scores and student grades.

H_{02}: $\mu_t = \mu_c$

H_2: $\mu_t \neq \mu_c$

t = 2.162, p = 0.0311

p .0311 < ∞ .05

Since the calculated *t*-test two sample mean p-value of 0.0311 was less than the alpha value of 0.05, the null hypothesis (H_{02}) was rejected in favor of the alternative hypothesis. There was a statistically significant increase in academic achievement as measured by student grades.

Table 29 shows the *f*-test for equality of variances of grade point averages for the treatment group (Cohort I) 2003-2004 as compared to the control group (Cohort II) 2005-2006.

Table 29

f-Test for Equality of Variances Treatment Group vs. Control Group GPAs

Variable	Treatment 2003-04	Control 2005-06
Mean	2.632486	2.770519
Variance	0.940701	0.886123
Observations	220	208
df	219	207
F	1.061592	
P(F<=f) one tail	0.332135	
F Critical	1.2541	

The null hypotheses H_o: $\sigma_t^2 = \sigma_c^2$ and H_1: $\sigma_t^2 \neq \sigma_c^2$ were established with H_o as the claim. It was found that the p value of 0.332135 was greater than the alpha value 0.05; therefore, the variances were determined to be equal based on the *f*-test. Then the researcher conducted a *t*-test for two sample mean. The results are presented in Table 30.

Table 30

t-Test for Two Sample Mean Treatment Group vs. Control Group GPAs

Variable	Treatment 2003-04	Control 2005-06
Mean	2.632486	2.770519
Variance	0.940701	0.886123
Observations	220	208
Pooled Variances	0.91418	
Hypothesize	0	
df	426	
t Stat	-1.492752	
P(T<=t) one tail	0.068121	
t Critical one tail	1.648438	
P(T<=t) two tail	0.136242	
t Critical two tail	1.965548	

In the area of GPAs, the null hypothesis states PBIS used in place of punitive disciplinary measures will not increase academic achievement as measured by Lexile reading scores and student grades.

H_{02}: $\mu_t = \mu_c$

H_2: $\mu_t \neq \mu_c$

t = -1.493, p = 0.1362

p .1362 > ∞ .05

Since the p-value of 0.1362 was greater than the critical value of 0.05, the null hypothesis (H_{02}) was accepted. There was no statistically significant increase in academic achievement as measured by student grades.

Table 31 indicates the *f*- test for equality of variances of grade point averages for the treatment group (Cohort I) 2004-2005 as compared to the control group (Cohort II) 2006-2007.

Table 31

f-Test for Equality of Variances Treatment Group vs. Control Group GPAs

Variable	Control 2006-07	Treatment 2004-05
Mean	2.566306	2.874464
Variance	0.955135	0.777165
Observations	186	209
df	185	208
F	1.228999	
P(F<=f) one tail	0.074181	
F Critical	1.264548	

The null hypotheses H_o: $\sigma_t^2 = \sigma_c^2$ and H_1: $\sigma_t^2 \neq \sigma_c^2$ were established with H_o as the claim. It was found that the p value of 0.074181 was greater than the alpha value 0.05; therefore, the variances were determined to be equal based on the *f*-test. The researcher then conducted a *t*-test for two sample mean. The results are presented in Table 32.

Table 32

t-Test for Two Sample Mean Treatment Group vs. Control Group GPAs

Variable	Control 2006-07	Treatment 2004-05
Mean	2.566306	2.874464
Variance	0.955135	0.777165
Observations	186	209
Pooled Variances	0.860942	
Hypothesize	0	
df	393	
t Stat	-3.294715	
P(T<=t) one tail	0.000537	
t Critical one tail	1.64874	
P(T<=t) two tail	0.001075	
t Critical two tail	1.966019	

In the area of GPAs, the null hypothesis stated PBIS used in place of punitive disciplinary measures will not increase academic achievement as measured by Lexile reading scores and student grades.

H_{02}: $\mu_t = \mu_c$

H_2: $\mu_t \neq \mu_c$

t = -3.295, p = 0.0010

p 0.0010 < ∞ .05

Since the p-value of 0.0010 was less than the alpha value of 0.05, the null hypothesis (H_{02}) was rejected in favor of the alternative hypothesis. There was a statistically significant increase in academic achievement as measured by student grades.

Thus, results of the data proved that the PBIS program at Rogers Middle School had a positive impact on student grades for the treatment group (Cohort I) for two of the three years treatment students participated in the program. The

second indicator that helped determine the effectiveness of the PBIS program, as it relates to student achievement, was the analysis of the Lexile reading scores.

Table 33 shows the *f*-test for equality of variances of grade Lexile reading scores for the treatment group (Cohort I) 2002-2003 as compared to the control group (Cohort II) 2004-2005.

Figure 17 displays the Scholastic Reading Inventory Lexile Scores for Cohort I for three-years. Average reading inventory scores increased by 24% for students exposed to the PBIS Program at Rogers Middle School.

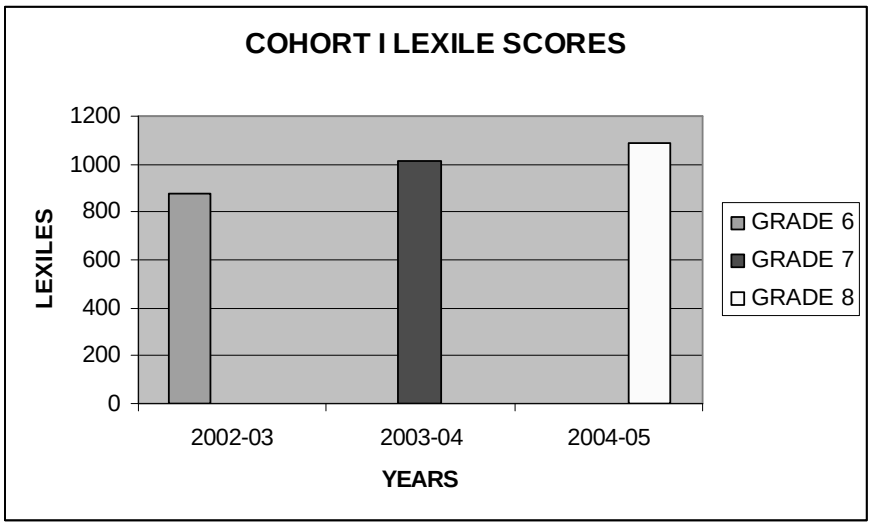

Figure 17. Cohort I Lexile scores by year.

