

**AN EXAMINATION OF THE RELATIONSHIP BETWEEN SCHOOL-WIDE
POSITIVE BEHAVIOR SUPPORTS AND STUDENT ACADEMIC
ACHIEVEMENT**

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ABSTRACT

The academic achievement and behavior of students are deeply intertwined. For some students, academic struggle precipitates problem behavior; for other students the reverse is true. Recently, schools have turned to School-Wide Positive Behavior Supports (SW-PBS) to provide the structure necessary to promote school success for students. This study examined the relationship between implementation of SW-PBS and change in student behavior and academic achievement. The study examined the cohort of students who attended each of two target middle schools as seventh graders the year prior to implementation of SW-PBS and as eighth graders during the first year of SW-PBS. Problem behavior was measured by in-school and out-of-school suspension rates. Academic achievement was measured by grade point average (GPA) in each subject area and overall. Analysis of variance (ANOVA) was used to test for differences in each measure between the two years. Pearson correlation coefficients analyzed the relationship between change in suspension days and change in GPA. The findings of the study indicate that there was not a significant change in student behavior but there was some change in academic achievement from the year prior to SW-PBS implementation to the first year of SW-PBS implementation. Considered in the context provided by the prior cohort of students at each of the target schools, for whom behavior and academic achievement worsened between seventh and eighth grades, the lack of change in these measures for the target cohorts suggests that SW-PBS implementation coincides with a change in student behavior and academic achievement. The findings also suggest that there is a potential relationship between change in student behavior and change in student academic achievement.

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TABLE OF CONTENTS

Signature Page.....	ii
Abstract.....	iii
Acknowledgements.....	iv
Table of Contents.....	v
List of Tables.....	ix
List of Figures.....	xi
Chapter One: Introduction and Rationale.....	1
Problem Statement.....	2
Background and Conceptual Framework.....	5
Significance.....	11
Purpose.....	12
Delimitations.....	12
Assumptions.....	14
Research Questions.....	15
Definition of Terms.....	16
Overview Methods.....	17
Summary/ Organization of the Study.....	18
Chapter Two: Review of Literature.....	19
Introduction.....	19
Student Behavior and Academic Achievement.....	19
Classroom Conditions.....	20
Interaction Between Disruptive Behavior and Academic Struggles.....	21

The Cycle of Failure.....	23
Traditional Punitive Discipline Systems.....	26
Structure of Traditional Punitive Discipline Systems.....	26
Effectiveness of Traditional Punitive Discipline Systems.....	30
Disproportionate Punishment of Student Groups.....	32
Prevention and Intervention-Based Discipline Systems.....	34
Rationale for Preventive Systems.....	34
Focus on Influencing Adult Behavior.....	36
Focus on Teaching Appropriate Behaviors to Students.....	37
Taking a School-Wide Approach to Preventing Problem Behavior.....	39
School-Wide Positive Behavior Supports (SW-PBS).....	43
History of SW-PBS.....	43
Elements of SW-PBS.....	45
Effectiveness of SW-PBS.....	51
Summary.....	56
Chapter Three: Methods.....	57
Introduction.....	57
Research Design.....	58
Population and Sample.....	58
Sampling Procedures.....	59
Instrumentation.....	59
Data Collection Procedures.....	62
Data Analysis & Hypothesis Testing.....	62

Limitations.....	64
Summary.....	65
Chapter Four: Results.....	66
Descriptive Statistics.....	66
Hypothesis Testing.....	70
Research Question 1.....	70
Research Question 2.....	70
Research Question 3.....	71
Research Question 4.....	72
Research Question 5.....	74
Additional Analyses.....	76
Additional Analyses by Ethnicity.....	77
Additional Analyses by Gender.....	86
Additional Analyses by Socio-Economic Status.....	92
Additional Analyses by Special Education Status.....	100
Summary.....	107
Chapter Five: Interpretation and Recommendations.....	108
Introduction.....	108
Study Summary.....	108
Overview of the Problem.....	108
Purpose Statement and Research Questions.....	109
Review of the Methodology.....	109
Major Findings.....	111

Findings Related to the Literature.....	114
Suspensions.....	114
Academic Achievement.....	117
Findings from the Additional Analyses.....	119
Ethnicity.....	120
Gender.....	123
Socio-Economic Status.....	124
Special Education Status.....	127
Disproportionate Punishment of Demographic Groups.....	129
Conclusions.....	130
Implications for Action.....	130
Recommendations for Future Research.....	132
Concluding Remarks.....	134
References.....	136
Appendix A: Student Discipline Guidelines and Procedures.....	148
Appendix B: Institutional Review Board Approval.....	151
Appendix C: School District Research Approval.....	156
Appendix D: Additional Analyses Data Tables.....	157

LIST OF TABLES

Table 1 Eagle Landing Cohort Demographic Information.....7

Table 2 Steinmont Cohort Demographic Information.....9

Table 3 In-School Suspension Descriptive Statistics.....67

Table 4 Out-of-School Descriptive Statistics.....68

Table 5 Grade Point Average (GPA) Descriptive Statistics.....69

Table 6 Pearson Correlation Coefficients for Change in ISS Days & Change in GPA....73

Table 7 Pearson Correlation Coefficients for Change in OSS Days & Change in GPA...75

Table D1 In-School Suspension (ISS) Descriptive Statistics.....157

Table D2 Out-of-School (OSS) Descriptive Statistics.....158

Table D3 Language Arts GPA Descriptive Statistics.....159

Table D4 Mathematics GPA Descriptive Statistics.....160

Table D5 Science GPA Descriptive Statistics.....161

Table D6 Social Studies GPA Descriptive Statistics.....162

Table D7 Physical Education GPA Descriptive Statistics.....163

Table D8 Elective GPA Descriptive Statistics.....164

Table D9 Overall GPA Descriptive Statistics.....165

Table D10 ANOVA Interaction Effect for Year by Subject Area GPA Results by
Demographic Group.....166

Table D11 ANOVA Main Effect for Subject Area Results by Demographic Group....167

Table D12 Eagle Landing Pearson’s Correlation Coefficients for ISS Change and
GPA Change.....168

Table D13 Steinmont Pearson’s Correlation Coefficients for ISS Change and GPA Change.....	169
Table D14 Eagle Landing Pearson’s Correlation Coefficients for OSS Change and GPA Change.....	170
Table D15 Steinmont Pearson’s Correlation Coefficients for OSS Change and GPA Change.....	171

LIST OF FIGURES

Figure 1 Continuum of positive behavior support.....	44
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CHAPTER ONE

INTRODUCTION AND RATIONALE

Introduction

The academic achievement and behavior of students are possibly the best example of a “which came first” scenario in K-12 education. For some students, academic struggle and failure lead to disruptive behaviors; other students develop academic problems due to struggles with behavior control. Often it is difficult to discern whether a particular student falls into the former group or the latter (Buffum, Mattos, & Weber, 2009). Whether the academic challenges cause the problem behaviors or the problem behaviors cause the academic challenges, students need supports and interventions to find success in school. Both groups of students have needs that must be addressed by school personnel.

Implementation of academic interventions and development of punitive discipline systems are conventional school responses to student needs. Neither conventional interventions nor punitive discipline systems have proven successful for eliminating problem behaviors and facilitating academic achievement for students (Flanagain, 2007; Office of Special Education Programs, 2004). Conventional responses often produce immediate results, but positive outcomes are generally short-lived and recurrences of problem behavior are often more frequent and more significant than the occurrences of problem behavior prior to the imposition of discipline (OSEP, 2004). Effectively eliminating problem behaviors and facilitating student academic achievement requires a different approach. School-wide positive behavior supports (SW-PBS) models have demonstrated “great potential for improving the academic, social and vocational

competence of all students, including those with disabilities” (Nelson & Sugai, 1999, p. 25). Further study into SW-PBS is necessary to confirm findings that reduction and elimination of problem behaviors is related to an improvement in academic outcomes for students.

This chapter provides background information regarding the study including the need for and significance of the behavioral support research. In addition, demographic information on the targeted schools and their implementation of SW-PBS is presented. Lastly, guiding research questions and an overview of the research methodology are also included.

Problem Statement

Educators have anecdotally established the relationship between academic struggle and student problem behavior. The experiential link between these variables is mentioned in reports and commentaries that call for change in the prevailing approach to student discipline (Dwyer, Osher, & Warger, 1998; Nelson & Sugai, 1999; Sandomierski, Kincaid, & Algozzine, 2007). Researchers Nelson and McIntosh have confirmed the intuition and experience of educators through scientific study of the relationship. For example, Nelson and colleagues (2002) cite lack of success in reading as a source of “frustration-caused problem behaviors” (p. 146). Student frustration can also be due to boredom with instruction and academic tasks. In addition, McIntosh and colleagues (2008) found that “the relationship between academics and behavior exists and is powerful, and problems in either area are a risk factor for problems in the other” (p. 251). Such a strong tie between the two areas suggests that resolution of the problems in one area could potentially lead to resolution of the problems in the other area. McIntosh

(2008) specifies that problem behavior has a stronger impact as a hindrance to academic achievement than vice versa. This finding suggests placing the priority on resolution of the problem behavior.

Intervening to prevent student behavior from escalating to problematic levels and causing academic failure is a more desirable use of school staff time and effort than working to correct problems that have already manifested themselves. SW-PBS is a systematic expansion of Positive Behavior Supports (PBS). PBS is an established model for working with individual students to prevent the development and escalation of problem behaviors. In a PBS model, the adults who interact with students demonstrating potential or real problem behaviors commit to changing their actions to lead to changes in student behavior (Horner & Sugai, 1999). For many years, special education teams were the primary users of PBS with students diagnosed with behavior disorders. Historically, students with disabilities such as behavior disorders were secluded, and even restrained, to control their behavior; PBS has reduced the reliance on these methods (Samuels, 2009). In recent years, expansion of PBS to school-wide efforts has shown promise as a model for addressing problem behaviors on a larger scale (OSEP, 2004). The application of PBS theories and strategies to school-wide systems (SW-PBS) creates system-level change tailored to the needs of the individual school site rather than the individual student (Nelson & Sugai, 1999). SW-PBS emphasizes prevention, tiers of support, and data-based decision making (Skiba & Sprague, 2008). Prevention includes defining behavior expectations, teaching those expectations to students, and systematically rewarding students for exhibiting appropriate behaviors (Skiba & Sprague, 2008). By working on a system level, a multi-tier system of supports addresses the needs of all students. The

level of support and intervention provided to students through the system matches the level of need indicated by student behaviors (Sandomierski, Kincaid, & Algozzine, 2007). Review of data related to behavioral infractions occurs at least quarterly and drives decision-making (OSEP, 2004). Through such systems, the needs of all students are met and the attention of the school staff is productively placed on meeting the academic needs of the students.

Several studies have quantified the positive change in student academic achievement resulting from implementation of a SW-PBS model (Lassen, Steele, & Sailor, 2006; Luiselli, Putnam, Handler, & Feinberg, 2005; Nelson, Martella, & Marchand-Martella, 2002). A shortcoming of these studies is that they do not control for other academic variables (Putnam, Horner, & Algozzine, 2006). Nelson (2002) intervened with reading tutoring, as well as behavioral interventions and supports. The Luiselli (2005) study coupled the behavior structures with academic instructional strategy training for staff. Additional study of the potential of SW-PBS alone to result in improved academic performance of students is needed (Lassen, Steele, & Sailor, 2006; Putnam, Horner, & Algozzine, 2006). McIntosh, Flannery, Sugai, Braun, & Cochrane (2008) specifically call for further research on the “crossover effects” of SW-PBS on academic achievement (p. 252). The term “crossover effect” was originally coined by Kellam and Rebok to describe the effect of change in two variables on each other when an intervention designed for the first variable is implemented simultaneously with a separate intervention designed for the second variable (Kellam, Mayer, Rebok, & Hawkins, 1998). McIntosh and colleagues (2008) applied the concept more simply to study “how problems in academics or behavior compound the risk for problems in both

areas” (p. 245). Their call for additional research utilizes the simplified definition of crossover effect with a focus on the effect of SW-PBS on academic achievement (McIntosh, Flannery, Sugai, Braun, & Cochrane, 2008). Examination of the academic crossover effects of school-wide positive behavior supports requires control for other academic variables such as a new reading program, additional tutoring, or new math textbooks during the SW-PBS implementation.

Background & Conceptual Framework

The study described in this paper examined the crossover effect of SW-PBS implementation on academic achievement of students in two middle schools serving students in grades seven and eight. For the purposes of this paper, the schools will be referred to with the pseudonyms Eagle Landing and Steinmont. The schools were located in the same suburban school district in the Midwest. The researcher was employed by this district at the time of both the implementation and the study, but was not directly involved with the implementation. Eagle Landing and Steinmont were selected by the district as the first schools in the district to implement SW-PBS and were the only schools in the district to implement SW-PBS during the 2007-08 school year.

The targeted district encompasses approximately 72 square miles with a total enrollment of approximately 28,000 students. Middle schools in this district are comprised of students in grades seven and eight. Of the seven middle schools in the district, the two schools studied were the largest and third largest. In the two study schools the number of seventh and eighth graders was approximately equal in both the 2006-07 and 2007-08 school years. The cohort of students studied includes only the students who were seventh graders in 2006-07 and eighth graders at the same school

during the 2007-08 school year. Students were excluded from the study if their student identification number was not in the enrollment records for both school years.

At Eagle Landing, the cohort of 2006-07 seventh graders and 2007-08 eighth graders contained 250 students, representing 91.2% of the eighth grade class of 2007-08. Demographic information for the Eagle Landing cohort is located in Table 1 on the following page. The majority, 81.2 percent of the students in the cohort were white. Of the remaining students 6.4 percent were Hispanic, 6.0 percent black, 3.6 percent Asian or Pacific Islander, 2.0 percent multi-ethnic or did not indicate a race on enrollment information and 0.8 percent American Indian. Gender divided the cohort approximately in half with females comprising 50.8 percent and males 49.2 percent of the cohort. Fourteen and four tenths percent of the students receive free lunch and six percent receive reduced-price lunch, both indicating socio-economic status (SES) at the poverty level and 12.4 percent of the students have an Individualized Education Plan (IEP) for Special Education (SPED) services (Daniel Gruman, personal communication, November 24, 2008).

The cohort of Eagle Landing students prior to the targeted cohort was a similar group of students and demonstrated the need for behavior support. The previous cohort was slightly smaller, with only 236 students. The only notable difference between the previous cohort and the target cohort was the gender composition of the cohort. The previous cohort was 57% male and 43% female. The previous cohort averaged 0.46 days of in-school suspension (ISS) per student as seventh graders, with 36 students receiving at least one day of ISS. As eighth graders, they averaged 0.94 days of ISS, with 39

Table 1

Eagle Landing Cohort Demographic Information

		Number of Students	Percent of Cohort
Ethnicity	American Indian	2	0.8
	Asian/Pacific Islander	9	3.6
	Black	15	6.0
	Hispanic	16	6.4
	Multi-Ethnic or Not Marked	5	2.0
	White	203	81.2
Gender	Female	127	50.8
	Male	123	49.2
SES	Free Lunch	36	14.4
	Full Pay Lunch	199	79.6
	Reduced Lunch	15	6.0
SPED Status	No IEP	219	87.6
	IEP	31	12.4

Note: From Personal Communication by D. Gruman, November 24, 2008

students receiving at least one day of ISS. The average out-of-school suspension (OSS) days for this cohort was 0.31 days in seventh grade and 0.41 days in eighth grade, with 23 students receiving at least one days of OSS in seventh grade and 38 students receiving at least one day of OSS in eighth grade. Academically, the average overall grade point

average (GPA) for the previous cohort was 3.23 in seventh grade and 3.02 in eighth grade (Dan Gruman, personal communication, January 29, 2010).

Eagle Landing chose to develop a SW-PBS plan that would improve the overall climate of the school rather than targeting specific problem behaviors. Putnam, Horner, & Algozzine (2006) suggest that “if acceptable instruction is in place, then improving the behavioral climate of the school will allow that instruction to be more effective” (p. 4). During the 2007-08 school year, the school focused on identification of needs and development of a set of universal interventions. The overriding goals for the year were developing a common language within the building, increasing awareness, and setting a foundation and direction for expansion of the interventions in the future. Implementation of SW-PBS was the only major initiative of the school during the targeted year, 2007-08. The school staff focused on efficiently and effectively developing and implementing their SW-PBS plan.

At the second study school, Steinmont, the cohort of 2006-07 seventh graders and 2007-08 eighth graders contained 393 students, representing 92.5% of the eighth grade class of 2007-08. Demographic information for the Steinmont cohort is located in Table 2 on the following page. The majority, 73.5 percent of the students in the cohort were white. Of the remaining students 10.2 percent were black, 9.9 percent Hispanic, 2.5 percent Asian or Pacific Islander, 2.5 percent multi-ethnic or did not indicate a race on enrollment information and 1.3 percent American Indian. The cohort is divided approximately in half by gender with males comprising 51.1 percent and females 48.9 percent of the cohort. Students receiving free lunch comprise 15.3 percent of the cohort. Seven and nine tenths percent of the students receive reduced-price lunch. Ten and nine

Table 2

Steinmont Cohort Demographic Information

		Number of Students	Percent of Cohort
Ethnicity	American Indian	5	1.3
	Asian/Pacific Islander	10	2.5
	Black	40	10.2
	Hispanic	39	9.9
	Multi-Ethnic or Not Marked	10	2.5
	White	289	73.5
Gender	Female	192	48.9
	Male	201	51.1
SES	Free Lunch	60	15.3
	Full Pay Lunch	302	76.8
	Reduced Lunch	31	7.9
SPED Status	No IEP	350	89.1
	IEP	43	10.9

Note: From Personal Communication by D. Gruman, November 24, 2008

tenths percent of the students have an Individualized Education Plan (IEP) for Special Education (SPED) services (Gruman, 2008).

The cohort of Steinmont students prior to the targeted cohort was a similar group of students and demonstrated the need for behavior support. The previous cohort was larger, with 432 students. The only notable difference between the previous cohort and

the target cohort was the percentage of black and Hispanic students. The previous cohort was 13% black and 5% Hispanic. The previous cohort averaged 0.40 days of ISS per student as seventh graders, with 67 students receiving at least one day of ISS. As eighth graders, they averaged 1.06 days of ISS, with 117 students receiving at least one day of ISS. The average OSS days for this cohort was 0.36 days in seventh grade and 0.81 days in eighth grade, with 40 students receiving at least one days of OSS in seventh grade and 77 students receiving at least one day of OSS in eighth grade. Academically, the average overall grade point average (GPA) for the previous cohort was 3.08 in seventh grade and 2.89 in eighth grade (Dan Gruman, personal communication, January 29, 2010).

Steinmont's SW-PBS plan for the 2007-08 school year focused on reducing the number of students who were tardy to class and unifying the staff members' approach to discipline by defining student behaviors and appropriate consequences. As at Eagle Landing, implementation of SW-PBS was the only major initiative of the school during this year. The Steinmont staff focused on coming together as a unified group with clear expectations, roles and responsibilities.

There are several important tasks that must be undertaken by a SW-PBS school during and prior to its first year of implementation. Schools must identify a leadership team that is representative of the staff as a whole. The building leadership team must designate a coach from amongst its membership to lead and support the team from within the school (Simonsen, Sugai, & Negron, 2008). The leadership team must work with the rest of the school's staff to determine that a change in student behavior and the staff's response to it is needed to achieve the school's academic and behavioral goals (Lohrmann, Forman, Martin, & Palmieri, 2008). At least 80% of the staff should agree to

implement SW-PBS (Simonsen, Sugai, & Negron, 2008). Once the necessary staff support has been garnered, the leadership team must work to streamline their data collection and analysis procedures and attend SW-PBS training sessions (Simonsen, Sugai, & Negron, 2008). Initial training for SW-PBS includes up to four full days of training for the leadership team, followed by one or more days of training for the remainder of the staff and the students (George & Martinez, 2007). Training and planning typically occur the year prior to the implementation of SW-PBS (Simonsen, Sugai, & Negron, 2008). Both of the target schools in this study utilized the 2006-07 school year and summer of 2007 for training and planning and began implementation of SW-PBS activities during the 2007-08 school year.

Significance

This study contributed to the growing body of research on the positive effect that implementation of a SW-PBS model has on academic achievement of students. The calls for further research cited earlier indicate the need for studies which control for other academic variables such as tutoring programs and staff development on instructional strategies. The schools examined in this study made no significant academic program changes at the time of SW-PBS implementation; thereby controlling for other academic variables. This study followed a cohort of students from the year prior to SW-PBS implementation through the first year of implementation. Investigation of a cohort group is in contrast to a previous study conducted by Lassen, Steele, & Sailor (2006). The Lassen study researched questions similar to those in the study described in this paper through the comparison of three years of students enrolled in the same school rather than multiple years of study of the same student cohort. Lassen reported the comparison of

multiple groups as a limitation in generalization of that study's findings. The cohort design of the study described in this paper "ensures that the students in each sample remain similar to one another, reducing selection bias" (Tuckman, 1999, p. 188). The cohort design increased the validity of this study.

Schools and districts have limited resources and "must educate the ever-changing student with less resources and higher stakes" (Cloud & Kritsonis, 2006, p. 1). Findings from this study will better guide schools and districts in how to focus those limited resources. Through the examination of the academic and behavioral outcomes of two schools with different circumstances and priorities, there is an increased ability for other schools to learn from this research and develop customized academic and behavioral plans based on the findings of this study.

Purpose

The purpose of this study was to determine the change in student suspension rates and academic achievement of students associated with the implementation of a school-wide positive behavior supports model and the relationship between the change in suspension rates and change in academic achievement of the students.

Delimitations

This study was limited to two middle schools in one district in the Midwest. The district selected was the district in which the researcher was employed at the time of the study. At the time of the study, these two middle schools, four elementary schools and one high school were implementing SW-PBS models. The elementary schools implemented significant changes in the instructional model for reading at the same time resulting in academic variables that could not be controlled. The high school began its

SW-PBS implementation in the 2008-09 school year with a ninth grade class that was the eighth grade class at one of the study middle schools. Prior exposure to SW-PBS for these students at the middle school created an uncontrollable variable that eliminated the high school from consideration for study. A longitudinal study of this group of middle school students as they entered high school was considered. Academic variables such as differences in grading philosophies and policies between the middle and high school teachers ruled out a longitudinal study.

The study was also limited to the examination of one cohort of students over a two year time period. While a longer period of time would have been desirable, the researcher considered the limitations of the Lassen (2006) study and determined examination of a cohort of students would provide greater potential for evidence of a relationship between behavior and academic achievement than examination of the entire school population over a longer period of time. The middle schools only serve seventh and eighth grade students; therefore, the study time was limited to the year prior to and first year of implementation because the students only attended the school for two years.

The academic achievement measure was limited to course grades. Standardized test scores are a common measure of academic achievement, but only account for a student's achievement in language arts and mathematics. Using course grades allowed for consideration of the entirety of the student's academic day including science, social studies, physical education and elective courses.

The discipline measure utilized was number of days suspended. Both in-school suspensions and out-of-school suspensions were included. Many studies of student behavior use office discipline referrals to quantify discipline issues (Lassen, Steele, &

Sailor, 2006; Luiselli, Putnam, Handler, & Feinberg, 2005; McIntosh, Chard, Boland, & Horner, 2006; McIntosh, Flannery, Sugai, Braun, & Cochrane, 2008; Nelson, Martella, & Galand, 1998; Sadler & Sugai, 2009; Scott & Barrett, 2004; Sprague, Sugai, Horner & Walker, 1999; Wright & Dusek, 1998). Without hand examination of each referral record, the office referral data available for this study did not differentiate between a minor offense such as inappropriate use of a cell phone and a major offense such as fighting. Through the use of suspension data, minor offenses were eliminated from consideration. The offenses that remained for analysis were moderate to severe and/or chronic offenses. Additionally, the implementation of SW-PBS often results in a change in the number of office discipline referrals due to increased consistency in referring offenses to the administration (Luiselli, Putnam, Handler, & Feinberg, 2005). Offenses that warrant suspension are less variable before and after implementation of SW-PBS.

Assumptions

The major assumption made was that the year prior to and the first year of SW-PBS implementation provided comparable learning experiences for students excluding changes that were a direct result of SW-PBS. The administrators and teacher leaders in the respective schools confirmed that no new academic interventions were implemented in the 2007-08 school year. The textbooks utilized in all of the core subject areas and all elective areas except Spanish courses were the same in both years. There were six teacher changes at Eagle Landing between 2006-07 and 2007-08, resulting in a 15% change in teaching staff (Debbie Pfortmiller, Personal Communication, November 24, 2008). Steinmont's turnover was 7% with five teacher changes (Lee Ann Fyten, Personal Communication, December 15, 2008). These percentages are comparable to previous

years. The turnover rate indicates that grading practices were similar between the study years. Eagle Landing had no administrator changes during the study years; the same principal and assistant principal served as building administrators during both study years. Steinmont changed from a half-time second assistant principal in 2006-07 to a full time assistant principal, with a different person in the position, in 2007-08; the principal and first assistant principal were the same in both study years. It is therefore assumed that discipline philosophies and enforcement were similar between the study years, aside from changes that coincided with the SW-PBS implementation. Both schools received new instructional technology equipment including ceiling-mounted LCD projects, wireless computer slates and student response systems in the spring semester of the year prior to SW-PBS implementation. Utilization of these technologies varied significantly among staff members and the impact on the academic achievement of students could not be isolated or controlled. The use of the technologies did not provide a significant instructional difference in the SW-PBS implementation year.

Research Questions

The study described in this paper addresses the relationship between implementation of school-wide positive behavior supports and student academic achievement through five research questions.

Research Question 1: Is there a change in the number of days students are assigned to in-school suspension for individual students that coincides with the implementation of a school-wide positive behavior supports model?

Research Question 2: Is there a change in the number of days students are assigned to out-of-school suspension for individual students that coincides with the implementation of a school-wide positive behavior supports model?

Research Question 3: Is there a change in student academic achievement that coincides with the implementation of a school-wide positive behavior supports model?