Figure 18 displays the Scholastic Reading Inventory Lexile Scores for Cohort II. Cohort II also saw an increase in average reading inventory scores. That increase was less for students not exposed to the PBIS Program at Rogers Middle School.

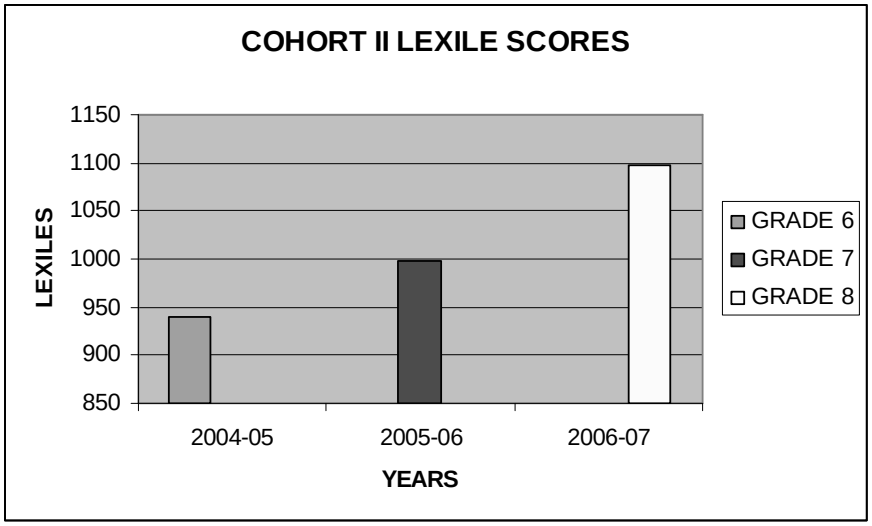

Figure 18. Cohort II Lexile scores by year.

Table 33

f-Test for Equality of Variances Treatment Group vs Control Group Lexiles

Variable	Treatment 2002-03	Control 2004-05
Mean	938.9064	875.3533
Variance	56718.7	46741.07
Observations	171	167
df	170	166
F	1.213466	
P(F<=f) one tail	0.105672	
F Critical	1.290162	

The null hypotheses H_o: $\sigma_t^2 = \sigma_c^2$ and H_1: $\sigma_t^2 \neq \sigma_c^2$ were established with H_o as the claim. It was found that the p value of 0.105672 was greater than the alpha value 0.05; therefore, the variances were determined to be equal based on the *f*-test. A *t*-test was conducted for two sample mean. The results are presented in Table 34.

Table 34

t-Test for Two Sample Mean Treatment Group vs. Control Group Lexiles

Variable	Treatment 2002-03	Control 2004-05
Mean	938.9064	875.3533
Variance	56718.7	46741.07
Observations	171	167
Pooled Variances	51789.28	
Hypothesize	0	
df	336	
t Stat	2.566938	
P(T<=t) one tail	0.005346	
t Critical one tail	1.649401	
P(T<=t) two tail	0.010693	
t Critical two tail	1.967049	

In the area of Lexile scores, the null hypothesis stated PBIS used in place of punitive disciplinary measures will not increase academic achievement as measured by Lexile reading scores and student grades.

H_{02}: $\mu_t = \mu_c$

H_2: $\mu_t \neq \mu_c$

t = 2.567, p = 0.0106

p 0.0106 < ∞ .05

Since the p-value of 0.00106 was less than the alpha value of 0.05, the null hypothesis (H_{02}) was rejected in favor of the alternative hypothesis. There was a statistically significant increase in academic achievement as measured by student Lexile reading scores.

Table 35 indicates the *f*-test for equality of variances of grade Lexile reading scores for the treatment group (Cohort I) 2003-2004 as compared to the control group (Cohort II) 2005-2006.

Table 35

f-Test for Equality of Variances Treatment Group vs. Control Group Lexiles

Variable	Treatment 2003-04	Control 2005-06
Mean	994.8671	1004.948
Variance	61009.66	60193
Observations	158	174
df	157	173
F	1.013552	
P(F<=f) one tail	0.46464	
F Critical	1.292037	

The null hypotheses H_o: $\sigma_t^2 = \sigma_c^2$ and H_1: $\sigma_t^2 \neq \sigma_c^2$ were established with H_o as the claim. It was found that the p value of 0.46564 was greater than the alpha value 0.05; therefore, the variances were determined to be equal based on the *f*-test. A *t*-test for two sample mean was conducted. The results are presented in Table 36.

Table 36

t-Test for Two Sample Mean Treatment Group vs. Control Group Lexiles

Variable	Treatment 2003-04	Control 2005-06
Mean	994.8671	1004.948
Variance	61009.66	60193
Observations	158	174
Pooled Variances	60582.01	
Hypothesize	0	
df	330	
t Stat	-0.372712	
P(T<=t) one tail	0.354801	
t Critical one tail	1.649484	
P(T<=t) two tail	0.709602	
t Critical two tail	1.967179	

In the area of Lexile scores, the null hypothesis stated PBIS used in place of punitive disciplinary measures will not increase academic achievement as measured by Lexile reading scores and student grades.

H_{02}: $\mu_t = \mu_c$

H_2: $\mu_t \neq \mu_c$

t = -0.3727, p = .7096

p .7096 > ∞ .05

Since the p-value of 0.7096 was greater than the alpha value of 0.05, the null hypothesis (H_{02}) was accepted. There was no statistically significant increase in academic achievement as measured by student Lexile reading scores.

Table 37 shows the *f*-test for equality of variances of grade Lexile reading scores for the treatment group (Cohort I) 2004-2005 as compared to the control group (Cohort II) 2006-2007.

Table 37

f-Test for Equality of Variances Treatment Group vs. Control Group Lexiles

Variable	Treatment 2004-05	Control 2006-07
Mean	1084.652	1096.994
Variance	63043.46	45210.41
Observations	141	165
df	140	164
F	1.394446	
P(F<=f) one tail	0.02026	
F Critical	1.305865	

The null hypotheses H_o: $\sigma_t^2 = \sigma_c^2$ and H_1: $\sigma_t^2 \neq \sigma$ were established with H_o as the claim. It was found that the p value of 0.02026 was greater than the alpha value 0.05; therefore, the variances were determined to be equal based on the *f*-test. The researcher then conducted a *t*-test for two sample mean. The results are presented in Table 38.

Table 38

t-Test for Two Sample Mean Treatment Group vs. Control Group Lexiles

Variable	Treatment 2004-05	Control 2006-07
Mean	1084.652	1096.994
Variance	63043.46	45210.41
Observations	141	165
Hypothesize	0	
df	304	
t Stat	-0.465579	
P(T<=t) one tail	0.320925	
t Critical one tail	1.649881	
P(T<=t) two tail	0.646185	
t Critical two tail	1.967798	

In the area of Lexile scores, the null hypothesis stated PBIS used in place of punitive disciplinary measures will not increase academic achievement as measured by Lexile reading scores and student grades.

H_{02}: $\mu_t = \mu_c$

H_2: $\mu_t \neq \mu_c$

t = -0.4656, p = 0.6462

p 0.6462 > ∞ .05

Since the p-value of 0.6462 was greater than the alpha value of 0.05, the null hypothesis (H_{02}) was accepted. There was no statistically significant increase in academic achievement as measured by student Lexile reading scores. The data proved that for only one year, 2002-03, the Lexile reading scores at Rogers Middle School for the treatment group (Cohort I) measured higher than the other two years. There may have been other circumstances causing the increase in scores this year..

Deductive Conclusions

When the first year PBIS baseline data were entered into the student information system for each sixth-grade cohort for future comparisons, it was assumed that the PBIS program would have a positive effect on student behavior and student achievement. These data offered a starting point to determine if the interventions were appropriate. As the data in the study were analyzed for the next five years, it became apparent that the PBIS program did not make the impact on behavior and student achievement that was originally anticipated.

The PBIS program did not significantly influence the number of student office referrals, as reported by the chi-squared goodness of fit data analysis. The PBIS program, as reported by the chi-squared goodness of fit data analysis for types of referrals, location of referrals, and discipline action meted out did not make a significant influence. Additionally, Lexile reading scores and grade point average data, as reported by the *f*-test for equality of variances and the *t*-test for two sample mean, were not influenced by the PBIS program.

It could be the case that the results of this study were due to lack of appropriate follow-through by the staff members. Staff members needed to take ownership in the program, agree to actively participate, and not deviate from the guiding principles, methods, and strategies of PBIS. The goal of this program was to build the knowledge and skills of staff members to help address students' problem behaviors. This was to be accomplished by developing, implementing, and analyzing student supports within school systems. By not participating in staff development, teachers did not develop a working knowledge of data analysis, skills for identifying problem behaviors, the use of functional

assessments to evaluate appropriate behaviors and supports.

Summary

According to the results of the chi-squared goodness of fit on office referrals, the *f*- test for equality of variances and the *t*-test for two sample mean assuming equal and unequal variances on Lexile scores and grade point averages, PBIS did not have a significant effect on student behavior or student achievement. Therefore, the null hypotheses, H_{01} and $H_{02,}$ were accepted.

The alternative hypotheses stated there would be a decrease in the number of behavioral referrals for Cohort I and an increase in student achievement because of the implementation of PBIS support. Documented referrals, Lexile reading scores, and student grades were readily available. The results of the chi-squared goodness of fit on office referrals, the *f*-test for equality of variances, and the *t*-tests for two sample mean for Lexile scores and grade point averages indicated no significant decrease in behavioral referrals and no significant increase in student Lexile scores and student grade-point averages. Therefore, the alternative hypotheses H_1 and H_2, were rejected.

Walker et al. (1997) found that PBIS programs positively influenced students who exhibited challenging behaviors. They documented decreased office referrals and increased academic achievement among students. Rogers Middle School administrators wished to achieve these same goals. As stated earlier, a well-designed Positive Behavior Plan is one that works for both students and teachers. The keys to these plans include staff training, staff buy-in, and staff consistency. If staff members adhere to the plan, they should see

positive results.

Chapter V will further discuss the findings of data, draw conclusions, and offer recommendations for future research regarding PBIS programs for the future.

Chapter V – Discussion, Conclusions and Recommendations

The purpose of this study was to determine if there was a statistically significant difference in behaviors and academic achievement between two cohorts of students when Positive Behavior Support systems were utilized in a school with chronic discipline problems. This research investigated the effects of a PBIS program on middle school student achievement and behavior. The researcher in this study examined the number of office referrals collected for two student cohorts over a span two sets of three years. The treatment group cohort was introduced to a PBIS plan for three years. The control group cohort was not introduced to a behavior plan during a separate three-year span while attending Rogers Middle School. Additionally, the treatment group's grades and reading scores were analyzed to determine how much of an impact PBIS strategies had on their academic achievement. The grades and reading scores of the control group were also analyzed to determine if the lack of PBIS strategies caused a decline in academic achievement. The number of referrals, location of referrals and the type of referrals written measured student behavior. Student grade point averages and Lexile reading scores were used to measure student achievement.

Conclusion

The behavior results collected over three-years supported the first null hypothesis (H_{01}). (H_{o1}) stated that PBIS used in place of punitive disciplinary measures will not improve student behavior as measured by student discipline referrals. The academic data results of the study supported the second null hypothesis (H_{02}). The second null hypothesis (H_{02}) stated that PBIS used in place

of punitive disciplinary measures will not improve academic achievement as measured by Lexile reading scores and grade point averages.