Research Question 4: Is there a relationship between change(s) in the number of days students are assigned to in-school suspension and changes in student academic achievement?

Research Question 5: Is there a relationship between change(s) in the number of days students are assigned to out-of-school suspension and changes in student academic achievement?

Definition of Terms (Operationalize Variables)

School-wide positive behavior supports (SW-PBS) is “a compilation of effective practices, interventions, and systems change strategies that have a long history of empirical support and development and individually have been demonstrated to be empirically effective and efficient” (OSEP, 2004, p.10). Practices, interventions, and strategies vary in intensity based on demonstrated need (Sandomierski, Kincaid, & Algozzine, 2007).

Suspension rate refers to the number of days in one school year a student was assigned an in school suspension (ISS) or out of school suspension (OSS) by a building administrator.

Academic achievement was measured in this study by calculating a grade point average for each academic area. The target schools do not calculate semester or yearly

grades. Instead, students earn a discrete grade each academic quarter for every course. Letter grades appearing on each student's quarterly report card were assigned a point value and averaged to determine a measure of academic performance in each academic area and overall.

Overview Methods

The study utilized quantitative methodology to examine existing discipline and behavior data from the two study schools. The two middle schools selected were assumed to be representative of suburban middle schools beginning to implement SW-PBS.

The number of days each student in the cohort received in-school suspension or out-of-school suspension in 2006-07 and 2007-08 served as the measure of change in student behavior. Collection of quarter report card grades allowed for calculation of a grade point average for each academic area: language arts, mathematics, science, social studies, physical education, and electives. Point values were assigned to each letter grade. The points were averaged by academic area and overall to determine a grade point average. The change in the grade point average for each academic area and overall between the two study years served as the measure of change in student academic achievement.

Hypothesis testing utilized two-factor ANOVAs and correlation. Analysis of the student suspension data consisted of two-factor ANOVAs. The main effect of the two-factor (YearxEthnicity) ANOVAs for ISS days and OSS days tested the difference between the number of in-school suspension days and out-of-school suspension days, respectively, for each student during 2006-07 and 2007-08. Analysis of the student grade

data for both school years also utilized two-factor (YearxEthnicity) ANOVAs for each academic area GPA and the overall GPA. These analyses answered the first three research questions. Correlation was used to determine if there is a statistically significant relationship between the variables of student behavior and student academic achievement to answer the final two research questions.

Summary/ Organization of the Study

The reader will find five chapters in the report of this study. Chapter 1 offers an overview of the relationship between student behavior and academic achievement and the need for further study of this relationship. The following are also included in this chapter: an introduction to the study schools, the research questions, and an overview of the study methodology.

Chapter 2 provides the reader with a review of the literature related to student behavior and academic achievement. The review examines the relationship between student behavior needs and student academic needs, the benefits of prevention and intervention over reactionary and punitive discipline systems, and the tenants of school-wide positive behavior supports. Chapter 3 details the quantitative methodology utilized in the study.

Chapter 4 contains analysis of the collected data and the findings from the analysis. The fifth, and final, chapter discusses the results of the study. Discussion includes answers to the research questions provided by the data analysis, as well as reflection and implications for future research.

CHAPTER TWO

REVIEW OF LITERATURE

Introduction

This chapter provides a review of research literature relevant to the topic of the study. The first section includes findings on the relationship between student behavior and academic achievement. The second section provides an overview of traditional, punitive and reactionary discipline systems and their limitations. The third section overviews intervention and prevention-based discipline systems as an alternative to punitive systems. The chapter concludes with a description of school-wide positive behavior supports (SW-PBS) including its function as an intervention and prevention-based discipline system.

Student Behavior and Academic Achievement

The mission of all schools is to ensure that their students learn and achieve. Toward this end, educators have a responsibility to provide a safe place for students to learn. Research conducted by the Office of Special Education Programs for the United States Department of Education found thirteen characteristics of safe schools. The first characteristic highlighted in the report is “focus on academic achievement” which is defined as conveying expectations for all students to “achieve academically and behave appropriately” (Dwyer, Osher, & Warger, 1998, p. 3). The relationship between academic achievement and student behavior is quite complex. This section of the literature review summarizes current understandings of this relationship.

Classroom Conditions

The structure of schooling as we know it has its basis in the classroom. The teacher in whose charge the classroom falls is responsible for facilitating instructional activities to ensure student learning. Simultaneously, the teacher is also responsible for maintaining the classroom as a productive learning environment. Vincent, Horner, and Sugai describe the responsibility to balance academics and behavior as “establishing and maintaining socio-cultural microcosms that teach children to negotiate the diverse values and social norms of a pluralistic society” (2002, p. 2). Increasing demands on schools to improve student academic achievement place an increased responsibility on teachers to maintain classrooms where student behavior facilitates learning (Cloud & Kritsonis, 2006; Vincent, Horner, & Sugai, 2002). The responsibility of the teachers is especially important since the effectiveness of the teacher can have a “profound impact” on the achievement of students (Marzano, 2003, p. 72). Marzano goes on to note classroom management as one of the three sets of skills that an effective teacher must master. Mastering classroom management skills and establishing a productive classroom environment cannot be accomplished by handing out a set of rules on the first day of school. Building and maintaining a productive learning environment requires daily attention (Brownell & Waltber-Thomas, 2001). Teachers must ensure that every classroom is a safe and productive place for teachers to teach and all students to learn.

Disruptive student behavior in the classroom interferes with the teaching and learning process. Chaotic classrooms are not environments conducive to learning (Putnam, Horner, & Algozzine, 2006). In a study of teachers’ self-perception regarding their discipline practices, Baker found that teachers do not see themselves as effective in

working with “difficult students” and preventing the behavior of these students from interrupting class (2005, p. 56). In many circumstances the teacher’s response to disruptive student behavior escalates the situation and the classroom quickly becomes one in which there is what Gunter, Jack, Depaepe, Reed & Harrison refer to as a “curriculum of non-instruction” (as cited in Mayer & Patriarca, 2007, p. 4). Students with emotional and behavioral disorders are especially masterful at engaging teachers in disruptive situations and manipulating the behavior of the teacher (Wehby, Lane, & Falk, 2003). In a 1988 United States Department of Education survey, 16.7 percent of eighth grade teachers reported that they spend at least twenty percent of their instructional time “maintaining classroom order and discipline” (Lippman, Burns, & McArthur, 2006, p. 116). When disruptions due to inappropriate student behavior are reduced students benefit from increased “exposure to classroom instruction, that, in, turn facilitates skill acquisition” (Luiselli, Putnam, Handler, & Feinberg, 2005, p. 193). In a classroom with fewer behavior disruptions the teacher benefits from an improved ability to focus on instructional issues and, in turn, increase instructional effectiveness (Putnam, Horner, & Algozzine, 2006; Simonsen, Sugai, & Negron, 2008). To ensure a productive learning environment, disruptions must be minimized in order to maximize time and attention for teaching and learning.

Interaction Between Disruptive Behavior and Academic Struggles

Disruptive behavior can take many forms, all of which can create barriers to effective learning (Scott, Anderson, & Spaulding, 2008). Any disruption to the learning environment diverts attention from the academic task at hand and perpetuates the lack of instructional effectiveness in the classroom. The students who exhibit disruptive

behavior are of particular interest in study of the interaction between disruptive behavior and academic achievement. Many students who struggle to control their behavior also struggle to succeed academically (Morrison, Anthony, Storino, & Dillon, 2001; Sandomierski, Kincaid & Algozzine, 2007). McKinney found that risk of school failure is greater for students with problems in both areas than for students with problems in only one area (cited in McIntosh, Horner, Chard, Dickey, & Braun, 2008). The term “school failure” is used throughout the literature but is not explicitly defined. Within the literature, the term “school failure” is presented in opposition to phrases such as “school success,” “academic achievement” (Bradshaw, O’Brennan, and McNeely, 2008), “academic gains” (Putnam, Horner, & Algozzine, 2006) and “academic success” (Mayer & Patriarca, 2007). Taken within this context, school failure references a sustained lack of success in school.

In prevention of school failure it is important to determine whether the risk of failure is greater due to academic struggle or behavioral struggle. There is disagreement in the literature as to whether problem behavior or academic struggle is the more significant factor in school failure. Some evidence exists that behavior problems can inhibit development of academic skills (Nelson & Sugai, 1999). Students who exhibit disruptive and aggressive behavior in elementary school, as early as first grade, are at high risk as they get older for development of more severe behavior problems, which can ultimately lead to school failure or special education identification (Scott, Anderson, & Spaulding, 2008). In a study of students transitioning from middle school to high school, McIntosh and colleagues found that students who struggle academically can also have behavior problems, but students with behavior problems almost always struggle

academically (McIntosh, Flannery, Sugai, Braun, & Cochrane, 2008). While it is clear that for many students problem behavior precedes academic struggle, this explanation is not sufficient for all students. Below average academic skills can lead to behavior problems (Sandomierski, Kincaid, & Algozzine, 2007). Lack of academic achievement as early as kindergarten can predict behavior problems in late elementary school (McIntosh, Horner, Chard, Boland, & Good, 2006). The relationship between the problems grows stronger as students progress through middle and high school (Putnam, Horner, & Algozzine, 2006). The literature includes multiple studies that have found high occurrences of disruptive behavior among students with reading difficulties (McIntosh, Horner, Chard, Boland, & Good, 2006; Nelson, Martella, & Marchand-Martella, 2002). Determining whether the academic struggle is the cause and the inappropriate behavior the effect or vice-versa can be very difficult (Buffum, Mattos, & Weber, 2009; Dwyer, Osher, & Warger, 1998). Many students referred for support from a building-level intervention team and potential special education evaluation exhibit both types of problems (Eidle, Boyd, Truscott, & Meyres, 1998). Whether a student's challenges in school begin with displays of inappropriate behavior or lack of academic success, the result is often the same and worsens over time.

The Cycle of Failure

Wherever the problems for a student begin, the interaction between disruptive behavior and academic struggle often work together to form a cycle of inappropriate behavior and lack of academic achievement that is quite difficult to break. What may begin as a struggle for a student with an academic task can escalate to a disruptive incident. The disruptive incident causes removal of the child from the classroom, which

in turn causes the child to struggle with subsequent academic tasks and so begins what McIntosh, Horner, Chard, Dickey, and Braun term “a coercive cycle of behavioral and educational failure” (2008, p. 132). The intention behind removing the student from the classroom is generally to eliminate the distraction to the other students caused by the disruptive behavior and to encourage the student to behave more appropriately in the future to avoid punishment; however, the result does not always match the intention.

For the disruptive student, removal from the classroom can actually reinforce the disruptive behavior because a difficult academic task is avoided. Having once escaped a task that is too challenging by being disruptive the student is more likely to use disruption to escape future challenging tasks (McIntosh, Horner, Chard, Boland, & Good, 2006). As students who remain in class continue to progress academically, the skills of the disruptive and often removed student do not improve. The disruptive student cannot keep up as tasks become more and more difficult (McIntosh, Horner, Chard, Boland, & Good, 2006). As task difficulty increases, the disruptive behavior increases and the student hopelessly cycles through behavioral and academic failure.

Some students who struggle with academic tasks disrupt class to hide their inability to do the work from their peers. For “failure-avoidant students” preservation of self-worth is highly motivating and self-worth is more easily protected by failure due to lack of effort than failure due to inability (Seifert, 2004). Some students prefer to draw attention to themselves through disruptive behavior rather than to have the attention of peers drawn to their academic failure (Rosenberg & Jackman, 2003). The literature is mixed as to whether students who seek peer attention achieve academically at the same level as their peers without behavior problems (Putnam, Horner, & Algozzine, 2006). In

a study of students who enrolled in an alternative in-school suspension program, Morrison, Anthony, Storino and Dillon (2001) found that students who have been suspended have peer groups with lower norms for academic achievement than students who have not been suspended. Lessened peer expectations for academic achievement reduce the motivation these students have to put forth effort. The lack of effort perpetuates the academic inability and reinforces the need to gain peer attention through other behaviors. Students who disrupt class to divert attention from lack of academic proficiency often do not get the academic support they need because the teacher often manages the disruptive behavior by lowering her expectations for these students and they, too, become entrenched in the cycle of behavioral and academic failure (McIntosh, Horner, Chard, Dickey, & Braun, 2008). Inability to break the cycle of behavioral and academic failure leads to increasing negative outcomes for the child inside and outside of the school setting (McIntosh, Horner, Chard, Dickey, & Braun, 2008). These negative outcomes include a greater risk of dropping out of school, engaging in criminal behavior, becoming dependent on illegal substances, and being unable to financially support themselves (Bradshaw, O'Brennan, & McNeely, 2008).

Schools develop discipline programs and policies to attempt to break the cycle of failure by controlling student behavior. Discipline practices described in this section, such as removal of the disruptive student from the learning environment, are characteristic of the discipline systems traditionally employed by schools. The characteristics and effectiveness of these traditional discipline systems are described in the next section.

Traditional Punitive Discipline Systems

The cycle of failure can be interrupted by interrupting the inappropriate behavior segment of the cycle. School discipline systems attempt to create the necessary interruption by producing appropriate student behaviors. According to Curwin, Mendler, and Mendler (2008) approximately seventy percent of students come to school ready to engage in productive learning activities and do not need a school discipline system to maintain appropriate behaviors. School discipline systems are designed for the thirty percent of students who do not come to school with self-regulating behaviors. Curwin, Mendler, and Mendler subdivide the 30 percent into 20 percent of students who sometimes break the rules and need structure to maintain appropriate behaviors and 10 percent who chronically break the rules. The manner in which schools provide the needed structure separates traditional punitive discipline systems from intervention and prevention-based systems. The next section of the literature review provides an overview of traditional punitive systems and their general effectiveness.

Structure of Traditional Punitive Discipline Systems

Traditional discipline systems have their basis in the belief that major incidents can be prevented by addressing minor, day-to-day discipline problems. Zero tolerance policies have their foundation in this philosophy (Skiba & Knesting, 2001) but less extreme, traditional policies have this foundation as well. Traditional systems seek to control the learning environment by defining expectations for student behavior through the establishment of strict rules and imposing sometimes harsh consequences on students who violate the rules (Simonsen, Sugai, & Negron, 2008). When the system of rules and consequences does not produce the desired result and students continue to violate the

rules, the consequences become more severe versions of the original consequence (Maag, 2001). The intent behind the consequences, especially suspensions, is to “decrease or eliminate the probability that a student re-commits an offense that is so serious that another referral to the principal’s office or another suspension is necessary” (Raffaele-Mendez, Knoff, & Ferron, 2002, p. 259). The offenses for which rules and consequences are imposed encompass a variety of student behaviors. Students in traditional discipline systems are referred to the office for a variety of offenses including defiance of authority, non-compliance, bothering others, disruption, truancy, verbal aggression, physical aggression, fighting, vandalism, and possession of drugs or weapons (McFadden & Marsh, 1992; Raffaele-Mendez, Knoff, & Ferron, 2002).

Upon receiving a student office referral, the building administrator has a range of options for punishing the student including a student or parent conference, detention, suspension, or expulsion. School district policies and procedures, as well as state laws and regulations, provide some guidance on appropriate punishment, but also provide leeway for individual principals to use their own judgment. The introduction of principal judgment has been shown to produce varying punishments for similar offenses (Raffaele-Mendez, Knoff, & Ferron, 2002; Skiba, Michael, Nardo, & Peterson, 2002; Skiba & Peterson, & Williams, 1997). Although a variety of punishment options exist, out of school suspension is found to be one of the most frequently used consequences (Raffaele-Mendez, Knoff, & Ferron, 2002).

Suspension is among the most extreme and detrimental punishments because it removes the student from the classroom and therefore the opportunity to learn (Morrison, Anthony, Storino, & Dillon, 2001; Raffaele-Mendez & Knoff, 2003). In pursuit of

discipline systems that facilitate student learning, removal of students from the classroom is counterproductive, especially when the student is removed for an extended period of time or removed from class frequently. Often, the absence from class results in a loss of academic credit for missed activities and assignments. The loss of credit magnifies the harmful academic effect of the punishment. From a staff standpoint, removal of a disruptive student from the classroom is an effective tool to maintain a productive learning environment for the remaining students. In a matter of moments, a teacher can refer a student to the office and regain control of the classroom. Removal of the offending student negatively reinforces the teacher behavior which increases the likelihood that the teacher will continue to use the removal strategy in the future (Maag, 2001). When reinforcement for the teacher combines with the previously established reinforcement for the student by escaping the academic task or gaining peer attention, the teacher and student are caught in a cycle of unproductive behavior that does not lead to improved student learning. A suspension, whether in school or out of school, provides stronger reinforcement by extending the length of time the student is removed from the classroom. In a study of 145 schools in Florida, Raffaele-Mendez, Knoff, & Ferron (2002) found a rate of 4.38 suspensions per 100 elementary school students, 53.34 for middle school students and 33.96 for high school students. The percent of students who received a suspension at each level in their study were 3.36%, 24.41% and 18.46%, respectively, indicating that some students received multiple suspensions. Students who experience multiple suspensions pose a particular moral challenge for educators who have “a responsibility to analyze and meet the behavioral and educational needs of these students as early and effectively as possible” (Raffaele-Mendez & Knoff, 2003, p. 45).

As the same students are repeatedly suspended, their access to instruction is repeatedly reduced and they become increasingly entrenched in the cycle of failure. The high per capita rates of suspension support the findings stated previously that suspension is a frequently used consequence in traditional discipline systems.

Increased numbers of suspensions assigned and percent of students suspended in middle school indicates that special attention to discipline in middle school and the years leading up to middle school is warranted. Other studies have found increasing rates of office referral over the middle school years with the “sharpest rises tend[ing] to occur in Grade 7” (Tobin & Sugai, 1996, p. 84). Tobin and Sugai (1996) also found that between 20 and 25 percent of middle school students receive at least one office referral, but Skiba, Peterson, & Williams (1997) place the rate closer to 40 percent. Such high office referral rates for middle school students could indicate an escalation of behaviors for students who did not receive sufficient behavioral support in elementary school (Tobin & Sugai, 1996). While there is disagreement in the literature about the magnitude of problem behavior in middle school, it is clear that middle schools face immense challenges in designing effective student discipline systems.

In an attempt to squelch minor problems before they become major problems, the layers of rules and punishments that comprise a traditional punitive discipline system cover a variety of offenses. Escalating consequences that include student removal from the learning environment do not afford the student the opportunity to progress academically. Given that traditional discipline systems do not provide for improved academic achievement for students who exhibit problem behaviors, the question becomes one of the effectiveness of punitive discipline systems in reducing problem behaviors.

Effectiveness of Traditional Punitive Discipline Systems

Traditional punitive discipline systems have been utilized by schools for many years. The intention behind these discipline systems is to minimize disruptions, prevent minor problems from becoming major problems, and maintain classroom environments that facilitate learning for all students—those with and without behavior problems. The sheer number of students receiving office referrals and assorted punishments and the academic failure of these students indicate the ineffectiveness of traditional punitive systems. However, other measures of effectiveness should be considered.

As students with problem behaviors make continued trips to the principal's office, they bring their prior offenses with them. Repeat offenders comprise a large portion of the office referrals that building administrators must investigate. In a large urban school district, Skiba and Knesting (2001) found that six percent of students accounted for 44 percent of office referrals. Obviously, the behavior of students who repeatedly violate the same rules or escalate to more significant rule violations is not deterred by imposition of the same consequences. Other studies have found that a student's first suspension tends to be imposed for a significant offense such as aggressive behavior; however, students with histories of problem behavior tend to be suspended for less severe infractions such as "attitude problems" (Morrison, Anthony, Storino, & Dillon, 2001, p. 285). The inequitable punishments suggested by these findings do not go unnoticed by students. In fact, students perceive disciplinary actions such as these as "a challenge to escalate their behavior" (Skiba & Knesting, 2001). Clearly, the cycle of rule violation and punishment is not moving the student closer to productive learning, self-regulation, and academic achievement.

The intention behind suspension and other punishments is to deter future inappropriate behavior, but for some students the punishment acts as a reinforcer causing the inappropriate behavior to continue and possibly escalate (McFadden & Marsh, 1992; Tobin & Sugai, 1996). Suspensions increase as students progress through middle school and peak in ninth grade (Florida State Department of Education, 1995). Removal from school due to suspension not only removes the student from the learning environment but also places him in a peer group where school is not held in high regard and peers do not attempt to keep each other “connected to the academic mission of the school” (Morrison, Anthony, Storino, & Dillon, 2001, p. 288). Repeated punishment without increased support to develop appropriate behaviors causes the student to move further and further away from productive learning experiences (McFadden & Marsh, 1992; Morrison, Anthony, Storino, & Dillon, 2001). Repeated suspensions account for a three-fold increase in the likelihood that a student will drop out of school by his or her sophomore year (Skiba & Knesting, 2001). Failure to complete high school can lead to additional negative consequences as high school dropouts are incarcerated at a much higher rate than their peers who graduate from high school or earn a GED certificate (Sum, Khatiwada, McLaughlin, & Palma, 2009). Curwin, Mendler, and Mendler (2008) summarize these compounding issues related to repeat offenders with the statement, “a discipline plan that reduces incidents of misbehavior can be a disaster if it also reduces student motivation and learning” (p. 39). The consequences of allowing students to repeatedly violate the rules and receive punishments that remove them from the learning environment are counterproductive to the goal of facilitating academic achievement and lead to dismal consequences for the student that extend beyond the school.

Disproportionate Punishment of Student Groups

The ineffectiveness of traditional discipline systems in deterring student misbehavior and the tendency of traditional punishments to push students away from academic achievement is especially important if these negative outcomes impact some students more than others. A closer look at the data on office referrals and suspensions in traditional systems brings to light some alarming trends in the application of punishment to particular groups of students. Differences in rates of punishment by gender, ethnicity, and socio-economic status are apparent upon analysis of data for these student groups. In general, boys represent a larger portion of students receiving punishment in schools with traditional discipline systems than do girls. In their study of discipline records from one large, urban district, Rafaelle-Mendez, Knoff, and Ferron found that over 70 percent of suspensions were assigned to boys (2002).

Disaggregation of office referral and suspension data by ethnic group indicates that black students receive these punishments at a disproportionately higher rate than students of other ethnicities. In a district where black students comprise 56 percent of the enrolled students, they account for over 66 percent of the office referrals, 68 percent of the suspensions and almost 81 percent of the expulsions (Skiba, Michael, Nardo, & Peterson, 2002). In contrast, white students in the district studied by Skiba comprise 42 percent of the enrolled students, almost 33 percent of the office referrals, 31 percent of the suspensions and 17 percent of the expulsions. Black males were suspended at a rate almost double that of white males and black females and over four times as frequently as white females in the Skiba study. While this study included only middle school students from one large, urban district, the findings are similar to those from other studies

conducted over the past thirty years. A national study by the Children's Defense Fund (Washington Research Project, 1975) in the early 1970's found higher rates of suspension and repeat suspensions for black children than for white children based on data submitted by school districts to the Office of Civil Rights. Cantu estimates the suspension rate for black students, nationally, to be 2.3 times as high as for Caucasian students (Brooks, Schiraldi, & Ziedenberg, 2000). Students living in poverty, as indicated by qualification for free or reduced lunch, are also overrepresented in punishment rates; however, this difference is less noteworthy than differences by gender or ethnicity (Skiba, Michael, Nardo, & Peterson, 2002).

The types of offenses for which students receive office referrals vary by ethnicity. Caucasian students tend to be referred for objective offenses such as smoking, truancy, and vandalism while their black peers are referred for more subjective offenses such as "*disrespect, excessive noise, threat and loitering*" (Skiba, Michael, Nardo, & Peterson, 2002, italics in original). Black students often perceive these discrepancies in punishment as purposeful, biased treatment by non-black staff members (Skiba, Michael, Nardo, & Peterson, 2002). The disproportional representation of black students in office referral and suspension data and the subjective nature of the offenses for which they are referred seem to legitimize their perceptions of inequity.

Traditional, punitive discipline systems are designed to support academic achievement of students by structuring learning environments with rules and punishments; however these systems fall short of their goal, especially for minority students. The traditional approach of removing offending students from classroom and ultimately the school may be effective for maintaining a physically safe school

environment, but offers little incentive for students to “perform socially appropriate behaviors” (Maag, 2001, p. 173). Students who have little incentive to behave appropriately find themselves repeatedly removed from instruction and find themselves further and further from reaching academic standards. Without support for appropriate behaviors students cannot effectively take part in the educational opportunities provided by the school and reach high levels of academic achievement.

Prevention and Intervention-Based Discipline Systems

The ineffectiveness of traditional, punitive discipline systems in facilitating academic achievement suggests the need for a different approach. In their report of findings related to ethnicity and gender bias in punishment, McFadden and Marsh (1992) assert that schools must employ alternatives to punishment and carefully examine the role of teacher behavior as an influence on student behavior. Arranging the learning environment to provide behavioral interventions with the goal of preventing behavior problems is an alternative to the traditional approach (Sugai & Horner, 2006). Systems which focus on prevention assume that students will demonstrate appropriate behaviors, and thus, these prevention systems focus on creating an environment where students can demonstrate self-regulation (Curwin, Mendler, & Mendler, 2008). The following section of the literature review describes the rationale for prevention and intervention-based discipline systems and the key features of such systems.

Rationale for Preventive Systems

In contrast to traditional discipline systems which react to and punish inappropriate behavior after it occurs, prevention-based systems aim to deter inappropriate student behavior from occurring (Sugai, n.d.). Punishment, by definition,

must occur after the incident of problem behavior has occurred. Once disruptive student behavior has taken control of the classroom, the teacher faces the challenge of both dealing with the disruptive student and regaining a positive and productive environment for the remaining students in the class. Regaining control after a negative encounter is much more difficult and time-consuming for the school staff than preventing the incident (Maag, 2001). In order to prevent the problem behavior, the school staff must be proactive rather than reactive and establish an environment where it is difficult for students to behave inappropriately (Brownell & Waltber-Thomas, 2001). Sugai (n.d.) describes the priorities for these intervention-based systems as “preventing the development and lessening the intensity of problem behavior” (p. 4). Creation and maintenance of learning environments with few disruptions of the teaching and learning process is the goal of a prevention and intervention-based discipline system.