Several statistical analyses were preformed for both the treatment and control groups in this study. The chi-squared goodness of fit method was applied to the behavior data for both groups. The first analysis of Table 1 was used to determine if the stated number of observed yearly referrals for the treatment group were equal over time to the number of expected yearly referrals. As a result, the chi-squared goodness of fit method determined that the number of observed yearly referrals for the treatment group was not equal to the number of expected referrals. It was then determined by the chi-squared goodness of fit method, in Table 2, that the total number of yearly referrals for the treatment group was also not equal over time to the number of expected yearly referrals. Overall the PBIS strategies did not seem to make a statistically significant difference on the behavior of middle school students.

In this study, over a three-year period, behavior referrals were reduced when PBIS strategies were used for the treatment group. Additionally, chi-squared goodness of fit was applied to all behavior data collected in this study to determine if the PBIS strategies not only made a statistically significant difference on the number of referrals, but the location of the referrals, the type of referrals written, and the type of punishment handed out by administrators. The researcher in this study determined that the PBIS program did not make a statistically significant difference in classroom disruption referrals, tardy to school referrals, tardy to class referrals, fighting referrals, bullying referrals, and stealing

referrals for the treatment group of students. However, the PBIS program did make a significantly significant difference in number of disrespect referrals and work referrals written by teachers. PBIS strategies decreased both in-school and out-of-school suspensions. The PBIS program did not significantly reduce hallway and classroom referrals for the years the program was implemented for the treatment group.

The *f*-test for Equality of Variances was applied to the Treatment vs. Control Group for GPAs and Lexile Reading Scores. When it was determined that the p value was greater than the alpha value, the *t*-test for two sample mean was conducted. Based on the findings of the *f*-test and *t*-test, the null hypothesis H_{02}, which stated PBIS used in place of punitive measures will not improve academic achievement as measured by Lexile reading scores and student grades, was accepted. In other words, PBIS used in place of punitive measures did not improve academic achievement.

Implication for Effective Schools

Rogers Middle School is not unlike other middle schools across the nation. Students grow and mature, make many new friends, and experience new situations. Sometimes these students at the middle level react to discipline in a negative manner. Many of these students try to maintain an image in front of their friends that depicts them as tough and uncaring. By introducing a PBIS program at Rogers Middle School, staff members and students began treating each other in a respectful and positive manner. Staff promoted a positive school climate, in which learning and teaching were the most important issues of the day. Providing

positive, proactive behavioral supports to students in the educational setting required a well thought-out plan. Many schools develop and adopt school-wide behavioral management systems that are consistent at every grade level. If all staff members embraced the system wholeheartedly, these systems could lead to consistent response and reinforcement of behavior. Universal in-school management systems that consist of effective instruction, clear expectations, close monitoring, and standardized consequences are likely to be sufficient to prevent or extinguish problem behaviors. Once a school-wide program is established and implemented, staff members adjust and develop the program to meet specific individual student needs.

Administrators, staff members, and parents at schools situated throughout the country should take a closer look at what might be causing a negative climate and culture in their schools. Once they evaluate their own situation, they should be proactive and consider implementing a positive behavior intervention program that deals with disciplinary issues that can interfere with student learning. Rogers Middle School's less than positive student behaviors made it evident that punitive discipline measures were not the remedy for solving problem behavior issues. Staff members determined it was time to look for an alternative means of handling problem behaviors.

The implementation of a PBIS seemed to make a difference, but not a significant difference in the behavior of students or their academic performance. The plan reduced the number of office referrals for Cohort I and allowed students to stay in the classroom to learn and make academic progress. The researcher

found the PBIS plan slightly increased grade point averages and reading scores. Targeted behaviors, targeted locations, and students with frequent referrals were affected by positive behavior supports in this study even though minimally. PBIS programs will work if implemented correctly and consistently. Staff, administration, and parents need to agree on the most effective way to intervene when it comes to problem behaviors and work cooperatively with each other to make a difference in their schools.

Recommendations

Middle schools that experience problematic student behaviors should research and implement the behavior plan that will best meet the schools' objectives. A hybrid program such as this should try to address the following issues: (a) self respect, (b) respect for other, and (c) respect for learning. The use of adult mentoring, coaches who encourage students and staff to use appropriate strategies, school-wide lesson plans, and character education advisory programs seem to be key components of PBIS schools that experience the most success. A program that has these attributes can be successful in changing antisocial behavior in the classrooms, hallways, cafeteria, and common areas around the school. Antisocial behavior may not be curable, but appropriate support and interventions will manage such behaviors and change negative school climates and cultures into positive respectful learning communities. However, based on the results of this study, managing the process—ensuring the staff carries out the right strategies in the right way—is key to implementing an effective PBIS program. Therefore, a recommendation for future research is to

not only measure outcomes, but also at the same time, measure process. Such a study may show that the more the process is followed, the more behaviors and student achievement improve.

Summary

Some PBIS programs are effective in improving student behaviors and achievement. It is important that staff and administrators be consistent. The administrators at Rogers Middle School asked staff members to follow through and be consistent when participating in this program, but the process was not measured. The administrators and staff members were expected to follow the same prerequisites and guidelines. At times, a busy schedule precluded the administrators from following the suggested guidelines and being active participants in the program. Hallinger and Heck (1998) reviewed the evidence on the principal's contribution to school effectiveness. They concluded that principals exercised a measurable effect on schooling effectiveness and student achievement. Kam, Greenberg, and Walls (2003) reported that the ability of principals to initiate and sustain innovations in their schools directly related to successful program implementation.

There must be appropriate follow-through with all stakeholders agreeing to participate and not deviating from the agreed-upon methods and strategies of the intervention. The emphasis of this entire program should be to develop effective and efficient behavior intervention plans that affect school culture and climate. Expectations for students to learn appropriate behaviors and avoid inappropriate reactions to problem situations should be in place. Staff members should be

expected to discourage inappropriate behaviors by suggesting positive responses and actions that are socially acceptable. When students practice acceptable behaviors, it should translate to a safe and warm environment for teaching and learning. When implemented correctly and consistently, the results of a PBIS program may contribute to an educational environment that addresses the safety and learning needs of all students.

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Appendix A

Grade Point Averages

2002-03 Cohort I	2004-05 Cohort II	2003-04 Cohort I	2005-06 Cohort II	2004-05 Cohort I	2006-07 Cohort II
1.951	3.286	1.857	3.857	2.5	4
1.039	1.167	3.538	3.286	3.714	1.571
0.951	2.143	2.929	2.429	3.143	2.5
3.044	3.714	1.571	2.429	1.643	1.714
1.549	0.857	1.071	3.071	2.071	0.057
1.363	0.786	2.5	3	3.786	2.429
2.443	0.714	4	0.357	3.786	2.429
3.402	3.5	3.857	3.929	1.5	3.357
3.691	3.143	3.571	3.286	2.857	2.714
3.608	3.5	3.357	3.429	2.929	1.929
2.828	3.857	2.857	2.929	2.571	4
3.259	3	2.429	3.857	3.143	2
1.892	3.5	3.143	3.143	3.571	3.571
3.152	2.857	3.286	3.071	2.286	1.143
0.22	2.857	3.143	3.571	3.643	3.714
2.77	3.071	3.077	1.143	2	2
2.059	3.857	1.929	4	2.857	2.571
1.931	3.857	2.214	2.643	3.786	2.643
2.132	2	3	3.143	3.5	3.5
3.691	2.714	3.714	1.286	2.786	3.357
2.701	2.857	2.643	2.857	3.571	3.214
2.059	2.929	3.357	3.429	4	3.5
3.083	4	1.571	2.429	4	2.643
2.696	2.286	1.643	3.857	3.357	3.071
2.941	3.714	3.714	3.857	3.429	3.571
3.623	3.714	4	1.286	3.286	3.857
3.794	2.286	2	3.571	2.857	3
1.132	2.786	0.929	2.786	3.857	4
1.358	3.857	3	2.643	2.571	1.857
3.652	3.429	3.786	4	2.929	3.714
3.505	3.071	3.214	2.357		3.143
3.49	4	3	4	4	2.286
2.961	3.5	2.786	3.071	3.929	1.071
2.2	3.286	3.714	2.714	2.357	3.286
3.04	2.786	3.857	1.643	1.643	0.071
1.328	3.143	2.786	3.714	2.214	3.929
3.691	1.071	3.429	1.714	3.286	3.929
2.838	2.286		1.214	3.214	1.5
2.922	1.786	3.857	1.071	3.429	1.071
0.637	1.286	3.538	3.857	3.786	3.143
2.98	3.214	2.929	4	2.714	2.786
2.863	3.857	2	2.143	3	3.5
2.569	2.143	3.214	1.429	1.5	1.214

2002-03 Cohort I	2004-05 Cohort II	2003-04 Cohort I	2005-06 Cohort II	2004-05 Cohort I	2006-07 Cohort II
3.108	0.214	1.286	3.857	4	3.857
2.206	3.429	2.714	1.929	3.571	1.143
1.51	1.357	3.571	1.929	1.308	0.667
3.647	2.143	1	1.571	2.786	1.286
1.422	3	3.714	4	2.286	1.643
3.118	3.857	4	1.5	4	1.857
3.363	1.714	1.429	1.643	3.214	3.071
0.794	1.714	3.786	2.429	4	1.5
3.544	2.5	1.846	1.786	4	3.071
3.755	2.5	2	2.643	1.286	1.143
1.941	1.071	3.714	2.571		2.786
1.314	3.571	1.786	2.5	3.071	0.571
3.71	0.571	0.385	2.429	3.714	2.429
1.677	2.071	1.714	0.643	3.714	2.643
1.309	3.857	2.286	2.857	3.071	2.714
3.73	3.143	3.214	3.071	3	3.571
3.76	2.214	2.786	3.429	2.143	2.071
2.452	3	3.857	4	2.857	2.214
2.951	4	2.714	1.214		1.857
3.381	1.643	1.357	2.571	1.714	2.214
2.118	2.286	2.429	2.643	1.571	3
3.03	1.286	3.357	3.143	1.429	1.5
2.951	2.786	0.714	3	3.643	3.071
2.304	1.714	1.714	3.143	1.571	1.714
1.681	3.071	1.786	1.846	3.071	1.286
3.098	3.5	0.357	2.5	3.571	2.571
3.598	3.429	1.5	3	3.143	3.214
1.613	1.143	0.5	2.214	3.929	2.929
1.762	1.429	3.714	2.143	1.643	0.0429
1.534	0.643	2.571	0.929	2.429	1.071
1.534	3.357	1.929	1.071	1.786	3
0.666	1.786	3.429	2.643	3.857	2.357
1.392	3.786	2.714	3.5	1.571	1.357
3.093	3.071	3.857	3.286	3.143	2.929
0.931	2.429	3.071	2	2.5	1.643
2.024	3.429	2.429	3.429	3.429	2.571
3.024	3	2.643	2.071	2.071	1.929
2.725	2.786	2.143	2.786	4	2.929
1.387	3.857	1.643	3.357	1.857	3.357
3.627	2.5	3.571	3.143	3.571	3.5
2.784	2.571	2.857	2	1.133	0.429
2.443	3.429	2.357	3.643	3.214	3.857
2.804	2	2	2.714	2.857	3.929
1.088	1.929	3.857	3.571	3	2.929
3.26	3.357	2.571	3.143	2.143	2.143
3.01	1.643	2.929	3.429	2.643	3.714
2.289	4	1.286	3.5	1.429	2.714
1.515	2.857	1.071	4	2.286	2.786