By preventing behaviors that would result in removal from the classroom for disciplinary action, proactive discipline systems allow students to maintain access to instructional opportunities for academic success. Skiba and Sprague (2008) cite the need to promote academic achievement through discipline strategies that are “more effective [and] less exclusionary” (p. 42). Prevention efforts eliminate many instances of exclusion that would come from office referrals and suspensions, but some incidents of inappropriate behavior will still occur. An effective proactive system also includes strategies for squelching misbehavior quickly and efficiently so that instructional activities can resume without removing the offending student from the classroom unless absolutely necessary (Curwin, Mendler, & Mendler, 2008). By drastically reducing or eliminating inappropriate behavior and utilizing efficient strategies for dealing with the

inappropriate behavior that does occur, teachers and administrators are able to concentrate their efforts on other initiatives including improving instructional program quality (Simonsen, Sugai, & Negron, 2008). The redirected focus on instructional programs facilitates the academic achievement of all students and furtherance of the school mission.

Focus on Influencing Adult Behavior

When school staff is freed from the time burden required to deal with inappropriate behavior through a preventative discipline system, they are able to concentrate their efforts on other activities. Creating a list of rules which students should not violate and punishing them when they do is relatively easy for the adults in a traditional discipline system; however, students do not learn appropriate, productive behaviors from these punishments. In a proactive discipline system, the focus is on “doing what is best for students to make good, healthy choices, not about making the lives of educators easier” (Curwin, Mendler, & Mendler, 2008, p. 10).

Preventative discipline plans establish what the adults in the system will do to bring out desired behaviors in the students. In pursuit of more effective learning environments, teachers often identify the student behaviors they would like to change but less often consider how their adult behavior influences the student behavior (Brownell & Waltber-Thomas, 2001). Identification of adult behaviors necessary to “address such challenging behaviors” and promote effective learning environments is a pivotal step in development of preventative discipline plans (Buffum, Mattos, & Weber, 2009, p. 114). Focusing on adult behavior is one of the first steps that needs to be taken (Freeman, Eber, Anderson, Irvin, Horner, Bounds, & Dunlap, 2006). Wehby and Lewis (1999) cite

studies of their own, as well as those of other researchers, with consistent findings that as teachers become less coercive and aggressive in their interactions with students, more positive student behaviors follow. Once positive changes are visible in student behavior, teachers realize the power of their influence and often make additional changes in how they approach the incidents of problem behavior that remain (Warren, et al., 2006). As described earlier, traditional, punitive reactions by teachers to a problem behavior often escalate to removal of the student from the classroom, resulting in a loss of access to instruction and learning activities. A non-traditional teacher response can break this cycle of escalation (Obenchain & Taylor, 2005). Non-traditional responses could include appropriate use of humor, redirecting the student to an appropriate activity, and giving the student an area of responsibility in the classroom. By changing the behaviors of adults through a preventative discipline system both student behavior and academic achievement can be improved.

The behavior of adults must positively influence students toward appropriate behavior and deescalate inappropriate student behavior when it occurs. All staff members must actively participate in creating and maintaining a positive learning environment by reducing problem behavior through diagnosing needs and supporting intervention efforts (Sadler & Sugai, 2009). By engaging all staff members in the school discipline process, prevention and intervention-based discipline systems facilitate school and classroom environments conducive to learning and academic achievement.

Focus on Teaching Appropriate Behaviors to Students

Given that the school population is comprised of more than just the adults in the school, changing adult behavior alone is insufficient to establishing a prevention-based

discipline system. While traditional discipline systems assume that students know how to behave appropriately and punish them when they do not; preventative systems recognize that students must be taught how to behave before appropriate behavior can be expected. Traditionally, teachers and administrators publish and announce the classroom and school rules and then feel justified in punishing students who break them. Boynton and Boynton (2005) assert that “it makes no more sense to announce rules regarding acceptable student behaviors than it does to announce—rather than teach—math facts” (p. 23). When a student does not know how to complete an academic task at an acceptable level, educators teach the student the necessary academic skills. Teaching academic skills includes modeling, checking for understanding, and providing effective opportunities for the student to practice (Hunter, 1982). In the event that initial instructional efforts are ineffective, additional instructional strategies are employed and the student is provided with more opportunities to practice and demonstrate learning. On the contrary, when announcing rules is insufficient for producing the desired behavior in a student, “the student typically is given a reminder of the rule or expected behavior, told what he or she should not do, and given a penalty for exhibiting the inappropriate behavior” (Colvin & Kameenui, 1993, p. 364). Teaching social behaviors must follow the same model as teaching academic skills by providing direct, active instruction with modeling on how to exhibit the expected behaviors (Curwin, Mendler, & Mendler, 2008; Vincent, Horner, & Sugai, 2002). Much like a school’s academic curriculum, a school’s behavior curriculum should be comprehensive. The behavior curriculum must include all behavioral skills that the students are expected to understand and demonstrate (Buffum, Mattos, & Weber, 2009; Sandomierski, Kincaid, & Algozzine, 2007).

Just as with teaching academic skills, teaching behavioral skills is only an important first step in the learning process. Providing behavioral instruction is not the goal. The goal is for students to learn how to manage and control their own behavior. To internalize and transfer the skills they have been taught, students need opportunities to practice what they have learned and receive feedback on their learning (Marzano, Pickering, & Pollock, 2001). Smith contends “learning to follow the rules is really a matter of developing good behavior habits” (Brownell & Waltber-Thomas, 2001, p. 33). Developing a new habit requires repeated practice. Students must have opportunities to practice the behavioral skills (Lewis-Palmer, 1999). Positive reinforcement must be provided when students successfully practice what they have learned (Brownell & Waltber-Thomas, 2001; Lewis-Palmer, 1999). Teaching students which behaviors are expected and reinforcing the students for meeting the expectations increases the likelihood that most students will behave appropriately and prevents problem behaviors from occurring (Sandomierski, Kincaid, & Algozzine, 2007). The adults in the school are not the only people who experience the benefits of helping students control their own behavior. In a large, suburban district that implemented teaching-based discipline systems, data indicate that students like the changes resulting from implementation of such systems as much as their teachers and administrators like the changes (Nersesian, Todd, Lehmann, & Watson, 2000).

Taking a School-Wide Approach to Preventing Problem Behavior

Aligning adult behaviors with student behavioral goals and teaching behavioral expectations to students are difficult processes when the expectations change from room to room in the school building. In order for prevention and intervention efforts to be

effective, discipline systems must be developed and implemented school-wide. School-wide systems emphasize prevention through identifying expected behaviors, positively reinforcing those behaviors, and involving all members of the school community (Luiselli, Putnam, & Sunderland, 2002). J. Ron Nelson, associate professor and co-director of the Center for At-Risk Children's Services at the University of Nebraska-Lincoln, asserts that intervention at the school level is a significant factor in "preventing and diverting students at risk for developing disruptive behavior patterns" (Nelson, 1997, p. 4). Other authors (Baker, 2005; Boynton & Boynton, 2005; Dwyer, Osher, & Warger, 1998; Morrison, Anthony, Storino, & Dillon, 2001; Nersesian, Todd, Lehmann, & Watson, 2000) support Nelson's assertion. The school-wide intervention efforts prevent students who behave appropriately from developing behavior problems by affirming their appropriate behavior (Sprague, Sugai, Horner, & Walker, 1999). Effective teaching and rewarding of expected behaviors should create an environment where "approximately 80 percent of students do not need additional support" (McIntosh, Chard, Boland, & Horner, 2006, p. 147). Although the vast majority of students need no behavior support, there are students who do not as easily behave appropriately and will not exhibit the desired behaviors. For students who need additional support to behave appropriately, a strong, building-wide system is a foundation that provides solid footing for individualized interventions (Dwyer, Osher, & Warger, 1998; Nelson, 1996; Nelson 1997).

In the course of a day at school, students interact with a variety of settings and a number of adults. When each setting and each adult carries a different set of expectations for student behavior, students can be confused and unsure of how to act in each situation. Students who have demonstrated behavior problems and students who are at-risk of

developing behavior problems have particular trouble managing the varying expectations and responses (Nelson, 1997). To provide students the opportunity to exhibit appropriate behaviors, schools must establish consistent expectations. Consistency is an essential characteristic of a school-wide discipline system (Colvin & Kameenui, 1993). The expectations cannot be a top-down edict from administration. Every adult working in the school must be part of defining the expectations and implementing the plan (Brownell & Waltber-Thomas, 2001). Wehby and Lewis (1999) offer guidance in applying school-wide systems at the classroom level. First, classroom expectations must align with the school-wide expectations and consequences, but need not look exactly the same in every classroom. Second, whatever their specific expectations and consequences, teachers must ensure that their interactions with students do not escalate problem situations. Third, school-wide practices such as teaching expectations to students, providing practice opportunities, and offering positive reinforcement must be carried through with classroom-level expectations, as well.

Classrooms are not the only spaces to consider in developing a school-wide discipline system. All physical spaces and routines in the school must be considered in development and instruction of behavioral expectations, especially those where a high number of problem behaviors occur (Garrison-Harrell & Lewis, 1999). Careful attention to scheduling and use of the physical space in the school is an important and effective way to prevent problem behaviors (Nelson, Martella, & Marchand-Martella, 2002). Active adult supervision should be ensured in known problem areas, densely populated areas, and areas that host loosely structured activities (Garrison-Harrell & Lewis, 1999). For example, assigning staff members to supervise campus areas obscured by foliage or

fencing, ends of hallways, and stairwells or revising dismissal patterns for congested areas such as bus loading zones can eliminate opportunities for problem behaviors to occur (Nelson, Martella, & Marchand-Martella, 2002). Problems that begin in non-classroom settings can carry over into the classroom and prevent effective learning from taking place (Boynton & Boynton, 2005). Attention to classroom and non-classroom spaces in the school and establishment of consistency amongst school staff afford students a better opportunity to conduct themselves according to the expectations established for their behavior.

Proactive, cohesive discipline plans developed by the entire school community provide the foundation for all members of the community to progress toward academic goals. Schools that effectively implement school-wide behavioral systems are “committed academic communit[ies]” that work hard, communicate well and implement coherent, reasonable action plans (Rosenberg & Jackman, 2003, p. 12). In these schools, teachers receive the support and reinforcement they need to positively impact and sustain student enhanced behavior and academic achievement (Rosenberg & Jackman, 2003). Students attending schools with these characteristics feel safe, know what they can count on the school to provide for them, and know that they can trust the adults who work with them (Brownell & Waltber-Thomas, 2001). A proactive community needs a structure in which to frame its plan. School-wide positive behavior supports provides the structure necessary for schools seeking to formalize or develop their proactive, intervention-based discipline plan.

School-Wide Positive Behavior Supports (SW-PBS)

History of SW-PBS

School-wide Positive Behavior Supports (SW-PBS) is a system level application of techniques for prevention and treatment of individual behavior problems. The emphasis on prevention as an aspect of treatment began with the health industry in the 1950's (Sugai, 2007). The approach taken by the health industry to prevent chronic illness bore the philosophy that approximately 80 percent of the population would respond to a universal intervention with 15 percent needing some additional support and the remaining 5 percent requiring significant treatment (Sugai, 2007). The triangle model that is often associated with prevention-based systems including SW-PBS (see Figure 1) is based on these percentages. More recently, the 1980's and 1990's saw an expansion of the philosophy to other industries including medicine and mental health with the philosophy being embraced in the past decade by education professionals working to prevent academic and social problems in students (Sugai, 2007).

Positive behavior support has its origins in applied behavior analysis and has carried a number of labels over the years. Applied behavior analysis (ABA) relates visible behavior to the environment or context in which the behavior occurs (Sugai, 2007). For students, the context to be considered in analysis of problem behavior includes the school, the home, and the community. Behavior science “emphasizes that much of human behavior is learned, comes under the control of environmental factors, and can be changed” (Sugai & Lewis, 1999, p. 2). The 1997 reauthorization of the Individuals with Disabilities Act (IDEA) required “that students whose problem behaviors interfere with their learning or the learning and teaching of others must have

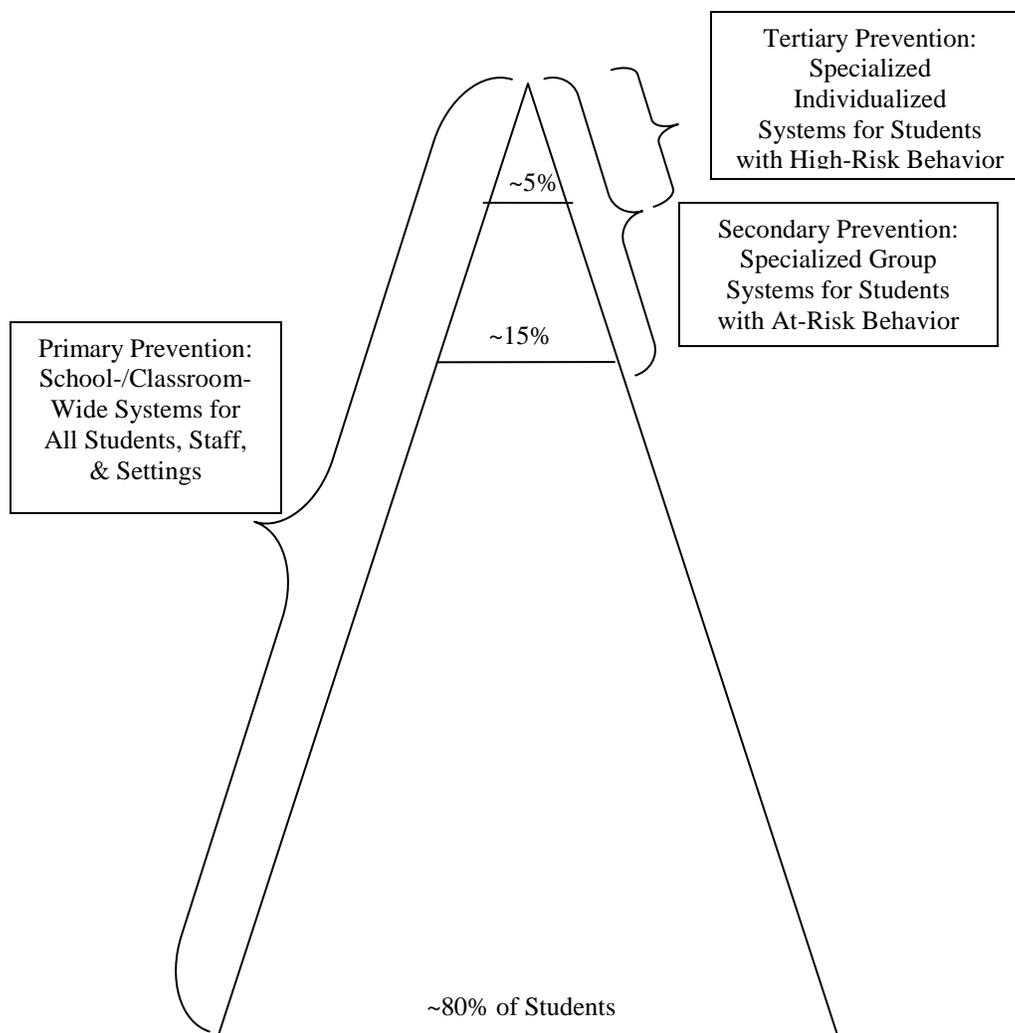


Figure 1. Continuum of positive behavior support (Sugai, 2007)

‘positive behavioral interventions and supports’ (PBIS)” (Sugai, 2007, p. 116). The 2004 reauthorization of IDEA calls for expansion of behavioral supports and interventions and a focus on prevention of behavior problems (U.S. Department of Education, 2004).

Schools across the country are complying with the requirements. By 2004, the major initiatives published by 35 state’s departments of education included student behavior (Doolittle, Horner, Bradley, Sugai & Vincent, 2007). The education community has expanded the application of positive behavior supports from students identified with

emotional and behavioral disorders to students at-risk for developing severe behavior problems (Sugai, 2007). Effective behavioral support (EBS) systems employ principles of prevention-based discipline at the individual student and classroom levels to meet the behavioral needs of students exhibiting or at-risk for developing problem behaviors (Wehby & Lewis, 1999). Ultimately, application of the prevention-based model reaches all students through SW-PBS (Sugai, 2007).

Elements of SW-PBS

A SW-PBS system is designed around four elements: outcomes, practices, data, and systems (OSEP, 2004). The four elements combine to create a process of checks and balances to improve the social and behavioral success of students in school (OSEP, 2004).

Although the four elements of a SW-PBS system are mutually supportive; without well-defined outcomes the other elements are irrelevant. The Office of Special Education Programs (OSEP, 2004) specifies that both academic and behavioral outcomes must be determined and made a priority to all stakeholders—students, staff members, and the students’ families. Behavioral outcomes are operationalized as school rules. Rules define the boundaries of appropriate and acceptable behavior in a school (Rosenberg & Jackman, 2003). Additionally, rules “facilitate teaching, learning, and the efficient operation of the discipline system” (Lewis-Palmer, 1999, p. 6). In a SW-PBS system less is more when it comes to rules. SW-PBS schools should have no more than five positively-stated rules which contain few words (Lewis-Palmer, 1999; Warren, et al., 2006). The rules establish the boundaries of acceptable behavior and are simultaneously broad and narrow. Categorization of rules and degrees of their violation as “major” or

“minor” provides for development of effective procedures for dealing with violations (Lewis-Palmer, 1999). Minor rule violations generally hinder instruction and are managed by the teacher. In contrast, major rule violations stop instruction from occurring and require the support of other adults outside the classroom (Lewis-Palmer, 1999). The violation of a major rule can also be categorized as a “rights violation” (Nelson, Martella, & Galand, 1998, p. 155). Determination of the school-wide rules and consensus-building around what constitutes major and minor violations set the stage for all other SW-PBS components.

Practices are the actions by which the behavioral outcomes are accomplished. Practices must be evidence-based strategies and interventions (OSEP, 2004). Sugai and Horner (2006) recommend answering four questions regarding a new practice before it is adopted: “1. Is the practice *effective*? 2. Is the practice *efficient*? 3. Is the practice *relevant*? 4. Is the practice *durable*?” (p. 248, italics in original). Evidence-based practices employed by SW-PBS schools include teaching behavioral expectations and restructuring schedules and use of space to prevent problem behaviors (Garrison-Harrell & Lewis, 1999; Lewis-Palmer, 1999; Nelson, Martella, & Marchand-Martella, 2002; Sugai & Lewis, 1996). Careful selection of evidence-based strategies and interventions facilitate implementation of a solid SW-PBS plan and progress toward desired outcomes. The quality of implementation and progress toward outcomes are monitored through the data element.

Analysis of data informs all decision-making in a SW-PBS system. Data indicates the portions of the plan that are leading to desired outcomes, as well as problem areas requiring reevaluation and potential change or modification (Garrison-Harrell &

Lewis, 1999; Skiba & Sprague, 2008). A SW-PBS data plan must include strategies for “collecting, summarizing, reporting, and using data on regular cycles” (Skiba & Sprague, 2008, p. 41). Analysis of every potentially available piece of discipline-related data is not feasible or necessary. Schools must identify a few key questions to answer through data analysis (Lewis-Palmer, 1999; Warren, et al., 2006). OSEP (2004) suggests that schools, at minimum, examine five pieces of data:

- (a) number of office discipline referrals per day per month, (b) number of office referrals by type of problem behavior, (c) number of office discipline referrals by school location, (d) number of office discipline referrals by student, and (e) number of office discipline referrals by staff member (p. 40).

In addition to office discipline referral data, other measures such as suspension rates have an important role in decision-making regarding student discipline and should be considered as appropriate to answer a school’s evaluation questions. Suspension data indicates more severe problem behavior and “add[s] an important dimension to a school’s profile of student problem behavior that is rarely examined independent of other disciplinary actions” (Lassen, Steele, & Sailor, 2006). Once data has been collected and compiled, it must be reviewed in order for decision-making based on the data to occur. Guidance varies on the frequency for data reviews. OSEP (2004) calls for reviews to be no less frequent than quarterly while Skiba and Sprague (2008) advocate for monthly review and discussion. Identification of which staff members are involved with decision-making and determination of the process for changing the plan is a portion of the systems component of the SW-PBS plan.

The systems component of the SW-PBS framework concerns implementation quality and sustainability. From the beginning of implementation, SW-PBS schools emphasize a collective approach to all aspects of planning and implementation. This collective approach to planning and implementation helps ensure quality and sustainability. One of the first steps that schools pursuing implementation of SW-PBS carry out is identification of a leadership team. The leadership team is responsible for the majority of the decision-making related to the plan and for guiding the implementation efforts (Simonsen, Sugai, & Negron, 2008). The leadership team selects a coach or coaches to keep the team on track through the process and ensure adherence to the principles of SW-PBS (Freeman, et al., 2006; Simonsen, Sugai, & Negron, 2008). For SW-PBS to be successful, the building administrators must support the efforts (Lohrmann, Forman, Martin, & Palmieri, 2008). Once plan development begins, it is important for implementation quality and sustainability to limit the other initiatives competing for the attention and time of the school staff. As other initiatives enter the picture, the likelihood of “accurate and sustained implementation of the newly adopted program is lessened. The result is inaccurate and narrow programmatic adoption, reduced program outcomes, and limited sustained and expanded use” (Sugai & Horner, 2006, p. 249). For the sake of quality, even within the SW-PBS initiative, it is helpful to keep a somewhat narrow focus. Most of the first year is dedicated to training and planning; actual implementation often begins the following year (Simonsen, Sugai, & Negron, 2008). For most schools, two to three years are required to implement a complete school-wide discipline system (Nersesian, Todd, Lehmann, & Watson, 2000). Tackling too much at once can create competing initiatives within the SW-PBS system

and fragment the attention of staff. Along those lines, another key to quality implementation and sustainability is to keep the plan as simple as possible. Efficiency in dealing with minor behaviors for the majority of students reserves the time that is required for addressing the more significant behaviors of the minority of students (Scott & Caron, 2005). The priority in creating a sustainable system is implementing “the smallest change that will result in the largest impact” (OSEP, 2004, p. 20). A plan that is not well-designed, not well-implemented, not well-supported, or unsustainable is not part of a quality system. The system component of SW-PBS ensures quality of designed, implementation and support toward a sustainable school discipline plan.

The system element of SW-PBS stands alone in significance, as well as serving as the binding to tie all four of the elements together. In tending to the system element, important decisions regarding the elements of data, practices, and outcomes, such as frequency of data reviews, necessity for changing intervention practices, and appropriateness of stated outcomes, are made. Quality design and implementation of SW-PBS interweaves all four elements into a cohesive unit for school-wide management of student behavior. Effectively designed and implemented school-wide primary prevention systems meet the needs of the 80% of students comprising the base portion of the triangle in Figure 1. Additional interventions are required to address the needs of the remaining 20% of students. Referred to as secondary and tertiary systems, or tier 2 and tier 3, these additional interventions require the same interwoven elements as primary, school-wide systems.

Secondary and tertiary interventions respond to the needs of the approximately 20% of students for whom the universal, school-wide behavior structures are insufficient.

Universal interventions improve the general behavioral climate of the school, but do not meet the needs of students who demonstrate persistent problem behaviors (George & Kincaid, 2008; Sprague, Sugai, Horner, & Walker, 1999). Students with persistent behavior problems require additional efforts. Secondary and tertiary interventions are more intense than universal interventions and work to “enhance the effects of the universal interventions” (Nelson, 1997, p. 9). As opposed to the universal interventions that cast a broad net over the entire student body, secondary and tertiary interventions are targeted specifically to the students who need them (Nelson, 1997). Secondary interventions can incorporate “increasing structure, providing more intensive social skills instruction, and delivering more frequent reinforcement” (Simonsen, Sugai, & Negrón, 2008, p. 33). Sprague and colleagues (1999) suggest that schools include secondary interventions in their SW-PBS plan when at least ten students receive more than ten office discipline referrals. A third level of intervention involves strategies such as teaching students appropriate behaviors to replace their inappropriate behaviors (Scott & Caron, 2005) and involving additional agencies and personnel such as social workers, mental health professionals, and medical personnel (Rosenberg & Jackman, 2003). Tertiary interventions are called for when at least five percent of the students each receive more than ten office discipline referrals or when more than forty percent of the school’s total office discipline referrals are received by five percent of the students (Sprague, Sugai, Horner, & Walker, 1999). Through supporting the students with the most significant behavior problems, secondary and tertiary interventions provide additional levels of support beyond what is needed by the majority of students in the school. Additional levels of interventions should support the students, not label or categorize

them (Freeman, et al., 2006). The interventions designed for the neediest students must match the problem behavior in both intensity and complexity (Sprague, Sugai, Horner, & Walker, 1999). Generally designed and implemented for small groups of students with similar needs, secondary, targeted interventions attend to why the student utilizes the problem behavior (Freeman, et al., 2006). Group interventions can be customized for individual students when necessary (Freeman, et al., 2006). Tertiary, individualized, interventions are highly specialized to match the specific needs of the student and require a significant time commitment for the team working with the student (Freeman, et al., 2006).

The triad of universal, secondary, and tertiary interventions in a SW-PBS system provides the needed structure for all students to be behaviorally successful. Universal, school-wide interventions support the vast majority of the students in a school through preventative planning, instruction in desired behaviors, and reinforcement for demonstration of appropriate behaviors. Secondary, targeted interventions support groups of students who need some additional support to demonstrate appropriate behaviors and reach desired behavior goals. For students who need even more intensive support, tertiary, individualized interventions provide even more personalized intervention in a supportive environment, with instruction and reinforcement. The array of interventions and supports available to students in a SW-PBS school are there to meet the needs of all students.

Effectiveness of SW-PBS

Several studies have been conducted in recent years to determine the effectiveness of SW-PBS at meeting the behavioral needs of students. Focusing on elementary and

middle schools in different regions of the country, the following studies indicate that school-wide positive behavior supports can facilitate an improved behavioral climate.