2002-03 Cohort I	2004-05 Cohort II	2003-04 Cohort I	2005-06 Cohort II	2004-05 Cohort I	2006-07 Cohort II
0.647	3.429	1.714	3.286	3.571	3.929
1.123	3.071	3.143	2.929	3.143	1.857
3.059	3.071	2.429	4	4	1.214
1.377	3.929	2.714	3.286	3.857	2.714
3.25	3	2	2.857	3.929	3.786
3.029	1.857	2.143	3.857	3.143	2.143
2.113	2.5	1.929	2.571	1	1.143
2.25	2.143	3.929	4	1.5	1.643
1.093	3.429	3.429	2.214	1.5	2.643
0.985	3.286	3.857	1.786	2.786	2.286
1.005	3.143	4	2.786	3.214	2.643
2.451	1.643	2.667	3.5	3.714	2.714
2.181	2.857	2.429	1.571	2.286	2.071
2.04	2.714	0.929	0.357	2.714	2.929
0.845	2.857	2.571	0.929	2.143	3
3.216	1.5	1.071	1.071	2.857	1.071
3.353	3	2.643	3.429	3.643	3.714
3.721	1.923	3.571	3.286	0.714	4
3.211	3.143	3.571	2.643	2.857	0.929
3.505	1.143	1.857	3.071	2.929	2.357
0.843	1.857	1.929	3.5	2.714	3.071
3.143	3.357	2.286	2.929	1.429	1.5
2.402	3.143	3.286	3.857	1.357	1.786
1.81	2.071	3.286	3.857	3.071	1.857
3.666	3.5	2.429	3.643	3.857	3.714
1.642	4	0.5	2.143	3.643	4
1.833	3	3.143	3.5	3.071	0.786
3.666	3.071	2.643	1.929	3.857	2.357
3.422	3.5	1.857	0.929	3.786	3.214
3.515	1	2.071	2.357	2.714	3.429
1.99	1.071		3.143	3.143	0.429
2.27	1.357	2.143	4	3.429	2.786
1.436	3.143	4	1.929	3.857	3.333
3.49	4	3.286	3.857	3.214	3.357
	2.286	3.143	0.857	2.857	1.857
3.48	3.143	3.857	2.143	2.643	3.643
3.662	3.857	0.571	3.214	3.5	1.857
2.147	2.5	2.357	3.857	3.929	2.214
2.289	3.714	3.429	1.929	3.143	4
2.245	3.714	3.143	3.286	3.643	4
1.76	2.357	3.5	3.286	3.714	3.643
2.426	3.857	4	3.571	2.429	4
3.02	3.429	2.571	2.286	4	1.714
1.907	2.357	3.143	3.429	1.286	2.929
1.657	3.714	2	2.357	2.286	3.214
3.446	2.286	3.286	3.571	3.714	2.786
3.426	2.429	3	1.929	3.714	2.5
2.593	2.786	3.286	4	4	3.214

2002-03 Cohort I	2004-05 Cohort II	2003-04 Cohort I	2005-06 Cohort II	2004-05 Cohort I	2006-07 Cohort II
3.765	3.214	2.143	1.5	4	1.929
2.892	2.857	3.857	3.214	3	3
1.48	4	2.357	3	2.286	3.714
1.304	0.857	3.857	3.571	1.714	2.714
3.569	3.143	3.429	3.429	3.643	2.071
2.294	2.714	3.857	3.143	3.714	3
2.848	3.143	0.929	4	2.643	1.714
3.618	3.571	3.857	2.429	2.857	2.5
3.789	2.786	4	1.5	1.857	3.643
2.361	3.357	3.357	1.538	2.429	2.714
1.829	3.214	0.714	1.357	1.786	3.857
3.716	2	1.071	3.857	2.571	3.714
1.216	1.714	3.286	3.714	4	3.214
1.721	2.786	3.429	3.857	2.143	3.786
3.119	2.786	2.071	1.929	4	1.714
1.975	3.714	0.5	0.643	3.5	1.071
2.495	2.857	1.857	3	3.571	3.286
3.422	2.286	2.357	1.643	1.929	3.571
1.647	2.714	3.857	2.714	3.357	3
1	1.071	2.857	3.714	2.714	1.5
3.191	2.071	0.571	1.571	4	3.929
1.142	2.571	4	2.571	0.929	2.357
2.804	3.5	3.357	2.714	2.286	3.071
3.562	1.214	3.5	3.714	4	2.571
3.716	2.571	2.286	4	3.714	2.929
3.319	3.786	3.214	3.429	2.286	3.071
1.524	2.857	1.357	3.714	2.5	2.214
2.51	4	4	2.286	4	4
1.686	3.929	1.857	0.786	3.643	1.714
2.319	3.429	2.286	0.786	3	2.714
3.613	3.714	3.571	3.857	2.429	0.5
1.789	2.071	3.857	3.714	1.786	3.786
2.515	1		3.571	2.929	2.143
2.775	3.571	1.357	2.786	1.214	3.214
2.162	4	2.143	3.357	3	3.286
3.452	2.643	3.714	3.714	2.538	1.714
1.99	3.214	3.571	2.714	3.357	3.429
3.603	1.857	3.214	3.857	1.857	1.667
1.23	2.571	2.143	3.286	1.929	3.143
2.882	3.857	1.857	1	1.071	2.143
3.176	2.429	3.071	3.429	2.571	2.429
1.691	0.929	2.643	3.071	1.643	
2.314	3.857	2.571	1.714	3.286	
3.78	3.214		3.714	3.929	
1.995	1.857	2.071	3.714	0.071	
2.98	0.786	1.929	2.643	4	
3.505	0.857	3.286	1.786	3.214	
0.677	3.5	2.857	2.5	3.286	

2002-03 Cohort I	2004-05 Cohort II	2003-04 Cohort I	2005-06 Cohort II	2004-05 Cohort I	2006-07 Cohort II
3.02	3.714	2.357	2.643	4	
3.672	3	2.929	1.071	4	
1.429	1.571	4	3.286	2.714	
3.52	2.5	1.143	2.357	4	
1.51	3.429	4	3.429	1.571	
2.951	1.857	3.286	3.714	2.429	
2.882	3.429	1.071	1.143	2	
2.961	2.214	3.643	1.5	3	
3.48	2.786	2.286	3.643	3.143	
2.358	2	2.714	2.571	3	
3.569	3	4	3.429	4	
1.725	3.857	3.857	1.857	2.929	
3.5	1.571	2.385	2.571	3.714	
3.828	1.714	3.786		1.429	
1.377	3.857	0.5		3.143	
3.953	2.357	2.286		1.571	
3.77	1.857	0.714		3.286	
2.529	1.857	1.357			
2.333	2.857	1.214			
3.186		2.571			
2.619		2.286			
3.206		3.571			
3.262		1			
1.619		2.286			
2.216		3.5			
2.26		1			
3.691		2.643			
0.642		1.857			
0.735		2.571			
2.196					