Among the earlier studies including all three levels of support, universal, secondary, and tertiary, in a school-wide system, is a study by Nelson, Martella, & Marchand-Martella (2002), which examined seven elementary schools in the same district in the Pacific Northwest during the implementation of a three tier SW-PBS system during the 1997-98 and 1998-99 school years. In addition to the universal school-wide discipline program, the schools implemented one-to-one reading tutoring, conflict resolution training, and a family behavior management training program for students with demonstrated need for any or all of those programs. Over the time period of the study, non-participating schools in the same district saw increases in office discipline referrals and removals of students from the classroom; however, the study schools saw a decline in each of these measures. This study also reviewed academic data and found improvements in standardized test scores across reading, language arts, spelling, science, social studies and mathematics. The inclusion of academic program support through reading tutoring at these schools adds a dimension not present in other studies of SW-PBS effectiveness and provides an alternate explanation for the improvement in student academic achievement.

A focus on school-wide behavioral support was present in another elementary school study. The study authored by Luiselli, Putnam, Handler, & Feinberg (2005) examined the implementation of SW-PBS in an urban, K-5 elementary school in the Midwest. The administration at the school requested a consultation by the study authors with the goal of improving student discipline. In 2000, the school implemented

principles of SW-PBS through establishment of a leadership team, refinement of their data system, revision of their policy handbook to include positive statements of behavior expectations, teaching of the desired behaviors and development of a reinforcement system for students displaying appropriate behaviors. Teachers also received staff development on instructional strategies. The school experienced significant decreases in office discipline referrals and suspensions and increases in reading comprehension and mathematics scores on standardized tests.

Scott and Barrett (2004) quantified the amount of instruction and administrative time saved through the implementation of SW-PBS in one urban Maryland elementary school. In the fall of 2000, the school's leadership team brought SW-PBS to the school where the staff determined school-wide needs and developed expectations and routines to teach to students. The staff also paid careful attention to the set up of the physical spaces in the school and developed a reinforcement system for appropriate behaviors. The 92% decrease in office discipline referrals between the baseline year and the second year of SW-PBS implementation saved approximately 11.7 days of administrator time that year alone. Similarly, approximately 5.2 days of administrator time were saved by a 71% reduction in suspensions between the baseline and the second year. For students, the increased time in the classroom for instruction totaled 31.2 days due to a decrease in office discipline referrals in year two. The student and staff time that is no longer devoted to student discipline is available for redirection toward other activities, including academic instruction and learning.

Success with SW-PBS is not limited to elementary schools. Warren and colleagues (2006) found SW-PBS to be successful in decreasing discipline incidents in a

Midwestern, inner-city middle school. With support from a university team, the staff at this school developed positive expectations, lesson plans for teaching expectations, and a reward system. The university team also moved the school into the secondary and tertiary levels of SW-PBS by training teachers in strategies for working with individual students utilizing functions of behavior. The structure of the additional levels of support stressed the similarities and connections between PBS for individual students and SW-PBS. The structure provided by SW-PBS empowered teachers to effectively deal with problem behavior using strategies agreed upon by the staff as a group rather than feeling that they were on their own to determine an appropriate approach and potentially enter a power struggle with the student. Five of the six measures of discipline outcomes analyzed decreased with implementation this plan. Most notable is a 57% decrease in short-term suspensions. The only measure not to decrease, out of school placements, remained the same. The authors do not discuss the lack of change in out of school placements, but this measure was by far the least frequently utilized disciplinary outcome. Out of school placements comprised only 0.52% of the disciplinary outcomes in the baseline data; therefore, decreasing the frequency of this outcome is quite difficult. In addition to the quantitative data, the researchers found that “school-wide PBS efforts not only decreased problem behavior overall, it also helped teachers and administrators learn more effective strategies for dealing with challenging behavior when it occurred” (Warren, et al., 2006, p. 194). While improvements in student behavior such as those found in the Warren study are notable, the ability of SW-PBS systems to maintain an improved climate over the long term is imperative.

Improvement in the behavioral climate of a school is sustainable through SW-PBS systems. Luiselli, Putnam, & Sunderland (2002) conducted a longitudinal study of SW-PBS implementation. They followed a middle and upper-middle class middle school in rural Massachusetts for four years. The teachers and administration initiated the SW-PBS efforts as a way to improve discipline with a positive focus. The SW-PBS plan at this school focused at the universal level and included identified concerns, written rules, intervention guidelines, cross-grade level procedures and a reinforcement system. Luiselli, Putnam, and Sunderland found that positive behavior results “can be sustained over multiple academic years” with detentions decreasing throughout the four year time period (p. 185). In summary of their findings, the authors state that “this report suggests that improved student discipline in public schools can be promoted through large-scale intervention that targets the entire student population” (Luiselli, Putnam, & Sunderland, 2002, p. 187).

The findings from these studies indicate that SW-PBS is an effective framework for improving the behavioral climate of schools. SW-PBS plans that focus at the universal, school-wide level provide promising results for preventing the occurrence of behavior problems for most students. The addition of secondary and tertiary interventions and supports meet the needs of students with more significant problem behaviors, enhancing the effectiveness of SW-PBS. The improved behavioral climate of a school paves the way for better academic opportunities. Thus the interaction between behavior and academics reverses and begins to spiral in the positive direction toward improved student learning. Research regarding the reality of the chain of events that

reverses the spiral of interaction between behavior and academic to move in a positive direction is lacking and is the focus of the study described in this paper.

Summary

The literature review in this chapter included discussion on the relationship between student behavior and academic achievement; as well as overviews of both traditional, punitive discipline systems and intervention and prevention-based discipline systems. The chapter concluded with a description of school-wide positive behavior supports (SW-PBS) including its function as an intervention and prevention-based discipline system, the process for implementing SW-PBS in a school, and a summary of previous studies of its effectiveness for improving student behavior.

The remaining chapters in the study describe the study design and methodology (Chapter 3), findings (Chapter 4) and discussion of results (Chapter 5).

CHAPTER THREE

METHODS

Introduction

This chapter details the methodology of the study. Description of the research design includes discussion of the population, sample, instrumentation, data collection procedures, and limitations. Explanation is provided of the analyses and hypothesis tests used to answer the following research questions:

Research Question 1: Is there a change in the number of days students are assigned to in-school suspension for individual students that coincides with the implementation of a school-wide positive behavior supports model?

Research Question 2: Is there a change in the number of days students are assigned to out-of-school suspension for individual students that coincides with the implementation of a school-wide positive behavior supports model?

Research Question 3: Is there a change in student academic achievement that coincides with the implementation of a school-wide positive behavior supports model?

Research Question 4: Is there a relationship between change(s) in the number of days students are assigned to in-school suspension and changes in student academic achievement?

Research Question 5: Is there a relationship between change(s) in the number of days students are assigned to out-of-school suspension and changes in student academic achievement?

Research Design

The study utilized quantitative causal-comparative research methods to examine the effect of implementing a SW-PBS system on student academic achievement. The data collected focused on low-inference variables related to both student behavior and student achievement. Low-inference variables require the researcher to use little inferential reasoning to determine the presence of the variable which results in more valid data than high-inference variables (Gall, Gall, & Borg, 2005). Statistical analysis of the data included a combination of difference testing and correlational analysis to answer the research questions. Difference testing was utilized to test the hypotheses for changes in student behavior and student achievement due to the implementation of SW-PBS (Gall, Gall, & Borg, 2005). Correlation determined the existence and extent of a relationship between student behavior and achievement (Gall, Gall, & Borg, 2005). The pairing of causal-comparative and correlational methods illustrated a wider perspective on the changes in achievement and behavior of the students than was possible with either method in isolation.

Population and Sample

The population of interest for this study was students attending schools implementing SW-PBS models to improve student behavior. Eagle Landing and Steinmont are pseudonyms for middle schools serving students in grades seven and eight in a suburban school district in the Midwest.

Sampling Procedures

Purposive sampling led to the selection of the two schools studied. Eagle Landing and Steinmont were selected from seven schools implementing SW-PBS in the targeted suburban district. Selection criteria included:

1. Schools that had completed at least their first year of SW-PBS implementation at the time of data collection.
2. Schools with no significant academic program changes coinciding with the SW-PBS implementation.
3. Schools where the students had no prior exposure to a SW-PBS model.

Of the seven schools implementing SW-PBS, only Eagle Landing and Steinmont met all of the sampling criteria. All seven schools had completed at least one year of SW-PBS implementation at the time of data collection for the study. The four elementary schools considered were involved in the implementation of a tiered model for reading support at the same time as their SW-PBS implementation and therefore, did not meet the second criterion. The high school considered for selection did not meet the third criterion because it received students from one of the SW-PBS middle schools.

Instrumentation

A variety of measures exist for quantification of student behavior. The two most frequently used in the literature are office discipline referrals and suspensions (Flanagain, 2007; Lassen, Steele, & Sailor, 2006; Luiselli, Putnam, Handler, & Feinberg, 2005; McFadden & Marsh, 1992; McIntosh, Chard, Boland, & Horner, 2006; McIntosh, Flannery, Sugai, Braun, & Cochrane, 2008; Nelson, Martella, & Galand, 1998; Raffaele-Mendez, Knoff, & Ferron, 2002; Sadler & Sugai, 2009; Scott & Barrett, 2004; Skiba,

Michael, Nardo, & Peterson, 2002; Sprague, Sugai, Horner & Walker, 1999; Tobin & Sugai, 1996; Warren, et al., 2006; Wright & Dusek, 1998). Both office discipline referrals (ODR's) and suspensions have been found to be valid measures of patterns in student behavior (Skiba, Peterson, & Williams, 1997; Sprague, Sugai, Horner, & Walker, 1999; Wright & Dusek, 1998). ODR's are useful on a day-to-day and year-to-year basis to determine when implementation of behavioral interventions is necessary and to evaluate the effectiveness of such interventions (Sprague, Sugai, Horner, & Walker, 1999). Suspensions, on the other hand, indicate more severe and/or chronic offenses and are "a better indication than ODR's of severe problem behavior" (Lassen, Steele & Sailor, 2006, p. 709). For this study, quantification of student behavior included a count of the number of days each student in the cohort was suspended during the 2006-07 and 2007-08 school years. Suspension days included days of formal assignment to the school's in-school suspension (ISS) room and days of exclusion from school resulting in out-of-school suspension (OSS). Building principals and associate principals assigned the suspension days according to district guidelines and recorded the suspensions in the district's computerized student records database (see Appendix A).

Likewise, a variety of measures exist to quantify student academic achievement, with standardized test data cited most frequently in the literature (Lassen, Steele, & Sailor, 2006; Luiselli, Putnam, Handler, & Feinberg, 2005; McIntosh, Chard, Boland, & Horner, 2006; McIntosh, Flannery, Sugai, Braun, & Cochrane, 2008; Nelson, Martella, & Marchand-Martella, 2002; Sadler & Sugai, 2009). However, standardized tests are often narrow in scope and represent achievement in only one or two subject areas, typically reading and mathematics. Students in the targeted middle schools earn grades in eight

classes: English, communications, mathematics, science, social studies, physical education and two elective courses. Use of standardized test data would have represented, at best, three-eighths of the student's educational experience. Analysis of student grades permitted study of achievement for the entirety of the student's academic day and served as the measure of academic achievement. Student grades are commonly accepted as an educational achievement measure whose intention is to report the quality of a student's work in a particular subject or class (Brookhart, 1994). The way a teacher assigns grades is grounded in his or her philosophy of education (McMillan & Nash, 2000, as cited in McMillan, Myran, & Workman, 2002). According to district procedures on grading, the grades reported on each nine-week quarter's grade card reflect evaluation from work completed in only that quarter. Without cumulative grades available, the researcher was required to examine the grades from each quarter's grade card to determine academic achievement. Grades earned in eight classes each quarter resulted in a total of 32 grades assigned over the course of the year. District procedures required the use of the letter grades A, B, C, D, and F. To quantify academic achievement, the researcher assigned a point value to each letter grade. An A was assigned four points, a B three points, a C two points, a D one point, and a F zero points. The four quarterly report card grades for each academic area were averaged to determine a grade point average for the academic area for each year. Grade point averages were calculated for the following academic areas: language arts, mathematics, science, social studies, physical education, and electives. Students at the target schools take two language arts classes. Grades from both language arts classes were averaged together to determine the language arts grade point average. Most students at the target schools take two elective

classes. Grades for all classes that do not fall into one of the other academic areas were included in the elective grade point average. In addition to the academic area grade point averages, an overall grade point average was determined for each student by averaging all grades from the quarterly report cards together.

The researcher submitted a proposal to the university's Institutional Review Board in September 2009 (see Appendix B). The proposal was approved in October 2009.

Data Collection Procedures

The implementation of SW-PBS occurred prior to the initiation of the study; therefore, the research was conducted post hoc by collecting existing data from the school district. In November 2009, the researcher submitted a written request for data to the school district (see Appendix C). The data requested was for the cohort of students who were seventh graders at Eagle Landing and Steinmont during the 2006-07 school year and eighth graders at the same school during the 2007-08 school year. For each student the following pieces of data were requested: number of days assigned to in-school suspension during each of the two school years, number of days assigned to out-of-school suspension during each school year, letter grades from quarterly report cards for each school year, race, gender, socio-economic status and special education status. In order to protect student privacy students were identified by number rather than name.

Data Analysis & Hypothesis Testing

Investigation of the first three research questions utilized two-factor analyses of variance (ANOVAs). Null hypotheses were generated in response to each of the first three research questions. The main effect for year of the ANOVAs evaluated the null

hypotheses that the number of days for in-school suspension and out-of school suspension, respectively, for each student and the academic area and overall grade point averages for each student were the same in 2006-07 and 2007-08 at a 0.05 significance level. The main effect for year of the (YearxEthnicity) ANOVA for ISS determined if there was a significant change in number of in-school suspension days for each student between the two school years. The main effect for year of the (YearxEthnicity) ANOVA for OSS determined if there was a significant change in number of out-of-school suspension days for each student between the two school years. The main effect for year of the (YearxEthnicity) ANOVA for each academic area GPA and the overall GPA determined if there was a significant difference in the academic area and overall grade point averages for each student between the two school years. Two-factor ANOVAs were selected as the method for difference testing for two primary reasons. First, ANOVAs minimize inaccurate rejections of the null hypotheses. Second, two-factor ANOVAs pair the 2006-07 data with the 2007-08 data for each student in the cohort (Agresti & Finlay, 2009). Assumptions of normality and equal standard deviation for the groups were made and the sample size is large enough for this robust test to overcome the potential for a violation of this assumption (Agresti & Finlay, 2009). To allow for a more complete analysis of the data, descriptive statistics were also calculated for the number of days students were assigned to in-school or out-of-school suspension and the academic area and overall grade point averages earned by each student. To investigate the relationship between change in number of days suspended, in-school and out-of-school, respectively, and academic achievement of students, the fourth and fifth research questions, the Pearson correlation coefficients were calculated. The statistical software

Statistical Package for the Social Sciences, SPSS 16.0, was used to perform the calculations (SPSS Inc., 2007).

The answers to the research questions for smaller groups of students were also of interest. Results were disaggregated by ethnicity, gender, socio-economic status (SES), and special education (SPED) status. For disaggregation by ethnicity, students were divided into categories of American Indian, Asian/Pacific Islander, Black, Hispanic, Multi-Ethnic or Not Marked, and White. For gender, students were divided into categories of female and male. For socio-economic status (SES), students were divided into categories of free lunch, full pay lunch, or reduced lunch. For special education (SPED) status, students were divided into categories of non-disabled (no IEP) and disabled (IEP). Two-factor (YearxGrouping) ANOVAs were utilized to conduct the analyses. The interaction effect of each ANOVA tested the null hypotheses that no change in ISS days, OSS days, or GPA occurred for each demographic group between 2006-07 and 2007-08. The main effect for demographic group tested the null hypotheses that no difference was present in each measure between categories of the same demographic group. When statistically significant results were found, post-hoc analyses utilizing Tukey's method for multiple comparisons identified where the significant differences occurred (Agresti & Finlay, 2009). Pearson correlation coefficients were calculated for each demographic group for research questions four and five.

Limitations

There were potentially several limitations to the findings of the current study. First, the study was conducted in two suburban middle schools that are demographically

similar. Schools comprised of different grades and/or schools in a different setting will likely have different outcomes.

Second, the cohort was only followed for two years, the year prior to SW-PBS implementation and the first year of implementation. A trend cannot be established from two years of data. Study of a longer time period would facilitate establishment of trends and yield more confidence in the results. The two-grade level composition of the target schools limited the cohort study to two years. The researcher determined that the previously stated benefits of studying a cohort of students outweighed the benefits of establishing a trend for the school over three or more years.

Third, the study analyzed student grades and suspension data. Analysis of other measures of student achievement and behavior such as standardized test scores and office discipline referrals may have yielded different results.

Summary

This chapter completed the background and design sections of the report by describing the research design and statistical analyses employed in the study. The remaining two chapters describe the results of the study.

Chapter 4 contains analysis of the collected data and the findings from the analysis. Chapter 5 includes answers to the research questions, reflections and implications for future research.

CHAPTER FOUR

RESULTS

Introduction

This chapter details the results of the analyses used to answer the five research questions. Each research question was addressed separately for the two target schools. The data from the two target schools was not combined at any stage of the analysis in order to prevent the results at one school from influencing the overall study results. Descriptive statistics are also presented for each of the variables.

Descriptive Statistics

Two students at each of the target schools were excluded from the cohort during the data analysis process. Each of the four students did not have grades for four subject areas during 2007-08. All four students were students with disabilities. None of the excluded students had been assigned to in-school suspension or out-of-school suspension during the study years. The missing grades for these students suggest that they have severe disabilities and that their behavior and academic performance is not likely to be affected by the implementation of the initial components of SW-PBS.

At Eagle Landing, 41 students in the cohort were assigned to at least one day of in-school suspension (ISS) during the 2006-07 school year (see Table 3 on the following page). In total, these 41 students were assigned to 147 days of ISS. Dividing the total number of ISS days by the sample size of 239 students resulted in a cohort mean of 0.62 in-school suspensions per student. In 2007-08, 38 students were assigned a total of 119 days of ISS, resulting in a cohort mean of 0.50 days.

Table 3

In-School Suspension Descriptive Statistics

School	Year	N ISS Days	N Students with ISS	Mean ISS Days per Student	Std. Deviation
Eagle Landing	2006-07	147	41	0.62	2.54
	2007-08	119	38	0.50	1.67
Steinmont	2006-07	224	71	0.59	1.86
	2007-08	182	67	0.48	1.46

At Steinmont, 71 students in the cohort were assigned to at least one day of ISS during the 2006-07 school year (see Table 3 above). In total, these 71 students were assigned to 224 days of ISS. Dividing the total number of ISS days by the sample size of 378 students resulted in a cohort mean for year one of 0.59 in-school suspensions per student. In 2007-08, 67 students were assigned a total of 182 days of ISS, resulting in a cohort mean of 0.48 days.

Out-of-school suspension (OSS) data followed a similar pattern. At Eagle Landing, 25 students in the cohort were assigned to at least one day of out-of-school suspension (OSS) during the 2006-07 school year (see Table 4 on the following page). In total, these 25 students were assigned to 87 days of OSS. Dividing the total number of OSS days by the sample size of 239 students resulted in a cohort mean of 0.36 out-of-school suspensions per student. In 2007-08, 19 students were assigned a total of 56 days of OSS, resulting in a cohort mean of 0.23 days.

At Steinmont, 47 students in the cohort were assigned to at least one day of OSS during the 2006-07 school year (see Table 4 below). In total, these 47 students were

assigned to 178 days of OSS. Dividing the total number of OSS days by the sample size of 378 students resulted in a cohort mean of 0.47 out-of-school suspensions per student. In 2007-08, 43 students were assigned a total of 125 OSS days, resulting in a cohort mean of 0.33 days.

Table 4

Out-of-School Suspension Descriptive Statistics

School	Year	N OSS Days	N Students with OSS	Mean OSS Days per Student	Std. Deviation
Eagle Landing	2006-07	87	25	0.36	1.39
	2007-08	56	19	0.23	0.92
Steinmont	2006-07	178	47	0.47	1.58
	2007-08	125	43	0.33	1.08

Grade Point Averages (GPA's) were calculated for each student for each subject area (language arts, mathematics, science, social studies, physical education, and electives) and overall. The cohort mean GPA for each subject area and overall for each year was calculated for both of the target schools (see Table 5 on the following page).

At Eagle Landing, the 2006-07 subject area mean GPA's ranged from a low of 3.03 in science to a high of 3.88 in physical education. The 2006-07 mean overall GPA at Eagle Landing was 3.29. The 2007-08 means ranged from a low of 3.01 in science to a high of 3.92 in physical education. The 2007-08 mean overall GPA at Eagle Landing was 3.27. In mathematics, science, social studies, electives, and overall the mean GPA

was lower in 2007-08 than in 2006-07. The mean GPA's in language arts and physical education at Eagle Landing were higher in 2007-08 than in 2006-07.

Table 5

Grade Point Average (GPA) Descriptive Statistics

School	Subject Area	Mean		Standard Deviation		N
		2006-2007	2007-2008	2006-2007	2007-2008	
Eagle Landing	Language Arts	3.13	3.35	0.91	0.66	239
	Mathematics	3.07	2.75	0.94	0.95	239
	Science	3.03	3.01	1.01	0.85	239
	Social Studies	3.29	3.06	0.88	0.98	239
	Physical Ed.	3.88	3.92	0.30	0.23	239
	Electives	3.44	3.39	0.72	0.69	237
	Overall	3.29	3.27	0.72	0.61	239
Steinmont	Language Arts	3.17	3.11	0.91	0.90	377
	Mathematics	3.00	2.64	0.94	1.01	376
	Science	3.12	2.89	0.95	0.98	370
	Social Studies	2.98	2.87	1.02	1.10	371
	Physical Ed.	3.75	3.70	0.42	0.53	377
	Electives	3.49	3.37	0.64	0.70	373
	Overall	3.25	3.10	0.74	0.75	378

At Steinmont, the 2006-07 subject area mean GPA's ranged from a low of 2.98 in social studies to a high of 3.75 in physical education. The 2006-07 mean overall GPA at Steinmont was 3.25. The 2007-08 means ranged from a low of 2.64 in mathematics to a high of 3.70 in physical education. The 2007-08 mean overall GPA at Steinmont was 3.10. The mean GPA in every subject area (language arts, mathematics, science, social studies, physical education, and electives) and the mean overall GPA were lower in 2007-08 than in 2006-07.

Hypothesis Testing

Research Question 1

The first research question asked: Is there a change in the number of days students are assigned to in-school suspension for individual students that coincides with the implementation of a school-wide positive behavior supports model? The first null hypothesis was that there was no change in the number of in-school suspensions assigned to each student between the 2006-07 and 2007-08 school years. A two-factor (YearxEthnicity) ANOVA was used to test the first hypothesis. The variable year in the ANOVA represented 2006-07 (year 1) and 2007-08 (year 2). The main effect for year at Eagle Landing indicated that there was not a significant difference in mean ISS days from year 1 (0.62) to year 2 (0.50) ($F_{1,233} = 0.046, p = 0.831$). The main effect for the variable, year, at Steinmont indicated that there was not a significant difference in mean ISS days from year 1 (0.59) to year 2 (0.48) ($F_{1,372} = 0.120, p = 0.730$).

Research Question 2

The second research question asked: Is there a change in the number of days students are assigned to out-of-school suspension for individual students that coincides

with the implementation of a school-wide positive behavior supports model? The second null hypothesis was that there was no change in the number of out-of-school suspensions assigned to each student between the 2006-07 and 2007-08 school years. A two-factor (YearxEthnicity) ANOVA was used to test the second hypothesis. The variable year in the ANOVA represented 2006-07 (year 1) and 2007-08 (year 2). The main effect for year at Eagle Landing indicated that there was not a significant difference in mean OSS days from year 1 (0.36) to year 2 (0.23) ($F_{1,233} = 1.765, p = 0.196$). The main effect for the variable, year, at Steinmont indicated that there was not a significant difference in mean OSS days from year 1 (0.47) to year 2 (0.33) ($F_{1,372} = 1.273, p = 0.260$).

Research Question 3

The third research question asked: Is there a change in student academic achievement that coincides with the implementation of a school-wide positive behavior supports model? The third null hypothesis was that there was no change in the GPA for each academic area and overall for each student between 2006-07 and 2007-08. A two-factor (YearxEthnicity) ANOVA was used to test the third hypothesis for each academic area and overall. The variable year in the ANOVA represented 2006-07 (year 1) and 2007-08 (year 2).

The main effect for year at Eagle Landing indicated that there was a significant difference in language arts GPA from year 1 to year 2 ($F_{1,233} = 11.657, p = 0.001$). The mean language arts GPA was higher in year 2 (3.35) than year 1 (3.13). The main effect for year at Eagle Landing indicated that there was a significant difference in mathematics GPA from year 1 to year 2 ($F_{1,233} = 5.119, p = 0.025$). The mean mathematics GPA was lower in year 2 (2.75) than year 1 (3.07). The main effect for year at Eagle Landing

indicated that there was a significant difference in social studies GPA from year 1 to year 2 ($F_{1,233} = 6.051, p = 0.015$). The mean social studies GPA was lower in year 2 (3.06) than year 1 (3.29). The main effect for year at Eagle Landing indicated that there was not a significant difference in GPA from year 1 to year 2 in science ($F_{1,233} = 0.001, p = 0.979$), physical education ($F_{1,233} = 3.250, p = 0.073$), electives ($F_{1,231} = 0.512, p = 0.475$), and overall ($F_{1,233} = 0.001, p = 0.979$).

The main effect for year at Steinmont indicated that there was a significant difference in mathematics GPA from year 1 to year 2 ($F_{1,370} = 16.431, p = 0.000$). The mean mathematics GPA was lower in year 2 (2.64) than year 1 (3.00). The main effect for year at Steinmont indicated that there was a significant difference in science GPA from year 1 to year 2 ($F_{1,364} = 12.440, p = 0.000$). The mean science GPA was higher in year 2 (2.89) than year 1 (2.64). The main effect for year at Steinmont indicated that there was a significant difference in elective GPA from year 1 to year 2 ($F_{1,367} = 4.904, p = 0.027$). The mean elective GPA was lower in year 2 (2.64) than year 1 (3.49). The main effect for year at Steinmont indicated that there was a significant difference in overall GPA from year 1 to year 2 ($F_{1,372} = 16.174, p = 0.000$). The mean overall GPA was lower in year 2 (3.10) than year 1 (3.25). The main effect for year at Steinmont indicated that there was not a significant difference in GPA from year 1 to year 2 in language arts ($F_{1,371} = 0.010, p = 0.919$), social studies ($F_{1,365} = 2.364, p = 0.125$), and physical education ($F_{1,371} = 0.781, p = 0.377$).

Research Question 4

The fourth research question asked: Is there a relationship between change(s) in the number of days students are assigned to in-school suspension and changes in student

academic achievement? Pearson correlation coefficients were calculated for each school to test the null hypothesis that there was not a relationship between the change in ISS days and the change in each measure of academic achievement. The correlation coefficients are shown in Table 6 below.

Table 6

Pearson Correlation Coefficients for Change in ISS Days and Change in GPA

School	Subject Area	r	r^2	P	Std. Error of the Estimate	N
Eagle Landing	Language Arts	-0.172	0.030	0.008	0.595500	239
	Mathematics	-0.175	0.031	0.007	0.863503	239
	Science	-0.038	0.001	0.554	0.740268	239
	Social Studies	-0.103	0.011	0.112	0.681433	239
	Physical Ed.	-0.088	0.008	0.174	0.235261	239
	Electives	0.002	0.000	0.970	0.573757	237
	Overall	-0.161	0.026	0.012	0.378328	239
Steinmont	Language Arts	-0.090	0.008	0.082	0.509159	377
	Mathematics	-0.105	0.011	0.042	0.792811	376
	Science	-0.100	0.010	0.054	0.705130	370
	Social Studies	-0.074	0.005	0.158	0.666485	371
	Physical Ed.	-0.019	0.000	0.717	0.443913	377
	Electives	-0.153	0.023	0.003	0.560113	373
	Overall	-0.173	0.030	0.001	0.334589	378

At Eagle Landing, three negative correlations between change in ISS days and change in GPA were statistically significant: language arts ($r = -0.172, p = 0.008$), mathematics ($r = -0.175, p = 0.007$), and overall ($r = -0.161, p = 0.012$). Although the correlation coefficients are significant, they do not indicate a strong relationship.

At Steinmont, three negative correlations between change in ISS days and change in GPA were statistically significant: mathematics ($r = -0.105, p = 0.042$), electives ($r = -0.153, p = 0.003$), and overall ($r = -0.173, p = 0.001$). Although the correlation coefficients are significant, they do not indicate a strong relationship.

Research Question 5

The fifth research question asked: Is there a relationship between change(s) in the number of days students are assigned to out-of-school suspension and changes in student academic achievement? Pearson correlation coefficients were calculated for each school to test the null hypothesis that there was not a relationship between the change in OSS days and the change in each measure of academic achievement. The correlation coefficients are shown in Table 7 on the following page.

At Eagle Landing, two negative correlations were statistically significant: language arts ($r = -0.163, p = 0.012$) and physical education ($r = -0.180, p = 0.005$). Although the correlation coefficients are significant, they do not indicate a strong relationship.

At Steinmont, three negative correlations were statistically significant: mathematics ($r = -0.143, p = 0.006$), science ($r = -0.156, p = 0.003$), and overall ($r = -0.121, p = 0.018$). Although the correlation coefficients are significant, they do not indicate a strong relationship.

Table 7

Pearson Correlation Coefficients for Change in OSS Days and Change in GPA

School	Subject Area	r	r^2	P	Std. Error of the Estimate	N
Eagle Landing	Language Arts	-0.163	0.027	0.012	0.596404	239
	Mathematics	-0.003	0.000	0.968	0.877025	239
	Science	-0.009	0.000	0.894	0.740789	239
	Social Studies	-0.098	0.010	0.131	0.681779	239
	Physical Ed.	-0.180	0.032	0.005	0.232314	239
	Electives	0.043	0.002	0.508	0.573223	237
	Overall	-0.091	0.008	0.159	0.381745	239
Steinmont	Language Arts	-0.064	0.004	0.216	0.510177	377
	Mathematics	-0.143	0.020	0.006	0.789051	376
	Science	-0.156	0.024	0.003	0.700079	370
	Social Studies	0.011	0.000	0.827	0.668250	371
	Physical Ed.	0.039	0.001	0.455	0.443660	377
	Electives	-0.018	0.000	0.730	0.566704	373
	Overall	-0.121	0.015	0.018	0.337189	378

This concludes presentation of the aggregate results related to the five research questions. The results are now presented as disaggregated by demographic group to determine if different conclusions can be reached for individual subgroups of students.

Additional Analyses

Studies cited in the literature review indicated that differences exist in the behavior histories of individual demographic groups. Specifically, previous studies have found black students, males, and students from poverty to have higher suspension rates than their peers (Brooks, Schiraldi, & Ziedenberg, 2000; Rafelle-Mendez, Knoff, & Ferron, 2002; Skiba, Michael, Nardo & Peterson, 2002; Washington Research Project, 1975). The additional analyses in this study determined the extent to which the aggregate results for each target school are true for individual demographic groups. The data for each target school was analyzed for particular student groups. Results were disaggregated by ethnicity, gender, socio-economic status (SES), and special education (SPED) status. For disaggregation by ethnicity, students were grouped by the categories of American Indian, Asian/Pacific Islander, Black, Hispanic, Multi-Ethnic or Not Marked, and White. For gender, students were divided into categories of female and male. For socio-economic status (SES), students were divided into categories of free lunch, full pay lunch, or reduced lunch. For special education (SPED) status, students were divided into categories of non-disabled (no IEP) and disabled (IEP). Descriptive statistics for ISS, OSS, and GPA disaggregated by ethnicity, gender, SES and SPED are located in Appendix D (see Tables D1 – D9).

The same statistical analyses, two-factor ANOVAs and Pearson correlation coefficients, were utilized to examine the data by disaggregated group. Two-factor ANOVAs (YearxGrouping) tested the null hypotheses of no change for each research question. For research questions 1-3, the variable year in the ANOVA represented 2006-07 (year 1) and 2007-08 (year 2). The results for the main effect for year of the

ANOVAs were presented earlier to answer the research questions for the aggregate cohorts. The variable grouping in the ANOVAs represented the individual ethnic groups, genders, socio-economic groups, or special education groups. Descriptive statistics, including means and standard deviations, for the individual ethnic groups are located in Appendix D (see Tables D1-D9). The ANOVA results for the individual demographic groups are located in Appendix D (see Tables D10-D11). The Pearson correlation coefficients for ISS or OSS change and GPA change are located in Appendix D (see Tables D12-D15).

Additional Analyses by Ethnicity

Research Question 1 Additional Analyses by Ethnicity

At Eagle Landing the interaction effect for the two-factor (YearxEthnicity) ANOVA for ISS days was not significant ($F_{1, 233} = 0.140, p = 0.983$). None of the ethnic groups had a significant change in ISS days from year 1 to year 2. At Eagle Landing the main effect for ethnicity was not significant ($F_{5, 233} = 0.352, p = 0.881$). There was not a significant difference in ISS days between ethnicities.

At Steinmont the interaction effect for the two-factor (YearxEthnicity) ANOVA for ISS days was not significant ($F_{1, 372} = 1.003, p = 0.416$). None of the ethnic groups had a significant change in ISS days from year 1 to year 2. At Steinmont the main effect for ethnicity was significant ($F_{5, 372} = 2.564, p = 0.027$). A follow up Tukey post hoc identified the difference between mean ISS days for black students (0.92) and white students (0.58) as significant. However, since this difference is between ethnicities rather than between years within the same ethnicity, the difference is not relevant to the focus of the current study. This study examined the change in student behavior that coincides

with implementation of SW-PBS. This study did not examine discrepancies in behavior between demographic groups.

Research Question 2 Additional Analyses by Ethnicity

At Eagle Landing the interaction effect for the two-factor (YearxEthnicity) ANOVA for OSS days was not significant ($F_{1,233} = 0.721, p = 0.608$). None of the ethnic groups had a significant change in OSS days from year 1 to year 2. At Eagle Landing the main effect for ethnicity was not significant ($F_{5,233} = 1.267, p = 0.279$). There was not a significant difference in OSS days between ethnicities.

At Steinmont the interaction effect for the two-factor (YearxEthnicity) ANOVA for OSS days was not significant ($F_{1,372} = 1.644, p = 0.147$). None of the ethnic groups had a significant change in OSS days from year 1 to year 2. At Steinmont the main effect for ethnicity was significant ($F_{5,372} = 4.951, p = 0.000$). A follow up Tukey post hoc identified the difference between mean OSS days for black students (0.88) and Hispanic students (0.19) and white students (0.29) as significant. However, since this difference is between ethnicities rather than between years within the same ethnicity, the difference is not relevant to the focus of the current study. This study examined the change in student behavior that coincides with implementation of SW-PBS. This study did not examine discrepancies in behavior between demographic groups.

Research Question 3 Additional Analyses by Ethnicity

Two-factor (YearxEthnicity) ANOVAs were used to analyze the change in GPA for each subject area (language arts, mathematics, science, social studies, physical education, and electives) and overall for each school. The interaction effect ANOVA results for GPA for each subject area and overall GPA by ethnicity are included in Table

D10 (see Appendix D). Only the results indicating significant differences are discussed here.

The main effect ANOVA results for GPA within ethnicities are included in Table D11 (see Appendix D). There were numerous significant differences in GPA based on ethnicity. The main effects for GPA are not discussed in detail because they are not relevant to the current study. This study examined change in academic achievement that coincides with implementation of SW-PBS. This study did not examine discrepancies in academic achievement between demographic groups.

Language arts achievement by ethnicity.

The interaction effect for ethnicity by year at Eagle Landing did not indicate significant differences in language arts GPA. None of the ethnic groups had a significant change in language arts GPA from year 1 to year 2.

The interaction effect for ethnicity by year at Steinmont indicated that there was a significant difference in language arts GPA from year 1 to year 2 based on ethnicity ($F_{5,371} = 2.666, p = 0.022$). A Tukey post hoc follow-up indicated that several differences were significant (Tukey HSD = 0.370). The mean language arts GPA for American Indian students (3.84) was significantly higher than the mean language arts GPA for black students (2.95), Hispanic students (2.74), multi-ethnic students (3.10) and white students (3.19). The mean language arts GPA for Asian students (3.50) was significantly higher than the mean language arts GPA for black students (2.95), Hispanic students (2.74), and multi-ethnic students (3.10). The mean language arts GPA for white students (3.19) was significantly higher than the mean language arts GPA for Hispanic students (2.74). However, since these differences are all between ethnicities rather than

between years within the same ethnicity, the differences are not relevant to the focus of the current study. This study examined change in academic achievement that coincides with implementation of SW-PBS. This study did not examine discrepancies in academic achievement between demographic groups.

Mathematics achievement by ethnicity.

The interaction effect for ethnicity by year at Eagle Landing did not indicate significant differences in mathematics GPA. None of the ethnic groups had a significant change in mathematics GPA from year 1 to year 2.

The interaction effect for ethnicity by year at Steinmont indicated that there was a significant difference in mathematics GPA from year 1 to year 2 based on ethnicity ($F_{5, 370} = 3.139, p = 0.009$). A Tukey post hoc follow-up indicated several ethnicities with significantly different mean mathematics GPA's in year 2 than year 1 (Tukey HSD = 0.573). Asian students had a significantly lower mean mathematics GPA in year 2 (2.78) than in year 1 (3.45). Hispanic students had a significantly lower mean mathematics GPA in year 2 (2.21) than in year 1 (2.85). Multi-ethnic students had a significantly lower mean mathematics GPA in year 2 (2.40) than in year 1 (2.98). The differences between black students and students of other ethnicities were not significant. The differences between white students and students of other ethnicities were not significant.

Science achievement by ethnicity.

The interaction effect for ethnicity by year at Eagle Landing did not indicate significant differences in science GPA. None of the ethnic groups had a significant change in science GPA from year 1 to year 2.

The interaction effect for ethnicity by year at Steinmont did not indicate significant differences in science GPA. None of the ethnic groups had a significant change in science GPA from year 1 to year 2.

Social studies achievement by ethnicity.

The interaction effect for ethnicity by year at Eagle Landing did not indicate significant differences in social studies GPA. None of the ethnic groups had a significant change in social studies GPA from year 1 to year 2.

The interaction effect for ethnicity by year at Steinmont did not indicate significant differences in social studies GPA. None of the ethnic groups had a significant change in social studies GPA from year 1 to year 2.

Physical education achievement by ethnicity.

The interaction effect for ethnicity by year at Eagle Landing did not indicate significant differences in physical education GPA. None of the ethnic groups had a significant change in physical education GPA from year 1 to year 2.

The interaction effect for ethnicity by year at Steinmont did not indicate significant differences in physical education GPA. None of the ethnic groups had a significant change in physical education GPA from year 1 to year 2.

Elective achievement by ethnicity.

The interaction effect for ethnicity by year at Eagle Landing did not indicate significant differences in elective GPA. None of the ethnic groups had a significant change in elective GPA from year 1 to year 2.

The interaction effect for ethnicity by year at Steinmont did not indicate significant differences in elective GPA. None of the ethnic groups had a significant change in elective GPA from year 1 to year 2.

Overall achievement by ethnicity.

The interaction effect for ethnicity by year at Eagle Landing did not indicate significant differences in overall GPA. None of the ethnic groups had a significant change in overall GPA from year 1 to year 2.

The interaction effect for ethnicity by year at Steinmont indicated that there was a significant difference in overall GPA from year 1 to year 2 based on ethnicity ($F_{5,372} = 2.807, p = 0.017$). A Tukey post hoc follow-up indicated that multi-ethnic students had a significantly lower overall GPA in year 2 (2.87) than in year 1 (3.28) (Tukey HSD = 0.244).

Research Question 4 Additional Analyses by Ethnicity

Pearson correlation coefficients were calculated for change in ISS days and change in each measure of academic achievement for each ethnicity. The correlation coefficients are shown in Appendix D (see Tables D12 and D13). Correlation coefficients with an absolute value greater than or equal to 0.3 indicate at least a moderately strong relationship between the variables (Howell, 2008). Only those coefficients with an absolute value greater than or equal to 0.3 and found to be statistically significant at the 0.05 level are discussed here to provide focus for interpretation of the results.

At Eagle Landing none of the correlations calculated using data from each ethnic group met the above criteria. There was not a statistically significant, moderately strong

relationship between change in ISS days and change in academic achievement for any subject area for any ethnicity.

At Steinmont eight of the correlations calculated using data from each ethnic group met the above criteria. There was a moderately strong negative relationship between change in ISS days and change in elective GPA for black students ($r = -0.517, p = 0.002$). For black students at Steinmont, as the number of ISS days decreased, the elective GPA increased. There was a moderately strong negative relationship between change in ISS days and change in language arts GPA ($r = -0.607, p = 0.000$) for Hispanic students. For Hispanic students at Steinmont, as the number of ISS days decreased, the language arts GPA increased. There was a moderately strong negative relationship between change in ISS days and change in overall GPA ($r = -0.600, p = 0.000$) for Hispanic students. For Hispanic students at Steinmont, as the number of ISS days decreased, the overall GPA increased. There was a moderately strong negative relationship between change in ISS days and change in mathematics GPA ($r = -0.457, p = 0.007$) for Hispanic students. For Hispanic students at Steinmont, as the number of ISS days decreased, the mathematics GPA increased. There was a strong negative relationship between change in ISS days and change in language arts GPA ($r = -0.937, p = 0.019$) for American Indian students (N=5). For American Indian students at Steinmont, as the number of ISS days decreased the language arts GPA increased. There was a strong negative relationship between change in ISS days and change in mathematics GPA ($r = -0.919, p = 0.028$) for American Indian students (N=5). For American Indian students at Steinmont, as the number of ISS days decreased the mathematics GPA increased. There was a strong positive relationship between change in

ISS days and change in science GPA for American Indian students ($r = 0.907, p = 0.034$) (N=5). For American Indian students at Steinmont, as the number of ISS days decreased the science GPA decreased. There was a moderately strong positive relationship between change in ISS days and change in language arts GPA for multi-ethnic students ($r = -0.664, p = 0.036$) (N=10). For multi-ethnic students at Steinmont, as the number of ISS days decreased the language arts GPA decreased.

Research Question 5 Additional Analyses by Ethnicity

Pearson correlation coefficients were calculated for change in OSS days and change in each measure of academic achievement for each ethnic group. The correlation coefficients are shown in Appendix D (see Tables D14 and D15). Correlation coefficients with an absolute value greater than or equal to 0.3 indicate at least a moderately strong relationship between the variables (Howell, 2008). Only those coefficients with an absolute value greater than or equal to 0.3 and found to be statistically significant at the 0.05 level are discussed here to provide focus for interpretation of the results.

At Eagle Landing three of the correlations calculated using data from each ethnic group met the above criteria. There was a moderately strong negative relationship between change in OSS days and change in language arts GPA for black students ($r = -0.671, p = 0.017$). For black students at Eagle Landing, as the number of OSS days decreased, the language arts GPA increased. There was a moderately strong negative relationship between change in OSS days and change in physical education GPA ($r = -0.517, p = 0.040$) for Hispanic students. For Hispanic students at Eagle Landing, as the number of OSS days decreased, the physical education GPA increased. There was a

moderately strong negative relationship between change in OSS days and change in elective GPA ($r = -0.754$, $p = 0.001$) for Hispanic students. For Hispanic students at Eagle Landing, as the number of OSS days decreased, the elective GPA increased.

At Steinmont nine of the correlations calculated using data from each ethnic group met the above criteria. There was a moderately strong negative relationship between change in OSS days and change in elective GPA for Asian students ($r = -0.637$, $p = 0.048$). For Asian students at Steinmont, as the number of OSS days decreased, the elective GPA increased. There was a moderately strong negative relationship between change in OSS days and change in mathematics GPA for Hispanic students ($r = -0.443$, $p = 0.009$). For Hispanic students at Steinmont, as the number of OSS days decreased, the mathematics GPA increased. There was a moderately strong negative relationship between change in OSS days and change in social studies GPA for Hispanic students ($r = -0.342$, $p = 0.047$). For Hispanic students at Steinmont, as the number of OSS days decreased, the social studies GPA increased. There was a moderately strong negative relationship between change in OSS days and change in physical education GPA for multi-ethnic students ($r = -0.637$, $p = 0.048$). For multi-ethnic students at Steinmont, as the number of OSS days decreased, the physical education GPA increased. There was a strong positive relationship between change in OSS days and change in language arts GPA ($r = 0.937$, $p = 0.019$) for American Indian students ($N=5$). For American Indian students at Steinmont, as the number of OSS days decreased the language arts GPA decreased. There was a strong positive relationship between change in OSS days and change in mathematics GPA ($r = 0.919$, $p = 0.028$) for American Indian students ($N=5$). For American Indian students at Steinmont, as the number of OSS days decreased the

mathematics GPA decreased. There was a strong negative relationship between change in OSS days and change in science GPA for American Indian students ($r = -0.907, p = 0.034$) ($N=5$). For American Indian students at Steinmont, as the number of OSS days decreased the science GPA increased.

Additional Analyses by Gender

Research Question 1 Additional Analyses by Gender

At Eagle Landing the interaction effect for the two-factor (Year \times Gender) ANOVA for ISS days was not significant ($F_{1, 237} = 0.310, p = 0.578$). Neither gender had a significant change in ISS days from year 1 to year 2. At Eagle Landing the main effect for ISS by demographic group was significant for gender ($F_{1, 237} = 17.799, p = 0.000$). Male students at Eagle Landing had significantly higher mean ISS days (1.02) than female students (0.11). However, since this difference is between genders rather than between years within the same gender, the difference is not relevant to the focus of the current study. This study examined the change in student behavior that coincides with implementation of SW-PBS. This study did not examine discrepancies in behavior between demographic groups.

At Steinmont the interaction effect for the two-factor (Year \times Gender) ANOVA for ISS days indicated that there was a significant difference in ISS days from year 1 to year 2 based on gender ($F_{1, 376} = 5.084, p = 0.025$). A follow up Tukey post hoc identified the difference between mean ISS days for male students (0.78) and female students (0.29) as significant (Tukey HSD = 0.379). However, since this difference is between genders rather than between years within the same gender, the difference is not relevant to the focus of the current study. This study examined the change in student behavior that

coincides with implementation of SW-PBS. This study did not examine discrepancies in behavior between demographic groups.

Research Question 2 Additional Analyses by Gender

At Eagle Landing the interaction effect for the two-factor (YearxGender) ANOVA for OSS days was not significant ($F_{1,237} = 0.045, p = 0.833$). Neither gender had a significant change in OSS days from year 1 to year 2. At Eagle Landing the main effect for OSS by gender was significant ($F_{1,237} = 9.485, p = 0.002$). Male students at Eagle Landing had significantly higher mean OSS days (0.49) than female students (0.12). However, since this difference is between genders rather than between years within the same gender, the difference is not relevant to the focus of the current study. This study examined the change in student behavior that coincides with implementation of SW-PBS. This study did not examine discrepancies in behavior between demographic groups.

At Steinmont the interaction effect for the two factor (YearxGender) ANOVA for OSS days indicated that there was a significant difference in OSS days from year 1 to year 2 based on gender ($F_{1,376} = 3.931, p = 0.048$). A follow up Tukey post hoc identified the difference between mean OSS days for male students in year 1 and year 2 as significant. Male students at Steinmont had a significantly lower mean OSS days in year 2 (0.40) than in year 1 (0.68) (Tukey HSD = 0.259). At Steinmont the main effect for OSS was significant for gender ($F_{1,376} = 5.771, p = 0.017$). Male students at Steinmont had a significantly higher OSS mean (0.54) than female students (0.26). However, since this difference is between genders rather than between years within the same gender, the difference is not relevant to the focus of the current study. This study

examined the change in student behavior that coincides with implementation of SW-PBS. This study did not examine discrepancies in behavior between demographic groups.

Research Question 3 Additional Analyses by Gender

Two-factor (YearxGender) ANOVAs were used to analyze the change in GPA for each subject area (language arts, mathematics, science, social studies, physical education, and electives) and overall for each school. The interaction effect ANOVA results for GPA for each subject area and overall by gender are included in Table D10 (see Appendix D). Only the results indicating significant differences are discussed here.

The main effect ANOVA results for GPA within genders are included in Table D11 (see Appendix D). There was one significant difference in GPA based on gender. The main effects for GPA are not discussed in detail because they are not relevant to the current study. This study examined change in academic achievement that coincides with implementation of SW-PBS. This study did not examine discrepancies in academic achievement between demographic groups.

Language arts achievement by gender.

The interaction effect for year by gender at Eagle Landing did not indicate significant differences in language arts GPA. Neither gender had a significant change in language arts GPA from year 1 to year 2.

The interaction effect for year by gender at Steinmont did not indicate significant differences in language arts GPA. Neither gender had a significant change in language arts GPA from year 1 to year 2.

Mathematics achievement by gender.

The interaction effect for year by gender at Eagle Landing did not indicate significant differences in mathematics GPA. Neither gender had a significant change in mathematics GPA from year 1 to year 2.

The interaction effect for year by gender at Steinmont did not indicate significant differences in mathematics GPA. Neither gender had a significant change in mathematics GPA from year 1 to year 2.

Science achievement by gender.

The interaction effect for year by gender at Eagle Landing indicated that there was a significant difference in science GPA from year 1 to year 2 based on gender ($F_{1, 237} = 4.372, p = 0.038$). A Tukey post-hoc follow up indicated that the mean science GPA for female students (3.18) was significantly higher than the mean science GPA for male students (2.85) (Tukey HSD = 0.172). However, since this difference is between genders rather than between years within the same gender, the difference is not relevant to the focus of the current study. This study examined change in academic achievement that coincides with implementation of SW-PBS. This study did not examine discrepancies in academic achievement between demographic groups.

The interaction effect for year by gender at Steinmont did not indicate significant differences in science GPA. Neither gender had a significant change in science GPA from year 1 to year 2.

Social studies achievement by gender.

The interaction effect for year by gender at Eagle Landing did not indicate significant differences in social studies GPA. Neither gender had a significant change in social studies GPA from year 1 to year 2.

The interaction effect for year by gender at Steinmont did not indicate significant differences in social studies GPA. Neither gender had a significant change in social studies GPA from year 1 to year 2.

Physical education achievement by gender.

The interaction effect for year by gender at Eagle Landing did not indicate significant differences in physical education GPA. Neither gender had a significant change in physical education GPA from year 1 to year 2.

The interaction effect for year by gender at Steinmont did not indicate significant differences in physical education GPA. Neither gender had a significant change in physical education GPA from year 1 to year 2.

Elective achievement by gender.

The interaction effect for year by gender at Eagle Landing did not indicate significant differences in elective GPA. Neither gender had a significant change in elective GPA from year 1 to year 2.

The interaction effect for year by gender at Steinmont did not indicate significant differences in elective GPA. Neither gender had a significant change in elective GPA from year 1 to year 2.

Overall achievement by gender.

The interaction effect for year by gender at Eagle Landing did not indicate significant differences in overall GPA. Neither gender had a significant change in overall GPA from year 1 to year 2.

The interaction effect for year by gender at Steinmont did not indicate significant differences in overall GPA. Neither gender had a significant change in overall GPA from year 1 to year 2.

Research Question 4 Additional Analyses by Gender

Pearson correlation coefficients were calculated for change in ISS days and change in each measure of academic achievement for each gender. The correlation coefficients are shown in Appendix D (see Tables D12 and D13). Correlation coefficients with an absolute value greater than or equal to 0.3 indicate at least a moderately strong relationship between the variables (Howell, 2008). Only those coefficients with an absolute value greater than or equal to 0.3 and found to be statistically significant at the 0.05 level are discussed here to provide focus for interpretation of the results.

At Eagle Landing none of the correlation coefficients calculated by gender met the above criteria. There was not a statistically significant, moderately strong relationship between change in ISS days and change in academic achievement for any subject area for either gender.