Appendix B

Lexile Scores

2002-03 Cohort I	2004-05 Cohort II	2003-04 Cohort I	2005-06 Cohort II	2004-05 Cohort I	2006-07 Cohort II
959	912	1180	1012	1227	919
1012	1077	805	1154	941	1312
858	1231	430	414	1415	1280
821	448	1356	1116	909	629
1142	953	1117	970	1003	1098
1334	731	1103	900	1283	918
1020	1265	436	1333	985	890
818	460	890	752	738	1409
653	1056	1280	1250	1285	1123
423	859	1279	1398	1032	1400
1157	631	962	833	982	986
1164	1124	853	1439	1432	1475
520	894	880	805	894	1096
1058	901	970	825	1336	1100
1058	596	944	912	1076	896
751	919	1137	965	852	1057
829	942	761	1079	1249	1327
604	803	1268	1255	1153	1418
1274	1094	1249	1466	1286	968
1153	1283	1130	1161	902	1332
988	1062	1078	1109	1073	1277
873	1082	1160	1415	1404	1278
1040	1029	1000	990	1270	1234
592	1336	900	1389	942	999
751	1055	1093	1176	998	1098
986	1188	887	907	1031	1127
991	1018	847	947	1004	1370
963	184	1243	929	1130	854
765	896	1229	645	1420	909
1059	869	856	742	1092	851
944	806	562	704	866	907
1240	500	1162	851	1165	696
796	434	1122	967	1458	1359
1033	578	1310	1229	1233	1011
958	816	929	1040	1048	764
685	1190	997	920	1526	768
1289	764	1161	612	888	1154
698	779	1264	856	1102	1159
765	410	1089	1271	762	971
1083	1198	824	992	1147	996
759	1106	983	877	181	858
964	746	1300	644	743	1362
1034	421	1240	1250	1042	1006

2002-03 Cohort I	2004-05 Cohort II	2003-04 Cohort I	2005-06 Cohort II	2004-05 Cohort I	2006-07 Cohort II
795	930	707	943	1146	852
824	1062	392	1107	888	1043
821	989	897	897	1128	1053
1026	969	523	1374	1057	1268
713	935	910	871	864	1002
777	1270	92	1452	1297	1205
847	1271	1152	729	1203	924
507	887	1435	976	1034	1009
870	983	752	433	163	433
1011	834	815	893	1194	1074
841	905	963	1117	1055	1200
455	1001	1025	1062	866	972
743	851	1289	84	1049	868
366	756	920	748	192	1230
1150	1197	788	1371	586	1140
423	1258	1256	1108	1047	680
822	1122	1135	843	1242	999
969	497	666	1163	1243	1329
732	1076	278	604	1064	743
894	626	991	864	1120	874
684	780	913	1162	1200	692
784	1020	881	1399	777	1013
1261	1211	511	625	973	1025
1122	518	729	981	965	1214
266	933	1138	420	913	1462
735	723	942	748	992	1434
789	955	994	1117	1353	1147
603	1036	972	1148	1050	1168
1016	777	1308	1286	948	1199
426	1294	878	1153	1382	1242
650	1088	760	1286	1301	1412
863	1034	1140	1063	1166	1281
875	1032	1237	1097	1090	812
857	1065	1060	1128	1064	1281
968	963	1133	1272	1312	1089
894	817	807	1199	1283	821
773	1048	909	813	1051	1104
924	988	948	960	1305	963
1094	919	900	838	1404	997
724	1232	1012	958	1408	594
743	1255	1146	1158	1007	1253
578	1089	967	918	906	785
873	963	909	975	1253	1186
898	804	1364	594	1052	1177
660	1292	1270	998	1032	1186
1050	839	918	633	1293	1163
952	976	768	893	997	1319
780	1239	1149	1340	1505	1387

2002-03 Cohort I	2004-05 Cohort II	2003-04 Cohort I	2005-06 Cohort II	2004-05 Cohort I	2006-07 Cohort II
884	864	1033	1234	1380	387
707	433	1177	1203	979	1030
767	526	1211	1103	301	1073
1029	1029	798	785	893	1340
903	1406	1036	373	1104	1165
781	809	940	976	1191	1416
1020	1060	1209	1105	1497	737
1278	1232	1148	1397	954	1319
1068	493	1033	953	914	1132
679	1088	537	1266	1329	815
849	868	1008	349	750	1464
868	946	1025	1290	937	1239
888	1346	1371	1090	1506	850
751	1158	1227	871	1286	954
532	459	1030	1416	1047	1381
564	884	1176	1249	1361	1105
940	1070	992	402	1311	1344
1119	1160	475	1005	1083	1162
1283	831	470	1292	1297	1493
1008	1002	840	937	1243	1265
1064	890	780	869	1105	1118
982	47	889	956	1063	1272
1024	843	1284	1370	1054	863
880	1198	1269	1166	1065	856
309	1026	908	1089	1025	1233
852	905	909	987	1044	1227
724	1045	1342	842	1446	949
944	882	631	762	1127	966
1002	459	849	1060	1534	737
678	875	1446	1155	1113	1180
1217	1049	991	992	1022	1323
686	937	1059	733	1281	1285
1099	1060	1131	651	916	1147
729	948	1238	1135	1377	1245
891	916	689	1242	1370	932
1183	851	1270	1200	524	1070
1022	1230	954	656	1046	1014
971	743	1032	1135	770	1217
1128	713	1157	992	997	1379
1196	648	956	912	803	958
1109	858	1138	1042	1224	1353
936	1295	858	816	915	1204
874	1027	1177	1004	659	883
926	740	1125	1043	1316	1298
913	899	1372	1257	1090	902
890	937	925	851	997	1095
829	911	1314	950		1255
905	1092	944	1262		1477