At Steinmont none of the correlation coefficients calculated by gender met the above criteria. There was not a statistically significant, moderately strong relationship

between change in ISS days and change in academic achievement for any subject area for either gender.

Research Question 5 Additional Analyses by Gender

Pearson correlation coefficients were calculated for change in OSS days and change in each measure of academic achievement for each gender. The correlation coefficients are shown in Appendix D (see Tables D14 and D15). Correlation coefficients with an absolute value greater than or equal to 0.3 indicate at least a moderately strong relationship between the variables (Howell, 2008). Only those coefficients with an absolute value greater than or equal to 0.3 and found to be statistically significant at the 0.05 level are discussed here to provide focus for interpretation of the results.

At Eagle Landing none of the correlation coefficients calculated by gender met the above criteria. There was not a statistically significant, moderately strong relationship between change in OSS days and change in academic achievement for any subject area for either gender.

At Steinmont none of the correlation coefficients calculated by gender met the above criteria. There was not a statistically significant, moderately strong relationship between change in OSS days and change in academic achievement for any subject area for either gender.

Additional Analyses by Socio-Economic Status

Research Question 1 Additional Analyses by Socio-Economic Status

At Eagle Landing the interaction effect for the two-factor (YearxSES Status) ANOVA for ISS days was not significant ($F_{2, 236} = 0.409, p = 0.665$). None of the SES

groups had a significant change in ISS days from year 1 to year 2. At Eagle Landing the main effect for ISS days was significant for socio-economic status ($F_{2, 236} = 4.016, p = 0.019$). A follow up Tukey post hoc identified the difference between mean ISS days for students receiving free lunch (1.26) and students paying full price for lunch (0.43) as significant. However, since this difference is between SES groups rather than between years within the same SES group, the difference is not relevant to the focus of the current study. This study examined the change in student behavior that coincides with implementation of SW-PBS. This study did not examine discrepancies in behavior between demographic groups.

At Steinmont the interaction effect for the two-factor (YearxSES Status) ANOVA for ISS days was not significant ($F_{2, 375} = 0.820, p = 0.441$). None of the SES groups had a significant change in ISS days from year 1 to year 2. At Steinmont the main effect for ISS days was significant for socio-economic status ($F_{2, 375} = 4.650, p = 0.010$). A follow up Tukey post hoc identified the difference between mean ISS days for Steinmont students receiving free lunch (1.00) and students who pay full price for lunch (0.43) as significant. However, since this difference is between SES groups rather than between years within the same SES group, the difference is not relevant to the focus of the current study. This study examined the change in student behavior that coincides with implementation of SW-PBS. This study did not examine discrepancies in behavior between demographic groups.

Research Question 2 Additional Analyses by Socio-Economic Status

At Eagle Landing the interaction effect for the two-factor (YearxSES Status) ANOVA for OSS days indicated a significant difference in OSS days from year 1 to year

2 based on SES status ($F_{2, 236} = 5.068, p = 0.007$). A follow-up Tukey post hoc identified which means were significantly different. Students receiving free lunch at Eagle Landing had a significantly lower mean OSS days in year 2 (0.38) than in year 1 (1.15) (Tukey HSD = 0.770). The differences in means for students paying full price for lunch or receiving reduced-price lunch were not significant.

At Steinmont the interaction effect for the two-factor (YearxSES Status) ANOVA for OSS days indicated a significant difference in OSS days from year 1 to year 2 based on SES status ($F_{2, 375} = 5.477, p = 0.005$). A follow-up Tukey post hoc identified which means were significantly different. Students receiving free lunch at Steinmont had a significantly higher mean OSS days (0.94) than students paying full price for lunch (0.23) (Tukey HSD = 0.501). Students receiving reduced price lunch at Steinmont had a significantly higher mean OSS days (1.03) than students paying full price for lunch (0.23) (Tukey HSD = 0.501). However, since these differences are between SES groups rather than between years within the same SES group, the differences are not relevant to the focus of the current study. This study examined the change in student behavior that coincides with implementation of SW-PBS. This study did not examine discrepancies in behavior between demographic groups.

Research Question 3 Additional Analyses by Socio-Economic Status

Two-factor (YearxSES Status) ANOVAs were used to analyze the change in GPA for each subject area (language arts, mathematics, science, social studies, physical education, and electives) and overall for each school. The interaction effect ANOVA results for GPA for each subject area and overall by SES status are included in Table D10 (see Appendix D). Only the results indicating significant differences are discussed here.

The main effect ANOVA results for GPA within demographic group are included in Table D11 (see Appendix D). There was one significant difference in GPA within demographic groups. The main effects for GPA are not discussed in detail because they are not relevant to the current study. This study examined change in academic achievement that coincides with implementation of SW-PBS. This study did not examine discrepancies in academic achievement between demographic groups.

Language arts achievement by socio-economic status.

The interaction effects for SES status at Eagle Landing did not indicate significant differences in language arts GPA. None of the SES groups had a significant change in language arts GPA from year 1 to year 2.

The interaction effects for SES status at Steinmont did not indicate significant differences in language arts GPA. None of the SES groups had a significant change in language arts GPA from year 1 to year 2.

Mathematics achievement by socio-economic status.

The interaction effects for SES status at Eagle Landing did not indicate significant differences in mathematics GPA. None of the SES groups had a significant change in mathematics GPA from year 1 to year 2.

The interaction effects for SES status at Steinmont did not indicate significant differences in mathematics GPA. None of the SES groups had a significant change in mathematics GPA from year 1 to year 2.

Science achievement by socio-economic status.

The interaction effects for SES status at Eagle Landing did not indicate significant differences in science GPA. None of the SES groups had a significant change in science GPA from year 1 to year 2.

The interaction effects for SES status at Steinmont did not indicate significant differences in science GPA. None of the SES groups had a significant change in science GPA from year 1 to year 2.

Social studies achievement by socio-economic status.

The interaction effects for SES status at Eagle Landing did not indicate significant differences in social studies GPA. None of the SES groups had a significant change in social studies GPA from year 1 to year 2.

The interaction effect for SES at Steinmont indicated that there was a significant difference in social studies GPA from year 1 to year 2 based on SES status ($F_{2, 368} = 3.851, p = 0.022$). A Tukey post hoc follow-up indicated that several differences were significant (Tukey HSD = 0.295). The mean social studies GPA for students paying full price for lunch (3.11) was significantly higher than the mean social studies GPA for students receiving reduced price lunch (2.61) and for students receiving free lunch (2.29). The mean social studies GPA for students receiving reduced price lunch (2.61) was significantly higher than the mean social studies GPA for students receiving free lunch (2.29). However, since these differences are all between SES groups rather than between years within the same SES group, the differences are not relevant to the focus of the current study. This study examined change in academic achievement that coincides with

implementation of SW-PBS. This study did not examine discrepancies in academic achievement between demographic groups.

Physical education achievement by socio-economic status.

The interaction effect for SES status at Eagle Landing indicated that there was a significant difference in physical education GPA from year 1 to year 2 based on SES status ($F_{2, 236} = 7.878, p = 0.000$). A Tukey post hoc follow-up indicated that students receiving free lunch had a significantly higher mean physical education GPA in year 2 (3.86) than in year 1 (3.69) (Tukey HSD = 0.127).

The interaction effects for SES status at Steinmont did not indicate significant differences in physical education GPA. None of the SES groups had a significant change in physical education GPA from year 1 to year 2.

Elective achievement by socio-economic status.

The interaction effects for SES status at Eagle Landing did not indicate significant differences in elective GPA. None of the SES groups had a significant change in elective GPA from year 1 to year 2.

The interaction effects for SES status at Steinmont did not indicate significant differences in elective GPA. None of the SES groups had a significant change in elective GPA from year 1 to year 2.

Overall achievement by socio-economic status.

The interaction effects for SES status at Eagle Landing did not indicate significant differences in overall GPA. None of the SES groups had a significant change in overall GPA from year 1 to year 2.

The interaction effects for SES status at Steinmont did not indicate significant differences in overall GPA. None of the SES groups had a significant change in overall GPA from year 1 to year 2.

Research Question 4 Additional Analyses by Socio-Economic Status

Pearson correlation coefficients were calculated for change in ISS days and change in each measure of academic achievement for each of the SES groups. The correlation coefficients are shown in Appendix D (see Tables D12 and D13). Correlation coefficients with an absolute value greater than or equal to 0.3 indicate at least a moderately strong relationship between the variables (Howell, 2008). Only those coefficients with an absolute value greater than or equal to 0.3 and found to be statistically significant at the 0.05 level are discussed here to provide focus for interpretation of the results.

At Eagle Landing three of the correlation coefficients for SES status met the above criteria. There was a moderately strong negative relationship between change in ISS days and change in language arts GPA for students receiving free lunch ($r = -0.555, p = 0.000$). For students receiving free lunch at Eagle Landing, as the number of ISS days decreased, the language arts GPA increased. There was a moderately strong negative relationship between change in ISS days and change in mathematics GPA for students receiving free lunch ($r = -3.90, p = 0.014$). For students receiving free lunch at Eagle Landing, as the number of ISS days decreased, the mathematics GPA increased. There was a moderately strong negative relationship between change in ISS days and change in overall GPA for students receiving free lunch ($r = -0.451, p = -0.004$). For students

receiving free lunch at Eagle Landing, as the number of ISS days decreased, the overall GPA increased.

At Steinmont none of the correlation coefficients for ethnicity met the above criteria. There was not a statistically significant, moderately strong relationship between change in ISS days and change in academic achievement for any subject area for any SES group.

Research Question 5 Additional Analyses by Socio-Economic Status

Pearson correlation coefficients were calculated for change in OSS days and change in each measure of academic achievement for each of the SES groups. The correlation coefficients are shown in Appendix D (see Tables D14 and D15). Correlation coefficients with an absolute value greater than or equal to 0.3 indicate at least a moderately strong relationship between the variables (Howell, 2008). Only those coefficients with an absolute value greater than or equal to 0.3 and found to be statistically significant at the 0.05 level are discussed here to provide focus for interpretation of the results.

At Eagle Landing none of the correlation coefficients calculated using data from each SES group met the above criteria. There was not a statistically significant, moderately strong relationship between change in OSS days and change in academic achievement for any subject area for any SES group.

At Steinmont two of the correlation coefficients calculated using data from each SES group met the above criteria. There was a moderately strong negative relationship between change in OSS days and change in mathematics GPA for students receiving free lunch ($r = -0.310, p = 0.008$). For students receiving free lunch at Steinmont, as the

number of OSS days decreased, the mathematics GPA increased. There was a moderately strong positive relationship between change in OSS days and change in physical education GPA for students receiving reduced-price lunch ($r = 0.482, p = 0.043$). For students receiving reduced-price lunch at Steinmont, as the number of OSS days decreased, the physical education GPA decreased.

Additional Analyses by Special Education Status

Research Question 1 Additional Analyses by Special Education Status

At Eagle Landing the interaction effect for the two-factor (YearxSPED Status) ANOVA for ISS days indicated that there was a significant difference in ISS days from year 1 to year 2 based on SPED status ($F_{1,237} = 4.687, p = 0.031$). A follow up Tukey post hoc was conducted to identify which means were significantly different. Students with IEP's at Eagle Landing had a significantly lower mean ISS days in year 2 (1.07) than in year 1 (2.18) (Tukey HSD = 0.940).

At Steinmont the interaction effect for the two-factor (YearxSPED Status) ANOVA for ISS days indicated that there was a significant difference in ISS days from year 1 to year 2 based on special education status ($F_{1,376} = 13.500, p = 0.000$). A follow up Tukey post hoc was conducted to identify which means were significantly different. Students with IEP's had significantly lower mean ISS days in year 2 (1.23) than in year 1 (2.23) (Tukey HSD = 0.490).

Research Question 2 Additional Analyses by Special Education Status

At Eagle Landing the interaction effect for the two-factor (YearxSPED Status) ANOVA for OSS days was not significant ($F_{1,237} = 1.800, p = 0.181$). Neither of the SPED groups had a significant change in OSS days from year 1 to year 2. At Eagle

Landing the main effect for OSS was significant based on SPED status ($F_{1, 237} = 19.611$, $p = 0.000$). Students with IEP's had a significantly higher mean OSS days (1.02) than students without IEP's (0.21). However, since this difference is between SPED groups rather than between years within the same SPED group, the difference is not relevant to the focus of the current study. This study examined the change in student behavior that coincides with implementation of SW-PBS. This study did not examine discrepancies in behavior between demographic groups.

At Steinmont the interaction effect for the two-factor (YearxSPED Status) ANOVA for OSS days was not significant ($F_{1, 376} = 2.335$, $p = 0.127$). Neither of the SPED groups had a significant change in OSS days from year 1 to year 2. At Steinmont the main effect for OSS was significant based on SPED status ($F_{1, 376} = 17.949$, $p = 0.000$). Students with IEP's had a significantly higher mean OSS days (1.13) than students without IEP's (0.32). However, since this difference is between SPED groups rather than between years within the same SPED group, the difference is not relevant to the focus of the current study. This study examined the change in student behavior that coincides with implementation of SW-PBS. This study did not examine discrepancies in behavior between demographic groups.

Research Question 3 Additional Analyses by Special Education Status

Two-factor (YearxSPED Status) ANOVAs were used to analyze the change in GPA for each subject area (language arts, mathematics, science, social studies, physical education, and electives) and overall for each school. The interaction effect ANOVA results for GPA for each subject area and overall by SPED status are included in Table

D10 (see Appendix D). Only the results indicating significant differences are discussed here.

The main effect ANOVA results for GPA within demographic group are included in Table D11 (see Appendix D). There were five significant differences in GPA based on SPED status. The main effects for GPA are not discussed in detail because they are not relevant to the current study. This study examined change in academic achievement that coincides with implementation of SW-PBS. This study did not examine discrepancies in academic achievement between demographic groups.

Language arts achievement by special education status.

The interaction effects for SPED status at Eagle Landing did not indicate significant differences in language arts GPA. Neither of the SPED groups had a significant change in language arts GPA from year 1 to year 2.

The interaction effect for SPED status at Steinmont indicated that there was a significant difference in language arts GPA from year 1 to year 2 based on SPED status ($F_{1,375} = 5.788, p = 0.017$). A Tukey post hoc follow-up indicated that students with IEP's had a significantly lower mean language arts GPA in year 2 (2.41) than in year 1 (2.66) (Tukey HSD = 0.158).

Mathematics achievement by special education status.

The interaction effects for SPED status at Eagle Landing did not indicate significant differences in mathematics GPA. Neither of the SPED groups had a significant change in mathematics GPA from year 1 to year 2.

The interaction effects for SPED status at Steinmont did not indicate significant differences in mathematics GPA. Neither of the SPED groups had a significant change in mathematics GPA from year 1 to year 2.

Science achievement by special education status.

The interaction effect for SPED status at Eagle Landing indicated that there was a significant difference in science GPA from year 1 to year 2 based on SPED status ($F_{1, 237} = 8.362, p = 0.004$). A Tukey post hoc follow-up indicated that mean science GPA for students without IEP's (3.10) was significantly higher than the mean science GPA for students with IEP's (2.43) (Tukey HSD = 0.266). However, since this difference is between SPED groups rather than between years within the same SPED group, the difference is not relevant to the focus of the current study. This study examined change in academic achievement that coincides with implementation of SW-PBS. This study did not examine discrepancies in academic achievement between demographic groups.

The interaction effect for SPED status at Steinmont indicated that there was a significant difference in science GPA from year 1 to year 2 based on SPED status ($F_{1, 368} = 4.144, p = 0.042$). A Tukey post hoc follow-up indicated that students without IEP's at Steinmont had a significantly lower mean science GPA in year 2 (2.93) than in year 1 (3.18) (Tukey HSD = 0.240).

Social studies achievement by special education status.

The interaction effect for SPED status at Eagle Landing indicated that there was a significant difference in social studies GPA from year 1 to year 2 based on SPED status ($F_{1, 237} = 11.937, p = 0.001$). A Tukey post hoc follow-up indicated that Eagle Landing

students without IEP's had a significantly lower social studies GPA in year 2 (3.10) than in year 1 (3.39) (Tukey HSD = 0.244).

The interaction effect for SPED status at Steinmont indicated that there was a significant difference in social studies GPA from year 1 to year 2 based on SPED status ($F_{1,369} = 4.217, p = 0.041$). A Tukey post hoc follow-up indicated that the mean social studies GPA for students without IEP's (3.25) was significantly higher than the mean social studies GPA for students with IEP's (2.65) (Tukey HSD = 0.220). However, since this difference is between SPED groups rather than between years within the same SPED group, the difference is not relevant to the focus of the current study. This study examined change in academic achievement that coincides with implementation of SW-PBS. This study did not examine discrepancies in academic achievement between demographic groups.

Physical education achievement by special education status.

The interaction effect for SPED status at Eagle Landing indicated that there was a significant difference in physical education GPA from year 1 to year 2 based on SPED status ($F_{1,237} = 4.067, p = 0.045$). A Tukey post hoc follow-up indicated that Eagle Landing students without IEP's had a significantly higher physical education GPA in year 2 (3.82) than in year 1 (3.70) (Tukey HSD = 0.085).

The interaction effects for SPED status at Steinmont did not indicate significant differences in physical education GPA. Neither of the SPED groups had a significant change in physical education GPA from year 1 to year 2.

Elective achievement by special education status.

The interaction effects for SPED status at Eagle Landing did not indicate significant differences in elective GPA. Neither of the SPED groups had a significant change in elective GPA from year 1 to year 2.

The interaction effects for SPED status at Steinmont did not indicate significant differences in elective GPA. Neither of the SPED groups had a significant change in elective GPA from year 1 to year 2.

Overall achievement by special education status.

The interaction effect for SPED status at Eagle Landing indicated that there was a significant difference in overall GPA from year 1 to year 2 based on SPED status ($F_{1,237} = 7.333, p = 0.007$). A Tukey post hoc follow-up indicated that Eagle Landing students with IEP's had a significantly higher overall GPA in year 2 (2.88) than in year 1 (2.72) (Tukey HSD = 0.138).

The interaction effects for SPED status at Steinmont did not indicate significant differences in overall GPA. Neither of the SPED groups had a significant change in overall GPA from year 1 to year 2.

Research Question 4 Additional Analyses by Special Education Status

Pearson correlation coefficients were calculated for change in ISS days and change in each measure of academic achievement for each of the demographic groups. The correlation coefficients are shown in Appendix D (see Tables D12 and D13). Correlation coefficients with an absolute value greater than or equal to 0.3 indicate at least a moderately strong relationship between the variables (Howell, 2008). Only those coefficients with an absolute value greater than or equal to 0.3 and found to be

statistically significant at the 0.05 level are discussed here to provide focus for interpretation of the results.

At Eagle Landing one of the correlation coefficients calculated using data from each SPED met the above criteria. There was a moderately strong negative relationship between change in ISS days and change in mathematics GPA for students with IEP's ($r = -0.383, p = 0.044$). For students with IEP's at Eagle Landing, as the number of ISS days decreased, the mathematics GPA increased.

At Steinmont one of the correlation coefficients calculated using data from each SPED group met the above criteria. There was a moderately strong negative relationship between change in ISS days and change in mathematics GPA for students with IEP's ($r = -0.334, p = 0.043$). For students with IEP's at Steinmont, as the number of ISS days decreased, the mathematics GPA increased.

Research Question 5 Additional Analyses by Special Education Status

Pearson correlation coefficients were calculated for change in OSS days and change in each measure of academic achievement for each of the demographic groups. The correlation coefficients are shown in Appendix D (see Tables D14 and D15). Correlation coefficients with an absolute value greater than or equal to 0.3 indicate at least a moderately strong relationship between the variables (Howell, 2008). Only those coefficients with an absolute value greater than or equal to 0.3 and found to be statistically significant at the 0.05 level are discussed here to provide focus for interpretation of the results.

At Eagle Landing one of the correlation coefficients calculated using data from each SPED group met the above criteria. There was a moderately strong positive

relationship between change in OSS days and change in elective GPA for students with IEP's ($r = 0.415$, $p = 0.035$). For students with IEP's at Steinmont, as the number of OSS days decreased, the elective GPA decreased.

At Steinmont none of the correlation coefficients calculated using data from each SPED group met the above criteria. There was not a statistically significant, moderately strong relationship between change in OSS days and change in academic achievement for any subject area for either SPED group.

This concludes presentation of the additional analyses for individual demographic groups. Interpretation of these findings and the findings for the aggregate groups are presented in the following chapter.

Summary

This chapter presented the findings of the study including descriptive statistics, hypothesis testing for the research questions. Also included in this chapter were additional analyses of the data disaggregated by demographic group.

The following chapter includes a summary of the study and interpretation of the findings. Chapter 5 also includes a comparison of the findings with previous research, implications for practice and recommendations for future research.

CHAPTER FIVE

INTERPRETATION AND RECOMMENDATIONS

Introduction

This final chapter provides a summary of the study. The problem, purpose, research questions, methodology, and findings of the study are reviewed. The findings also are discussed in the context of other literature in the field. The chapter concludes with implications for practice and recommendations for future research.

Study Summary

Overview of the Problem

The academic achievement and behavior of students are intricately interrelated (McIntosh, Horner, Chard, Dickey, & Braun, 2008; Nelson, Martella, & Marchand-Martella, 2002). For some students, the root of struggle in school is academic failure; for other students the root is disruptive behavior. The interventions and discipline systems utilized by schools have not provided students with long-term solutions to their struggles (Flanagain, 2007; OSEP, 2004). School-wide positive behavior supports (SW-PBS) models have been shown to hold promise for improving the outcomes for students (Nelson & Sugai, 1999). The findings of McIntosh (2008) suggest that resolution of the problem behavior will have a greater positive impact on academic achievement than the resolution of the academic struggles will have on the problem behavior. SW-PBS provides a structure in which the school staff commits to prevention of student behavior problems, tiers of support, and data-based decision making to influence student behavior at the system level (Horner & Sugai, 1999; Skiba & Sprague, 2008). Previous studies of the change in student academic achievement resulting from implementation of a SW-PBS

model have not adequately controlled for academic variables such as new textbooks or tutoring programs (Lassen, Steele, & Sailor, 2006; Luiselli, Putnam, Handler, & Feinberg, 2005; Nelson, Martella, & Marchand-Martella, 2002).

Purpose Statement and Research Questions

The study described in this paper was designed to investigate the behavioral and academic effects of implementing SW-PBS in the absence of changes in other academic variables. Through the study of a cohort of students at each of the two target middle schools, the purpose of the study was to determine the change in student suspension rates and academic achievement of students associated with the implementation a school-wide positive behavior supports model and the relationship between the change in suspension rates and change in academic achievement of the students.

Five research questions were investigated. The first three research questions considered the coincidence of change in student behavior and academic achievement with implementation of SW-PBS. The final two research questions looked into the relationship between change in student behavior and change in academic achievement.

Review of the Methodology

A cohort of students from each of two suburban middle schools in the Midwest, herein referred to by the pseudonyms Eagle Landing and Steinmont, were selected to represent the population of students attending schools implementing SW-PBS to improve student behavior. The students studied were members of a cohort of students who were seventh graders in the target school during the year prior to SW-PBS implementation, 2006-07, and eighth graders at the same school during the first year of SW-PBS implementation, 2007-08.

Days of formal assignment to in-school suspension (ISS) and out-of-school suspension (OSS) were utilized as the measures of student behavior. Suspensions were selected as the behavior measure because they indicate severe and/or chronic behavioral offenses by students (Lassen, Steele, & Sailor, 2006). Suspensions were also of interest because removal of the student from the classroom during the suspension results in lack of access to instruction (Morrison, Anthony, Storino, & Dillon, 2001; Raffaele-Mendez & Knoff, 2003). Removal from the classroom on a regular basis can perpetuate the cycle of failure for the student (McIntosh, Horner, Chard, Dickey, & Braun, 2008).

Grades earned by students in each subject area (language arts, mathematics, science, social studies, physical education and electives) and an overall grade point average served as the measures of academic achievement. Student grades are commonly accepted as a measure of academic achievement since grades report the quality of a student's work in a particular subject or class (Brookhart, 1994). Students in the target district receive distinct letter grades each quarter for each course rather than a cumulative grade for the semester or year. The researcher converted the letter grades into grade points (A = 4 points, B = 3 points, C = 2 points, D = 1 point, and F = 0 points) and calculated a grade point average (GPA) for each subject area and overall.

The data for the first three research questions, which investigated the difference in ISS days, OSS days, and grades from the year prior to SW-PBS implementation to the first year of implementation, were analyzed by two-factor analyses of variance (ANOVAs). Null hypotheses for each research question stated that the number of days of ISS, OSS, and each GPA, respectively were the same in 2006-07 and in 2007-08 at a 0.05 significance level. The main effect for year of the (YearxEthnicity) ANOVA for each

variable determined if there was a significant change in each variable for each student between the two years. The interaction effect of the (YearxEthnicity) ANOVA was used to address additional analyses for each question. Descriptive statistics for each variable were also calculated. The data for the fourth and fifth research questions, which investigated the relationship between change in number of ISS and OSS days, respectively, and academic achievement, were used to calculate Pearson correlation coefficients.

The analyses described above were also utilized to study the answers to each research question for individual demographic groups. Results were disaggregated by ethnicity, gender, socio-economic status (SES), and special education (SPED) status. The interaction effect of the two-factor (YearxGrouping) ANOVAs were utilized to conduct the analyses for the first three research questions. Post-hoc analyses utilizing Tukey's method for multiple comparisons identified where significant differences occurred between means when statistically significant differences were found. Pearson correlation coefficients were calculated for each demographic group for research questions four and five.

Major Findings

Research question 1.

No statistically significant difference was found in the number of days students were assigned to ISS between 2006-07, the year prior to SW-PBS implementation, and 2007-08, the first year of SW-PBS implementation, at Eagle Landing or Steinmont. Although the mean number of ISS days declined at both of the target schools, the decline was not statistically significant. The results of this study suggest that there is not a

change in the number of days students are assigned to ISS for individual students that coincides with the implementation of a SW-PBS model.

Research question 2.