2002-03	2004-05 Cohort	2003-04	2005-06 Cohort	2004-05	2006-07 Cohort
Cohort I	II	Cohort I	II	Cohort I	II
1127	814	953	1325		1160
1057	1014	1326	906		1038
1131	1261	1156	1194		1189
1287	1275	366	939		1026
1067	1136	1046	1313		1385
961	1213	751	1038		1300
996	810	891	1188		1174
769	1011	554	914		999
1003	1338	1181	1222		1051
886	786	909	928		946
497	854	993	934		1210
801	1117	1158	1302		1067
695	999	1036	913		1003
726	737		1257		1310
245	730		1103		1015
1105	953		917		1174
854	1283		875		1333
815	883		1084		1032
1029	792		930		1239
530	1247		1243		1015
803	859		954		
675	1059		684		
	1117		1142		
	705		1020		
	927		1166		
	669		1272		
			657		
			959		
			1046		

Appendix C

Behavior Referral Charts Cohorts I and II

	COHORT 1 (2002-03 to 2004-05)
	COHORT 2 (2004-05 to 2006-07)

RMS REFERRALS			
	GRADE 6	GRADE 7	GRADE 8
2002-03	1514		
2003-04		1436	
2004-05	1396		1284
2005-06		1564	
2006-07			1609

RMS REFERRALS - DISRUPTIVE					
	2002-03	2003-04	2004-05	2005-06	2006-07
GRADE 6	152		137		
GRADE 7		211		152	
GRADE 8			153		213

RMS REFERRALS - DISRESPECT					
	2002-03	2003-04	2004-05	2005-06	2006-07
GRADE 6	104		107		
GRADE 7		160		192	
GRADE 8			89		141

RMS REFERRALS - TARDY TO SCHOOL					
	2002-03	2003-04	2004-05	2005-06	2006-07
GRADE 6	22		24		
GRADE 7		85		40	
GRADE 8			46		71

RMS REFERRALS - TARDY TO CLASS					
	2002-03	2003-04	2004-05	2005-06	2006-07
GRADE 6	18		51		
GRADE 7		74		104	
GRADE 8			86		65

RMS REFERRALS - CLASSROOM BEHAVIORS (Work)					
	2002-03	2003-04	2004-05	2005-06	2006-07
GRADE 6	139		125		
GRADE 7		261		60	
GRADE 8			195		69

RMS REFERRALS - FIGHTING					
	2002-03	2003-04	2004-05	2005-06	2006-07
GRADE 6	20		27		
GRADE 7		33		28	
GRADE 8			26		16

RMS REFERRALS - BULLYING					
	2002-03	2003-04	2004-05	2005-06	2006-07
GRADE 6	0		19		
GRADE 7		7		3	
GRADE 8			12		8

RMS REFERRALS - STEALING					
	2002-03	2003-04	2004-05	2005-06	2006-07
GRADE 6	3		10		
GRADE 7		5		18	
GRADE 8			11		4

Appendix D

Actions Taken by Administrators

ACTIONS TAKEN BY ADMINISTRATION (ISS)

	2002-03	2003-04	2004-05	2005-06	2006-07
GRADE 6	73		154		
GRADE 7		125		153	
GRADE 8			113		224

ACTIONS TAKEN BY ADMINISTRATION (OSS)

	2002-03	2003-04	2004-05	2005-06	2006-07
GRADE 6	7		27		
GRADE 7		40		46	
GRADE 8			34		59

Appendix E

Behavior Location Referrals Data

LOCATION OF REFERRAL-HALLWAY

	2002-03	2003-04	2004-05	2005-06	2006-07
GRADE 6	60		102		
GRADE 7		192		172	
GRADE 8			158		152

LOCATION OF REFERRAL-CLASSROOM

	2002-03	2003-04	2004-05	2005-06	2006-07
GRADE 6	296		378		
GRADE 7		506		276	
GRADE 8			363		267

Appendix F

Grade Point and Lexile Data

GRADE POINT AVERAGES COHORT I

	2002-03	2003-04	2004-05	2005-06	2006-07
GRADE 6	2.49				
GRADE 7		2.59			
GRADE 8			2.83		

GRADE POINT AVERAGES COHORT II

	2002-03	2003-04	2004-05	2005-06	2006-07
GRADE 6			2.68		
GRADE 7				2.74	
GRADE 8					2.54

SRI SCORES COHORT I

	2002-03	2003-04	2004-05	2005-06	2006-07
GRADE 6	877.74				
GRADE 7		1009.54			
GRADE 8			1086.62		

SRI SCORES COHORT II

	2002-03	2003-04	2004-05	2005-06	2006-07
GRADE 6			939.43		
GRADE 7				997.48	
GRADE 8					1096.99

Appendix G

Approval Forms

IRB Project Number

Lindenwood University
Institutional Review Board Disposition Report

To: Kenneth Weissflug
Faculty Advisor: Terry Stewart

The Institutional Review Board has reviewed the proposal for research: Effects of positive behavior support programs on student behaviors.

The Institutional Review Board:
_____ Approves the revised proposal

_____

Signature IRB Chair *Date*

Vitaé

Kenneth G. Weissflug currently is the Assistant Superintendent directing the curriculum, instruction, and assessment departments for the Affton School District, in St. Louis, Missouri. Teaching experience has included grades K-8 physical education, social studies, and communication arts. Administrative experience has included grades K-3 assistant principal and 6-8 principal. Additional responsibilities include summer school, Parents As Teachers, early childhood education, and summer camp.

Educational studies have resulted in an Educational Specialist Degree in Superintendency from Southwest Baptist University, a Master of Science Degree in Educational Administration from Southwest Baptist University, a Master of Science Degree in Educational from Southwest Baptist University – Bolivar, Missouri, and a Bachelor of Arts Degree in Education from Harris Stowe State University – St. Louis, Missouri.