No statistically significant difference was found in the number of days students were assigned to OSS between 2006-07, the year prior to SW-PBS implementation, and 2007-08, the first year of SW-PBS implementation, at Eagle Landing or Steinmont. Although the mean number of OSS days declined at both of the target schools, the decline was not statistically significant. The results of this study suggest that there is not a change in the number of days students are assigned to OSS for individual students that coincides with the implementation of a SW-PBS model.

Research Question 3

Mixed results were found for the change in subject area GPA and overall GPA between 2006-07 and 2007-08 at Eagle Landing and Steinmont. At Eagle Landing there was statistically significant improvement in language arts GPA and statistically significant decline in mathematics GPA and social studies GPA. At Eagle Landing there was not a statistically significant difference in science GPA, physical education GPA, elective GPA and overall GPA. At Steinmont there was statistically significant improvement in science GPA and statistically significant decline in mathematics GPA, elective GPA and overall GPA. At Steinmont there was not a statistically significant difference in language arts GPA, social studies GPA, and physical education GPA. As noted in the study assumptions section, the year prior to and the first year of SW-PBS implementation provided comparable learning experiences for students excluding changes that were a direct result of SW-PBS; no new academic interventions were

implemented, the only subject with new textbooks was Spanish, staff turnover was not unusual, and similar grading practices were in effect during both of the study years. The results of this study suggest mixed results for change in student academic achievement that coincides with the implementation of a school-wide positive behavior supports model. These results suggest that initial SW-PBS implementation alone is not related to immediate change in student academic achievement.

Research question 4.

Mixed results were found for the correlation between change in ISS days and change in subject area and overall GPA between 2006-07 and 2007-08 at Eagle Landing and Steinmont. At Eagle Landing there was a statistically significant negative correlation between change in ISS days and change in language arts GPA, mathematics GPA, and overall GPA. At Eagle Landing there was not a statistically significant correlation between change in ISS days and change in science GPA, social studies GPA, physical education GPA, and elective GPA. At Steinmont there was a statistically significant negative correlation between change in ISS days and change in mathematics GPA, elective GPA, and overall GPA. At Steinmont there was not a statistically significant correlation between change in ISS days and change in language arts GPA, science GPA, social studies GPA, and physical education GPA. In each of the areas where a statistically significant correlation was found, as the number of ISS days declined the GPA improved. Although several of the correlations were statistically significant, they do not suggest strong relationships. The results of this study suggest there is a weak negative relationship between change(s) in the number of days students are assigned to

in-school suspension and changes in student academic achievement, particularly in mathematics.

Research question 5.

Mixed results were found for the correlation between change in OSS days and change in subject area and overall GPA between 2006-07 and 2007-08 at Eagle Landing and Steinmont. At Eagle Landing there was a statistically significant negative correlation between change in OSS days and change in language arts GPA and physical education GPA. At Eagle Landing there was not a statistically significant correlation between change in OSS days and change in mathematics GPA, science GPA, social studies GPA, and elective GPA. At Steinmont there was a statistically significant negative correlation between change in OSS days and change in mathematics GPA, science GPA, and overall GPA. At Steinmont there was not a statistically significant correlation between change in OSS days and change in language arts GPA, social studies GPA, physical education GPA, and elective GPA. In each of the areas where a statistically significant correlation was found, as the number of OSS days declined the GPA improved. Although several of the correlations were statistically significant, they do not indicate strong relationships. The results of this study suggest there is a weak negative relationship between change(s) in the number of days students are assigned to out-of-school suspension and changes in student academic achievement.

Findings Related to the Literature

Suspensions

The rates of suspension found in the current study were lower than those found in previous studies. In the current study, approximately 17% of the students at each of the

target middle school were assigned to ISS for at least one day and approximately 10% of the target middle school students were assigned to OSS. These rates are much lower than the suspensions for 24% of middle school students found in the Raffaele-Mendez, Knoff, and Ferron (2002) study. The suspension rates found in the current study are in line with the expectations of Curwin, Mendler, and Mendler (2008) that approximately 10% of students chronically break school rules. The suspension rates in the current study exceed the expectation of McIntosh, Chard, Boland, and Horner (2006) that an effective prevention-based discipline system such as SW-PBS should create a school setting where approximately 20% of students will require specialized behavior support to exhibit the desired behaviors once the universal interventions have been successfully implemented. Successful implementation may require two to three years (Nersesian, Todd, Lehmann, & Watson, 2000). The findings of the current study seem to support the Nersesian study.

Although the results of this study suggest that there is not a change in the number of days students are assigned to ISS for individual students in the cohort, when examined in the context provided by the background information about each of the target schools (see pages 6-7 and 9-10), a coincidence of SW-PBS implementation and change in ISS days could be seen. The mean ISS days per student for the target cohort at Eagle Landing declined by 0.12 days from seventh grade to eighth grade. Although this decline was not statistically significant, it does stand in contrast to the increase of 0.48 days from seventh grade to eighth grade for the prior cohort of students for whom there was no SW-PBS implementation (see page 6). Similarly, the number of students in the target cohort at Eagle Landing receiving at least one day of ISS decreased from seventh grade to eighth grade by 3 students, but increased by 3 students in the prior cohort for whom there was

no SW-PBS implementation. At Steinmont, the mean ISS days per student for the target cohort declined by 0.11 days from seventh grade to eighth grade. Although this decline was not statistically significant, it also stands in contrast to the increase of 0.66 days from seventh grade to eighth grade for the prior cohort of students, for whom there was no SW-PBS implementation (see page 10). The number of students in the target cohort at Steinmont receiving at least one day of ISS decreased from seventh grade to eighth grade by 4 students, but increased by 50 students in the prior cohort for whom there was no SW-PBS implementation. In this context, the results suggest that implementation of SW-PBS does coincide with a decline in the number of days students are assigned to ISS.

Similar patterns were found in the comparison of the OSS data for the target cohorts at each school and the previous cohort at each school. At Eagle Landing, the decline in mean OSS days in the current study of 0.13 days from seventh grade to eighth grade was not statistically significant but stands in contrast to the increase of 0.10 days for the prior cohort for whom there was no SW-PBS implementation (see pages 6-7). The number of students in the target cohort at Eagle Landing receiving at least one day of OSS decreased from seventh grade to eighth grade by 6 students, but increased by 15 students in the prior cohort for whom there was no SW-PBS implementation.

At Steinmont, the decline in mean OSS days in the current study of 0.14 days was not statistically significant, but is in contrast to the increase of 0.45 days for the prior cohort for whom there was no SW-PBS implementation (see page 10). The number of students in the target cohort at Steinmont receiving at least one day of OSS decreased from seventh grade to eighth grade by 4 students, but increased by 37 students in the prior cohort for whom there was no SW-PBS implementation. In this context, the results

suggest that implementation of SW-PBS coincides with a decline in the number of days students are assigned to OSS.

Coincidence of SW-PBS implementation and decline in student suspensions in the current study supports the findings of previous studies (Luiselli, Putnam, Handler, & Feinberg, 2005; Nelson, Martella, & Marchand-Martella, 2002; Scott & Barrett, 2004; Warren, et al., 2006). In each of the previous studies, implementation of SW-PBS coincided with a decline in instances of problem behavior. The previous studies examined change in suspensions for the school populations rather than the change in suspensions for a cohort of students. In this regard, the current study extends the previous knowledge by examining the change for a cohort group of students. The previous studies indicated that implementation of SW-PBS will change the school environment; the current study suggests that implementation of SW-PBS may change the behavior patterns of groups of students.

Academic Achievement

The background provided by the overall GPA data for the prior cohort of students at each school provide context for interpreting the GPA results for the current study (see pages 7 and 10). The context provided by the prior cohort of students at Eagle Landing suggests that the decline of 0.02 points in overall GPA between seventh grade and eighth grade for the target cohort was not statistically significant but it is an improvement over the 0.20 point decline in overall GPA for the prior cohort for whom there was not SW-PBS implementation (see page 7). At Steinmont the decline of 0.15 points in overall GPA between seventh grade and eighth grade for the target cohort was not statistically significant but is similar to the 0.19 point decline in overall GPA for the prior cohort for

whom there was not SW-PBS implementation (see page 10). In this context, the GPA results suggest that there is potential for implementation of SW-PBS to coincide with some change in academic achievement.

The results of the correlations between change in suspension days and change in GPA in the current study further suggest that there is some relationship between implementation of SW-PBS and academic achievement. The current study found statistically significant, but weak, negative correlations between change in ISS days and change in several subject area and overall GPAs, as well as statistically significant, but weak, negative correlations between change in OSS days and change in several subject area and overall GPAs. In the current study, where statistically significant correlations were found, as the number of ISS days declined the GPA slightly improved.

The coincidence of a decline in incidences of problem behavior and improvements in student academic achievement with the implementation of SW-PBS in the current study is similar to that found in previous studies (Luiselli, Putnam, Handler, & Feinberg, 2005; Nelson, Martella, & Marchand-Martella, 2002). The previous studies of the relationship between implementation of SW-PBS and academic achievement found decreases in behavior incidences as measured by office discipline referrals and suspensions and increases in academic achievement as measured by standardized tests. The improvements in academic achievement in the previous studies were larger than those found in the current study. The previous studies implemented academic program changes simultaneously with the implemented behavioral program changes. Academic program changes in the previous studies included training for teachers on academic instructional strategies and reading tutoring. The target schools in current study

implemented behavioral program changes without making changes in the academic program. In this context, the results of the current study suggest that implementation of SW-PBS without implementation of academic program changes is not enough to influence significant academic improvement.

The timeframe of the current study may have contributed to the lack of a strong relationship between the change in behavioral and academic measures. Previous research on the cycle of school failure suggests that by middle school, behavioral and academic deficits for struggling students can be very severe. The link between academic struggle and behavior problems begins as early as kindergarten and intensifies as students move into higher grades and the work becomes more difficult (McIntosh, Horner, Chard, Boland, & Good, 2006; Putnam, Horner, & Algozzine, 2006). The lack of strong correlations in the current study suggest that the academic and behavioral deficits may be so severe that considerable improvement cannot be made in a single year. Additionally, previous SW-PBS research indicates it takes two to three years for a school to fully implement a comprehensive school-wide discipline system (Nersesian, Todd, Lehmann, & Watson, 2000). Study of the effects of SW-PBS at Eagle Landing and Steinmont in the first year of their SW-PBS implementation may not have provided enough time for more prominent results to be apparent.

Findings from the Additional Analyses

The research discussed in the review of literature in chapter 2 revealed patterns of disproportionate punishment of some groups of students. The additional analyses described in chapter 4 examined the data from the current study disaggregated by ethnicity, gender, socio-economic status, and special education status to determine the

extent to which the aggregate results for each target school for each research question are true for individual demographic groups.

Ethnicity

Suspensions by ethnicity.

The results of the additional analyses for ethnicity are similar to those for the aggregate cohorts at both target schools. No statistically significant differences were found in the suspension days for any of the ethnic groups between the two study years. The results of the current study provide a basis for further research by suggesting that ethnicity is not a factor in the coincidence of change in the number of days students are assigned to ISS or OSS with the implementation of a SW-PBS model.

Academic achievement by ethnicity.

In the current study, the findings related to academic achievement for the individual ethnic groups were similar to the findings for the aggregate target cohorts at both schools. At Eagle Landing none of the individual ethnic groups experienced a statistically significant change in mean GPA for any subject area or overall. At Steinmont, several ethnic groups experienced a statistically significant decline in GPA from seventh grade to eighth grade. The mean mathematics GPA declined for Asian students, Hispanic students, and multi-ethnic students. The mean overall GPA declined for multi-ethnic students. The decline in mathematics GPA from seventh grade to eighth grade for Asian, Hispanic, and multi-ethnic students at Steinmont is similar to, but greater than, the decline in mathematics GPA for the aggregate cohort at the school. Middle school mathematics marks a transition from computation-based elementary school mathematics to algebra. The decline in mathematics GPA could be related to the change

in content emphasis within the mathematics subject area. Without mathematics-specific GPA data from the previous cohort of Steinmont students, for whom there was no SW-PBS implementation, a conclusion cannot be drawn regarding the coincidence of SW-PBS implementation and change in mathematics achievement for individual ethnic groups.

The correlations between change in suspensions and change in GPA were mixed at both target schools. There were no statistically significant, moderately strong relationships between change in ISS days and change in GPA for any individual ethnic group at Eagle Landing. At Steinmont, four statistically significant, moderately strong negative relationships between change in ISS days and change in GPA were found for individual ethnic groups. As the number of ISS days declined for black students the elective GPA increased. As the number of ISS days declined for Hispanic students the language arts GPA, math GPA, and overall GPA increased. At Steinmont two statistically significant, strong negative relationships between change in ISS days and change in GPA were found. As the number of ISS days declined for American Indian students the language arts GPA and mathematics GPA increased. At Steinmont one statistically significant, strong positive relationship between change in ISS days and change in GPA was found. As the number of ISS days declined for American Indian students the science GPA also declined.

At Eagle Landing three statistically significant, moderately strong negative relationships between change in OSS days and change in GPA were found for the language arts GPA for black students, the physical education GPA and the elective GPA for Hispanic students. As the number of OSS days declined for black students the

language arts GPA increased. As the number of OSS days declined for Hispanic students the physical education GPA and elective GPA increased. At Steinmont four statistically significant, moderately strong negative relationship between change in OSS days and change in GPA were found. As the number of OSS days declined for Asian students the elective GPA increased. As the number of OSS days declined for Hispanic students the mathematics GPA and social studies GPA increased. As the number of OSS days declined for multi-ethnic students the physical education GPA increased. At Steinmont one statistically significant, strong negative relationship between change in OSS days and change in GPA was found. As the number of OSS day declined for American Indian students the science GPA increased. At Steinmont two statistically significant, strong positive relationships between change in OSS days and change in GPA were found. As the number of OSS days declined for American Indian students the language arts GPA and mathematics GPA also declined.

The improvement in grades in electives and physical education that coincided with a decrease in suspension days for the Hispanic students at Eagle Landing and the black, Asian, and multi-ethnic students at Steinmont could be due to the nature of grading in those courses. Grades in elective and physical education courses could be more heavily dependent on assessments that are graded objectively than grades in language arts, mathematics, science, and social studies courses. Grades in elective and physical education courses could also be more heavily dependent on class participation and therefore attendance. Decreased suspensions result in improved class attendance. Although grades in the core subject areas (language arts, mathematics, science, and social studies) are generally not as directly dependent on class attendance, the previous research

would suggest that improved class attendance due to decreased suspensions would result in improved grades because of the increase in instructional time to which the student has access (Morrison, Anthony, Storino, & Dillon, 2001; Raffaele-Mendez & Knoff, 2003).

The results of the additional analyses in this study suggest the relationship between change(s) in the number of days students are assigned to in-school suspension or out-of-school suspension and changes in student academic achievement is more evident for black, Hispanic, multi-ethnic, and American Indian students than for the aggregate school population. For all of the ethnic groups, the number of students included in the group is rather small. Other than the white group at each school, the largest individual ethnic groups are the black and Hispanic groups at Steinmont, which each contain 35 students. In small groups each student has a great impact on the mean and the correlation coefficient (Agresti & Finlay, 2009). The relative strength of the correlation coefficients for the black, Hispanic, multi-ethnic, and American Indian groups in comparison to the correlation coefficients for the aggregate group could be due to the small group sizes.

Gender

Suspensions by gender.

The results of the additional analyses for gender are similar to those for the aggregate target cohorts at both schools. The only statistically significant change in suspension days for either gender was found for OSS days for male students at Steinmont. Male students at Steinmont experienced a statistically significant decrease in OSS days from seventh grade to eighth grade. The results of the current study provide a basis for further research by suggesting that gender is not a factor in the coincidence of

change in the number of days students are assigned to ISS or OSS with the implementation of a SW-PBS model.

Academic achievement by gender.

The current study found no significant results for academic achievement based on gender. There were no statistically significant differences in the subject area or overall GPAs for either gender at either of the target schools. There were no statistically significant, moderately strong correlations between the change in ISS or OSS days and the change in subject area or overall GPAs for either gender at either of the target schools. The results of the current study provide basis for further research by suggesting that gender is not a factor in the coincidence of change in academic achievement and implementation of SW-PBS and that gender is not a factor in the relationship between change in the number of days students are assigned to ISS or OSS and changes in student academic achievement.

Socio-Economic Status

Suspensions by socio-economic status.

In the current study, the findings related to coincidence of change in suspension days and implementation of SW-PBS were similar to the findings for the aggregate target cohorts at both schools. The only socio-economic group in the current study to experience a statistically significant change in suspensions was the group of students receiving free lunch at Eagle Landing. The mean number of days students receiving free lunch at Eagle Landing were assigned to OSS declined from seventh grade to eighth grade. The results of the current study provide a basis for further research by suggesting

that socio-economic status is not a factor in the coincidence of change in student behavior and implementation of SW-PBS.

Academic achievement by socio-economic status.

The current study found mixed results for academic achievement based on socio-economic status. The only statistically significant difference in subject area or overall GPA for a socio-economic group was found for students receiving free lunch at Eagle Landing. The physical education GPA for students receiving free lunch at Eagle Landing increased from seventh grade to eighth grade. At Steinmont none of the SES groups experienced a statistically significant change in mean GPA for any subject area or overall.

The correlations between change in suspensions and change in GPA were mixed at the target schools. At Eagle Landing three statistically significant, moderately strong negative relationships between change in ISS days and change in GPA were found for individual SES groups. As the number of ISS days declined for students receiving free lunch the language arts GPA, mathematics GPA, and overall GPA increased. There were no statistically significant, moderately strong relationships between change in ISS days and change in GPA for any individual SES group at Steinmont. There were no statistically significant, moderately strong relationships between change in OSS days and change in GPA for any individual SES group at Eagle Landing. At Steinmont one statistically significant, moderately strong negative relationship between change in OSS days and change in GPA was found for individual SES groups. As the number of ISS days declined for students receiving free lunch the mathematics GPA increased. At Steinmont one statistically significant, moderately strong positive relationship between

change in OSS days and change in GPA was found for individual SES groups. As the number of ISS days declined for students receiving reduced-price lunch the physical education GPA also declined. As stated related to the results by ethnicity, the previous research would suggest that improved class attendance due to decreased suspensions would result in improved grades because of the increase in instructional time to which the student has access (Morrison, Anthony, Storino, & Dillon, 2001; Raffaele-Mendez & Knoff, 2003). Improved access to instructional time could be especially relevant to the mathematics correlations at both schools since skill development in mathematics is very sequential. The physical education result for students receiving reduced-price lunch does not follow the premise that improved attendance would result in improved grades. Additional study would be required to determine if the finding of a positive relationship between change in OSS days and change in GPA for students receiving reduced-price lunch is an anomaly or if there is a unique characteristic in this relationship.

The results of the additional analyses in this study suggest the relationship between change(s) in the number of days students are assigned to in-school suspension or out-of-school suspension and changes in student academic achievement is more evident for students who receive free lunch than for the aggregate school population. The higher rate of suspension for students receiving free lunch could be a factor in the greater relationship between change in behavior and change in academic achievement for these students than the aggregate population. The difference between suspension rates for students receiving free lunch and their peers paying full price for lunch was statistically significant at Eagle Landing for ISS and at Steinmont for both ISS and OSS. The relative strength of the correlation coefficients for students receiving free lunch in comparison to

the correlation coefficients for the aggregate group could be due to the small group sizes of 39 students at Eagle Landing and 73 students at Steinmont.

Special Education Status

Suspensions by special education status.

In the current study several statistically significant differences were found for groups based on special education status. The mean number of ISS days for students with IEP's decreased significantly between seventh grade and eighth grade at both of the target schools. At Eagle Landing the mean number of ISS days for students with IEP's (N = 28) decreased from seventh grade to eighth grade. At Steinmont the mean number of ISS days for students with IEP's (N = 28) decreased from seventh grade to eighth grade. There were not statistically significant differences in the mean number of OSS days for students based on special education status at either of the target schools. The results of the current study suggest special education status is a factor in the coincidence of the number of days students are assigned to ISS with implementation of SW-PBS. However, the results of the current study provide a basis for further research by suggesting that special education status is not a factor in the coincidence of the number of days students are assigned to OSS with implementation of SW-PBS.

Academic achievement by special education status.

In the current study, the findings related academic achievement based on special education status were similar to the findings for the aggregate target cohorts at both schools. At Eagle Landing students without IEP's experienced a statistically significant decline in social studies GPA and an increase in physical education GPA from seventh grade to eighth grade. At Eagle Landing students with IEP's experienced a statistically

significant increase in overall GPA from seventh grade to eighth grade. The mean GPA of students with IEP's increased in every subject area except mathematics and electives from seventh grade to eighth grade. Although the individual subject area GPA improvements were not statistically significant, the combined impact of each improvement on the overall GPA produced a statistically significant change in the mean overall GPA for students with IEP's. At Steinmont students without IEP's experienced a statistically significant decline in science GPA from seventh grade to eighth grade. At Steinmont students with IEP's experienced a statistically significant decline in language arts GPA from seventh grade to eighth grade. The eighth grade language arts curriculum in the target schools places a greater emphasis on writing than the seventh grade curriculum, including the completion of a research paper. The decline in language arts GPA for students with IEP's could be a result of the change in emphasis on writing.

The correlations between change in suspensions and change in GPA were mixed at the target schools. At Eagle Landing one statistically significant, moderately strong negative relationship between change in ISS days and change in GPA was found for individual SPED groups. As the number of ISS days declined for students with IEP's the mathematics GPA increased. At Steinmont one statistically significant, moderately strong negative relationship between change in ISS days and change in GPA was found for individual SPED groups. As the number of ISS days declined for students with IEP's the mathematics GPA increased. At Eagle Landing one statistically significant, moderately strong positive relationship between change in OSS days and change in GPA was found for individual SPED groups. As the number of OSS days declined for students with IEP's the elective GPA also declined. There were no statistically significant,

moderately strong relationships between change in OSS days and change in GPA for individual SPED groups at Steinmont. As stated related to the results by ethnicity and socio-economic status, the previous research would suggest that improved class attendance due to the significant decrease in suspensions would result in improved grades because of the increase in instructional time to which the student has access (Morrison, Anthony, Storino, & Dillon, 2001; Raffaele-Mendez & Knoff, 2003). Improved access to instructional time could be especially relevant to the mathematics correlations at both schools since skill development in mathematics is very sequential and students with special needs often require additional time to master mathematics skills.

The results of the additional analyses in this study suggest that special education status is not a factor in the coincidence of change in academic achievement and implementation of SW-PBS and that special education status is not a factor in the relationship between change in the number of days students are assigned to ISS or OSS and changes in student academic achievement.

Disproportionate Punishment of Demographic Groups

Although the research questions for the current study did not require comparison of suspension rates between demographic groups, the two-factor ANOVAs provided results related to differences in ISS and OSS rates between demographic groups. The findings of this study supported the findings of previous studies that black students, male students, students from poverty, and students with disabilities are suspended at a higher rate than their peers (see Appendix D, Tables D1 and D2) (Brooks, Schiraldi, & Ziedenberg, 2000; Raffaele-Mendez, Knoff, and Ferron, 2002; Skiba, Michael, Nardo, & Peterson, 2002; Washington Research Project, 1975). Initial implementation of SW-PBS

made some improvement in the suspension rates of some of these groups of students, but significant discrepancies remain. Additional efforts, possibly the secondary and tertiary interventions and accompanying staff development to be implemented in subsequent years of SW-PBS, are necessary to reduce the discrepancies between groups.

Conclusions

Implications for Action

The findings of the study described in this paper have several implications for practitioners who are searching for solutions to problems in student behavior and/or student academic achievement. The study results provide insight into possible solutions, as well as indications that additional solutions may be required.

Schools seeking to lower their rates of problem behavior should consider implementing a SW-PBS system. Previous studies have shown the potential of SW-PBS to decrease incidences of problem behavior in an implementing school (Luiselli, Putnam, Handler, & Feinberg, 2005; Nelson, Martella, & Marchand-Martella, 2002; Scott & Barrett, 2004; Warren, et al., 2006). While there were not significant changes in the suspension rates for the cohort of students in the current study, the lack of increase in suspensions was an improvement compared to the prior cohort of students at the target schools. This finding suggests that implementation of SW-PBS can improve not only the behavioral conditions in the school for students and staff but also the behavioral patterns of cohort groups of students. The initial focus of the faculties of both target schools on development of common expectations and language regarding student and staff behavior and teaching the expectations to students, as well as universal interventions directed at identified behavior needs within the building, created school environments where

behavior patterns were altered. Previous studies have shown a tendency for problem behaviors to increase as students progress through middle school (Florida State Department of Education, 1995; Tobin & Sugai, 1996). The potential of SW-PBS to prevent an increase in problem behavior for a particular group of students suggested by the findings of the current study adds to the evidence provided by previous studies of the effectiveness of SW-PBS.

Implementation of a SW-PBS system alone is not sufficient to bring about significant improvement in student academic achievement. The findings of this study suggest that some change in student academic achievement results from the initial implementation of a SW-PBS system designed to lower rates of problem behavior; however, the changes in academic achievement for the target cohorts were not all positive and were not especially strong. The additional analyses suggest that SW-PBS does not affect the academic achievement of smaller students groups defined by demographic characteristics differently than its implementation affects the aggregate group. The findings related to change in academic performance coinciding with SW-PBS implementation and the correlations between change in behavior and change in academic achievement for groupings based on ethnicity, gender, socio-economic status, and special education status were similar to the results for the aggregate cohorts. Previous studies of SW-PBS that found significant improvement in student academic achievement when the initial implementation of SW-PBS included academic program support initiatives simultaneous with the SW-PBS implementation (Luiselli, Putnam, Handler, & Feinberg, 2005; Nelson, Martella, & Marchand-Martella, 2002). The Luiselli (2005) study also included training for teachers on classroom instructional strategies. Academic program

changes and pedagogical staff development seem to be necessary to affect significant change in student academic achievement.

Recommendations for Future Research

The study described in this paper was limited to a two-year study of a cohort of students in two schools during the initial implementation of SW-PBS. Trends cannot be established over two years. Longer term study would be needed to identify trends in student behavior and/or academic achievement that coincide with the implementation of SW-PBS. A longer-term study, examining the behavior and academic achievement of a single cohort of students through multiple school years would extend the research conducted here. An alternative would be to formally compare the behavior and academic achievement of several consecutive cohorts of students within a school. Control of all academic program variables over a longer period of time would be very difficult. Longer term studies would need to track changes in academic programs and attempt to interpret the changes in behavior and academic achievement in the context of both the SW-PBS implementation and the academic program changes.

This study found similar results for the impact of SW-PBS implementation on student behavior and academic achievement for individual demographic groups as for the aggregate cohorts. Longer term studies should include analysis of trends in individual demographic groups to determine if demographic characteristics of students are factors in the impact of SW-PBS implementation on student behavior and academic achievement. Analysis of trends in individual demographic groups should also investigate whether longer-term implementation of SW-PBS decreases the disproportionate rates of behavioral infractions and punishments that were found for individual demographic

groups in the current study and previous studies (Brooks, Schiraldi, & Ziedenberg, 2000; Rafaelle-Mendez, Knoff, and Ferron, 2002; Skiba, Michael, Nardo, & Peterson, 2002; Washington Research Project, 1975).

The target schools in the study described in this paper were middle schools serving students in grades 7 and 8. The behavioral and academic results may be different in a school arrangement where students attend the school for more than two years or in another level of school. Further research on the change in student behavior and student academic achievement is needed in SW-PBS schools with other middle school arrangements (i.e., grades 6-8, grades 5-7, grades 7-9, etc.) and other school levels (i.e., elementary school or high school).

In-school and out-of-school suspensions were selected as the behavioral measures for the study described in this paper due to the severity of behavioral infraction indicated by employment of suspension as a punishment. However, in-school suspensions and out-of-school suspensions are assigned for a variety of offenses. The current study examined the change in assignment of suspensions and the relationship between change in suspension days and change in academic achievement, but this research project did not study the change in the types of behavioral offenses committed by students. Further study that examines the change in specific behavioral offenses committed by students and the relationship between the change in specific behavioral offenses and change in academic achievement could provide more direction to schools as they work to reduce specific behavior and academic problems. Examination of the specific behavioral offenses committed by students should also include study of trends over several years to

determine the extent to which staff members have standardized the behaviors for which students are referred to the office after multiple years of SW-PBS implementation.

The current study utilized suspension data as the only measure of student behavior in the analysis of the relationship between student behavior and student academic achievement. Future studies should consider examination of both suspension data and office discipline referral data as measures of student behavior. The combined analysis of suspension data, office discipline referral data, and academic achievement data in schools implementing SW-PBS could provide additional insight into the relationship between SW-PBS implementation and the academic achievement of students.

The interpretation of the results of some of the additional analyses for ethnicity in the current study were limited because of the small group size for several of the ethnic groups. In the small groups, the data for a single student had a great ability to influence the results of the ANOVAs and correlations (Agresti & Finlay, 2009). Future research utilizing similar methodology should consider grouping together small demographic groups to improve the quality of the results. Alternately, future research could utilize qualitative methodology to investigate patterns in behavior and academic achievement of students in small demographic groups.

Concluding Remarks

The findings of this study and the previous literature on the connection between the academic achievement and behavior of students suggest that implementation of SW-PBS can affect the behavior of students and to some extent their academic achievement, but that the connection may be so strong that problems in one area cannot be solved without also addressing the problems in the other area. The task before us as educators is

to solve both types of problems to aide our students in reaching their potential. The findings of this study, while mixed, lend support to the findings of others that school-wide positive behavior supports holds promise as a portion of that solution, but it is not sufficient as a lone solution to breaking the cycle of behavioral and academic failure of students.

REFERENCES

- Agresti, A., & Finlay, B. (2009). *Statistical Methods for the Social Sciences* (4th ed.). Upper Saddle River, NJ: Pearson Prentice Hall.
- Baker, P. H. (2005). Managing student behavior: How ready are teacher to meet the challenge? *American Secondary Education*, 33(3), 51-64.
- Boynton, M., & Boynton, C. (2005). *The educator's guide to preventing and solving discipline problems*. Alexandria, VA: Association for Supervision and Curriculum Development.
- Bradshaw, C. P., O'Brennan, L. M., & McNeely, C. A. (2008). Core competencies and the prevention of school failure and early school leaving. In N. G. Guerra & C. P. Bradshaw (Eds.), *Core competencies to prevent problem behaviors and promote positive youth development*. *New Directions for Child and Adolescent Development*, 122, 19-32.
- Brooks, K., & Schiraldi, V., & Ziedenberg, J. (1999). *School house hype: Two years later*. San Francisco, CA: Center on Juvenile and Criminal Justice. [on-line]. Available: www.cjcj.org.
- Brookhart, S. M. (1994). Teachers' grading: Practice and theory. *Applied Measurement in Education*, 7(4), 279-301.
- Brownell, M. T., & Waltber-Thomas, C. (2001). An interview with Stephen W. Smith: Strategies for building a positive classroom environment by preventing behavior problems. *Intervention in School and Clinic*, 37(1), 31-35.

- Buffum, A., Mattos, M., & Weber, C. (2009). *Pyramid response to intervention: RTI, professional learning communities, and how to respond when students don't learn*. Bloomington, IN: Solution Tree.
- Cloud, M., & Kritsonis, W. A. (2006). *National agenda: Alternative discipline consequences to enhance student achievement*. Prairie View, TX: Prairie View A & M University. (ERIC No. ED492135).
- Colvin, G., & Kameenui, E. J. (1993). Reconceptualizing behavior management and school-wide discipline in general education. *Education and Treatment of Children, 16*(4), 361-381.
- Curwin, R. L., Mendler, A. N., & Mendler, B. D. (2008). *Discipline with dignity: New challenges, new solutions* (3rd ed.). Alexandria, VA: Association for Supervision and Curriculum Development.
- Doolittle, J. H., Horner, R. H., Bradley, R., Sugai, G., & Vincent, C. G. (2007). Importance of student social behavior in the mission statements, personnel preparation standards, and innovation efforts of state departments of education. *The Journal of Special Education, 40*(4), 239-245.
- Dwyer, K., Osher, D., & Warger, C. (1998). *Early warning, timely response: A guide to safe schools*. Washington, D.C.: U. S. Department of Education.
- Eidle, K. A., Boyd, T., Truscott, S. D., & Meyres, J. (1998). The role of prereferral intervention teams in early intervention and prevention of mental health problems. *School Psychology Review, 27*(2), 204-216.

- Flanagain, W. C. (2007). *A survey—The negative aspects of in and out of school suspensions and alternatives that promote academic achievement*. (Doctoral course project). Marygrove College. (Retrieved from ERIC).
- Florida State Department of Education. (1995). *Florida school discipline study: 1994 juvenile justice reform act. A report to the Florida legislature*. Tallahassee, FL: Author.
- Freeman, R., Eber, L., Anderson, C., Irvin, L., Horner, R., Bounds, M., & Dunlap, G. (2006). Building inclusive school cultures using school-wide positive behavior support: Designing effective individual support systems for students with significant disabilities. *Research and Practice for Persons with Severe Disabilities, 31*(1), 4-17.
- Gall, J. P., Gall, M. D., & Borg, W. R.. (2005). *Applying educational research: A practical guide* (5th ed.). Boston, MA: Pearson Prentice Hall.
- Garrison-Harrell, L., & Lewis, T. J. (1999). Extending school-wide systems of support to nonclassroom settings. In T. J. Lewis & G. Sugai (Ed.) *What works for children and youth with E/BD: Linking yesterday and today with tomorrow: Safe schools: School-wide discipline practices*. (pp. 13-18). Reston, VA: The Council for Children with Behavioral Disorders.
- George, H. P., & Kincaid, D. K. (2008). Building district-level capacity for positive behavior support. *Journal of Positive Behavior Interventions, 10*(1), 20-32.
- George, H.P. & Martinez, S.A. (2007). How to get PBS in my school. *OSEP Technical Assistance Center on Positive Behavioral Interventions and Supports* (Vol. 4).

Retrieved from: <http://www.pbis.org/news/New/Newsletters/Newsletter5.aspx>,
February 7, 2010/

- Horner, R., & Sugai, G. (1999). Developing positive behavioral support systems. In L. M. Bullock, & R. A. Gable (Series Ed.) & G. Sugai, & T. J. Lewis (Vol. Ed.), *Developing positive behavioral support for students with challenging behaviors, from the third CCBD mini-library series, What works for children and youth with E/BD: Linking yesterday and today with tomorrow*. (pp. 15-23). Reston, VA: The Council for Exceptional Children.
- Howell, D. C. (2008). *Fundamental statistics for the behavioral sciences* (6th ed.). Belmont, CA: Thomson.
- Hunter, M. (1982). *Mastery teaching*. El Segundo, CA: TIP Publications.
- Kellam, S. G., Mayer, L. S., Rebok, G. W., & Hawkins, W. E. (1998). Effects of improving achievement on aggressive behavior and of improving aggressive behavior on achievement through two preventive interventions: An investigation of causal paths. In B. P. Dohrenwend (Ed.), *Adversity, stress, and psychopathology*. (pp. 486-505). New York: Oxford University Press.
- Lassen, S., Steele, M., & Sailor, W. (2006). The relationship of school-wide positive behavior support to academic achievement in an urban middle school. *Psychology in the Schools*, 43(6), 701-712.
- Lewis-Palmer, T. (1999). Developing positive school-wide discipline systems. In T. J. Lewis, & G. Sugai (Ed.), *What works for children and youth with E/BD: Linking yesterday and today with tomorrow: Safe schools: School-wide discipline*

practices. (pp. 5-12). Reston, VA: The Council for Children with Behavioral Disorders.

Lippman, L., Burns, S., & McArthur, E. K. (2006). *Urban schools: The challenge of location and poverty, NCES 96-184.* Washington, DC: U. S. Department of Education, National Center for Education Statistics.

Lohrmann, S., Forman, S., Martin, S., & Palmieri, M. (2008). Understanding school personnel's resistance to adopting schoolwide positive behavior support at a universal level of intervention. *Journal of Positive Behavior Intervention, 10*(4), 256-269.

Luiselli, J. K., Putnam, R. F., Handler, M. W., & Feinberg, A. B. (2005). Whole-school positive behavior support: Effects on student discipline problems and academic performance. *Educational Psychology, 25*(2-3), 183-198.

Luiselli, J. K., Putnam, R. F., & Sunderland, M. (2002). Longitudinal evaluation of behavior support intervention in a public middle school. *Journal of Positive Behavior Interventions, 4*(3), 182-188.

Maag, J. W. (2001). Rewarded by punishment: reflections on the disuse of positive reinforcement in schools. *Exceptional Children, 67*(2), 173-186.

Marzano, R. J., Pickering, D. J., & Pollock, J. E. (2001). *Classroom instruction that works: Research-based strategies for increasing student achievement.*

Alexandria, VA: Association for Supervision and Curriculum Development.

Marzano, R. J. (2003). *What works in schools: Translating research into action.*

Alexandria, VA: Association for Supervision and Curriculum Development.

- Mayer, M. J., & Patriarca, L. A. (2007). Behavioral scripts and instructional procedures for students with learning and behavioral problems. *Preventing School Failure, 52*(1), 3-12.
- McFadden, A. C., & Marsh II, G. E. (1992). A study of race and gender bias in the punishment of school children. *Education and Treatment of Children, 15*(2), 140-147.
- McIntosh, K., Chard, D. J., Boland, J. B., & Horner, R. H. (2006). Demonstration of combined efforts in school-wide academic and behavioral systems and incidence of reading and behavior challenges in early elementary grades. *Journal of Positive Behavior Interventions, 8*(3), 146-154.
- McIntosh, K., Flannery, K. B., Sugai, G., Braun, D., & Cochrane, K. (2008). Relationships between academics and problem behavior in the transition from middle school to high school. *Journal of Positive Behavior Interventions, 10*(4), 243-255.
- McIntosh, K., Horner, R. H., Chard, D. J., Boland, J. B., & Good III, R. H. (2006). The use of reading and behavior screening measures to predict nonresponse to school-wide positive behavior support: A longitudinal analysis. *School Psychology Review, 35*(2), 275-291.
- McIntosh, K., Horner, R. H., Chard, D. J., Dickey, C. R., & Braun, D. H. (2008). Reading skills and function of problem behavior in typical school settings. *The Journal of Special Education, 42*(3), 131-147.

- McMillan, J. H., Myran, S., & Workman, D. (2002). Elementary teachers' classroom assessment and grading practices. *The Journal of Educational Research, 95*(4), 203-214.
- Morrison, G. M., Anthony, S., Storino, M., & Dillon, C. (2001). An examination of the disciplinary histories and the individual and educational characteristics of students who participate in an in-school suspension program. *Education and Treatment of Children, 24*(3), 276-293.
- Nelson, J. R. (1996). Designing schools to meet the needs of students who exhibit disruptive behavior. *Journal of Emotional and Behavioral Disorders, 4*(3), 147-161.
- Nelson, J. R. (1997). Designing schools to enhance the academic and social outcomes of all students. In *Annual Meeting of the National Association of School Psychologists*. Washington, D.C.: Department of Education.
- Nelson, J. R., Martella, R., & Galand, B. (1998). The effects of teaching school expectations and establishing consistent consequence on formal office disciplinary actions. *Journal of Emotional and Behavioral Disorders, 6*(3), 153-161.
- Nelson, J. R., Martella, R. M., & Marchand-Martella, N. (2002). Maximizing student learning: The effects of a comprehensive school-based program for preventing problem behaviors. *Journal of Emotional and Behavioral Disorders, 10*(3), 136-148.
- Nelson, R., & Sugai, G. (1999). School-wide application of positive behavioral supports. In L. M. Bullock & R. A. Gable (Series Ed.) & G. Sugai & T. J. Lewis

(Vol. Ed.), *Developing positive behavioral support for students with challenging behaviors, from the third CCBD mini-library series, what works for children and youth with E/BD: Linking yesterday and today with tomorrow.* (pp. 25-34).

Reston, VA: The Council for Exceptional Children.

Nersesian, M., Todd, A. W., Lehmann, J., & Watson, J. (2000). School-wide behavior support through district level system change. *Journal of Positive Behavior Interventions, 2*(4), 244-247.

Obenchain, K. M., & Taylor, S. S. (2005). Behavior management: Making it work in middle and secondary schools. *The Clearing House, 79*(1), 7-11.

Office of Special Education Programs (OSEP), U. S. Department of Education Center on Positive Behavioral Interventions and Supports. (2004). *School-wide positive behavior support: Implementers' blueprint and self-assessment.* Eugene, OR: University of Oregon.

Putnam, R. F., Horner, R. H., & Algozzine, R. (2006). Academic achievement and the implementation of school-wide behavior support. *Positive Behavioral Interventions and Supports Newsletter* [newsletter], 3(1). Retrieved August 8, 2008, from <http://www.pbis.org/news/New/Newsletters/Newsletter1.aspx>.

Raffaele-Mendez, L. M., & Knoff, H. M. (2003). Who gets suspended from school and why: A demographic analysis of schools and disciplinary infractions in a large school district. *Education and Treatment of Children, 26*(1), 30-51.

Raffaele-Mendez, L. M., Knoff, H. M., & Ferron, J. M. (2002). School demographic variables and out-of-school suspension rates: A quantitative and qualitative

analysis of a large, ethnically diverse school district. *Psychology in the Schools*, 39(3), 259-277.

- Rosenberg, M. S., & Jackman, L. A. (2003). Development, implementation, and sustainability of comprehensive school-wide behavior management systems. *Intervention in School and Clinic*, 39(1), 10-21.
- Sadler, C., & Sugai, G. (2009). Effective behavior and instructional support: A district model for early identification and prevention of reading and behavior problems. *Journal of Positive Behavior Interventions*, 11(1), 35-46.
- Samuels, C. A. (2009). Restraint, Seclusion of Students Attracting New Scrutiny. *Education Week*, 28 (29), 6.
- Sandomierski, T., Kincaid, D., & Algozzine, B. (2007). Response to intervention and positive behavior support: Brothers from different mothers or sisters with different misters? *Newsletter of the OSEP Center on Positive Behavioral Interventions and Supports* [newsletter], 4(2). Retrieved August 29, 2008 from <http://www.pbis.org/news/Newsletters/Newsletter4-2.aspx>.
- Scott, T. M., Anderson, C. M., & Spaulding, S. A. (2008). Strategies for developing and carrying out functional assessment and behavior intervention planning. *Preventing School Failure*, 52(3), 39-49.
- Scott, T. M., & Barrett, S. B. (2004). Using staff and student time engaged in disciplinary procedures to evaluate the impact of school-wide PBS. *Journal of Positive Behavior Interventions*, 6(1), 21-27.

- Scott, T. M., & Caron, D. B. (2005). Conceptualizing functional behavior assessment as prevention practice within positive behavior support systems. *Preventing School Failure, 50*(1), 13-20.
- Seifert, T. L. (2004). Understanding student motivation. *Educational Research, 46*(2), 137-149.
- Simonsen, B., Sugai, G., & Negron, M. (2008). Schoolwide positive behavior supports: Primary systems and practices. *Teaching Exceptional Children, 40*(6), 32-40.
- Skiba, R. J., & Knesting, K. (2001). Zero tolerance, zero evidence: An analysis of school disciplinary practice. *New Directions for Youth Development, 92*, 17-43.
- Skiba, R. J., Michael, R. S., Nardo, A. C., & Peterson, R. L. (2002). The color of discipline: Sources of racial and gender disproportionality in school punishment. *The Urban Review, 34*(4), 317-342.
- Skiba, R., Peterson, R., & Williams, T. (1997). Office referrals and suspension: Disciplinary intervention in middle schools. *Education and Treatment of Children, 20*(3), 295. Retrieved October 17, 2008, from Academic Search Premiere database.
- Skiba, R., & Sprague, J. (2008). Safety without suspensions. *Educational Leadership, 66*(1), 38-43.
- Sprague, J. R., Sugai, G., Horner, R., & Walker, H. M. (1999). Using office discipline referral data to evaluate school-wide discipline and violence prevention interventions. *Oregon School Study Council Bulletin, 42*(2).
- SPSS Inc. (2007). SPSS 16.0 [Computer software]. Chicago, IL: SPSS Inc.

- Sugai, G. (n.d.). *School-wide positive behavior support and response to intervention*. Retrieved August 29, 2008. <http://www.rtinetwork.org/Learn/Behavior/ar/SchoolwideBehavior>.
- Sugai, G. (2007). Promoting behavioral competence in schools: A commentary on exemplary practices. *Psychology in the Schools, 44*(1), 113-118.
- Sugai, G., & Horner, R. H. (2006). A promising approach for expanding and sustaining school-wide positive behavior support. *School Psychology Review, 35*(2), 245-259.
- Sugai, G., & Lewis, T. J. (1996). Preferred and promising practices for social skills instruction. *Focus on Exceptional Children, 29*(4), 11-26.
- Sugai, G & Lewis, T. J. (1999). *Developing positive behavioral support for students with challenging behaviors, from the third CCBD mini-library series, What works for children and youth with E/BD: Linking yesterday and today with tomorrow*. (pp. 15-23). Reston, VA: The Council for Exceptional Children.
- Sum, A., Khatiwada, I., McLaughlin, J., & Palma, S. (2009). *The consequences of dropping out of high school: Joblessness and jailing for high school dropouts and the high cost of taxpayers*. Boston, MA: Northeastern University Center for Labor Market Studies.
- Tobin, T., & Sugai, G. (1996). Patterns in middle school discipline records. *Journal of Emotional and Behavioral Disorders, 4*(2), 82-95.
- Tuckman, B. W. (1999). *Conducting Educational Research, 5th Ed*. Belmont, CA: Wadsworth.

- U.S. Department of Education. (2004). *Building the legacy: IDEA 2004*. Retrieved April 20, 2009, from <http://idea.ed.gov/expore/view>
- Vincent, C., Horner, R. H., & Sugai, G. (2002). *Developing social competence for all students*. ERIC/OSEP Digest. Retrieved March 23, 2009, from ERIC Clearinghouse on Disabilities and Gifted Education.
- Warren, J. S., Bohanon-Edmonson, H. M., Turnbull, A. P., Sailor, W., Wickham, D., Griggs, P., & Beech, S. E. (2006). School-wide positive behavior support: Addressing behavior problems that impede student learning. *Educational Psychology Review, 18*, 187-198.
- Washington Research Project. (1975). *School suspensions: Are they helping children?* Cambridge, MA: Children's Defense Fund.
- Wehby, J. H., Lane, K. L., & Falk, K. B. (2003). Academic instruction for students with emotional and behavioral disorders. *Journal of Emotional and Behavioral Disorders, 11*(4), 194-197.
- Wehby, J., & Lewis, T. J. (1999). Building effective systems of support at the classroom level. In T. J. Lewis & G. Sugai (Ed.). *What works for children and youth with E/BD: Linking yesterday and today with tomorrow: Safe schools: School-wide discipline practices*. (pp. 19-25). Reston, VA: The Council for Children with Behavioral Disorders.
- Wright, J., & Dusek, J. (1998). Compiling school base-rates for disruptive behavior from student disciplinary referral data. *School Psychology Review, 27*(1), 138. Retrieved November 14, 2008, from Academic Search Premier database.

APPENDIX A

STUDENT DISCIPLINE GUIDELINES AND PROCEDURES

APPENDIX # 6

School Closing Due to Weather

At various times throughout the year, students and employees are sometimes subjected to weather conditions that may pose a threat to their health and safety - excessive heat and humidity in May, June, August, and September, and snow and ice during the winter months.

Whenever the superintendent of schools believes it is unsafe for children and employees to endure excessive weather conditions, schools will be closed. During the winter months, that decision is made based on whether it is safe for students and employees to travel on the streets or to safely negotiate school driveways and parking lots.

Any time weather conditions are such that parents become concerned about their children's health, safety or welfare, they may keep them at home or come to school and pick up their children if they so desire.

The following procedures will be followed whenever it becomes necessary to close schools due to inclement weather.

Prior To The School Day: A decision will be made as soon as school officials can evaluate temperature and existing road conditions, as well as projected weather conditions.

- A. When the decision is made during the evening prior to the day of closing, the information will be provided to the media for broadcast on the 10:00 p.m. television and radio newscasts.
- B. If the decision is made after 10:00 p.m. of the night prior to the day of the closing, the information will be provided to radio and television stations for dissemination on the 6:00 and 6:30 a.m. newscasts.

During the School Day: Occasionally, students may already be in school when unanticipated bad weather occurs. When that happens, it may be necessary for schools to be closed and students sent home from school early because of developing weather conditions which may pose hazards to students' health. Lunch will be served prior to dismissal. Student activities normally conducted during or after school will not be held and may be scheduled at a future date.

Students, parents and staff should understand that every effort is made to ensure the safety of all children and that weather predications may not always be accurate.

When it is necessary to close schools during the school day, the district will contact radio and television newsrooms, requesting that the information be disseminated. As much advance notice as possible will be provided.

Depending on what time of day hazardous weather develops, dismissal will take place according to either the Midday Release or the Early Release schedule.

Parents are encouraged to make the necessary changes in their schedules or provisions for the care and

supervision of their children in advance and to notify the school of those arrangements. Schools should be provided the following information: telephone number, person(s) to contact, and/or address where student is to be sent.

Making The Decision To close Schools: The decision whether to close schools due to inclement weather, usually begins at 4:30 a.m. when bus drivers and district operations and maintenance staff members check roads. Because predicting the weather is not an exact science, it's possible that weather conditions may improve between 4:30 a.m. and 8:00 a.m. when most children leave for school. By that time, however, the announcement to close school has already been made and will not be reversed.

For school closing information, you may call the Shawnee Mission School District 24-hour Information Line, 967-8020.

APPENDIX # 7

Student Discipline Guidelines and Procedures (Policy JK-R)

Philosophy of Discipline. The Shawnee Mission School District philosophy of discipline is designed to provide an environment which maximizes a student's ability to learn. The ultimate goal of the District's disciplinary procedures is to teach students self-discipline so that they may demonstrate behavior appropriate to their age and maturity level. To assist students in becoming self-disciplined, Shawnee Mission practices a progressive discipline philosophy in which the seriousness of the offense receives an appropriate level of consequence. Consequences for actions arising from situations originating at school will be imposed even though the action occurred after school hours and away from school grounds.

The Separation of Disciplinary Actions and Academic Accomplishments. It is our goal to provide appropriate discipline without affecting academic accomplishments. Disciplinary actions will not involve the reduction of the student's grade which has been earned prior to the point of the infraction. Student discipline may result in the student not earning participation points for the day's activity. It is also possible that a student's actions and the resulting disciplinary action will prevent the student from earning daily class credit during a period of suspension.

Special Education Students. The progressive discipline philosophy will also apply to special education students wherever appropriate. However, individual special education services may not be denied, even on a short term basis. (As outlined in Public Law.) During in-school suspension, it is imperative special education students must be provided study materials according to their Instructional Education Program. It is desirable that the student's individual education plan will address the student's specialized needs on discipline, including which techniques can appropriately be used with this student.

Informal Student Hearing. Each student is entitled to certain rights in any disciplinary action. Those rights include being provided with the rules and regulations in advance, and affording the student an informal hearing. The notice of this hearing may be oral and the hearing may occur immediately after the occurrence of the offense. Although the hearing may be conducted informally, it shall include the following requirements.

- A. The right of the pupil to be present at the hearing.
- B. The right of the pupil to be informed of the charges. (Conducted by someone other than the accuser.)
- C. The right of the pupil to be informed of the basis of the accusations. (Provide the evidence, alleged incident, date, location, name of accuser etc.)
- D. The right of the pupil to make statements in defense or mitigation of the charges or accusations. (Provide evidence of innocence, witnesses, written statements, etc. Students experiencing disciplinary action should also have the right to a timely appeal process.) (K.S.A. 72-82026)

Disciplinary Action Chart. The disciplinary chart on the following pages contains a chart listing infractions and a legend of progressive action categories of consequences. It is intended to be applied in a reasonable manner with consideration being given to the facts and circumstances of each individual situation.

LEGEND OF ACTION CATEGORIES

- A. **Informal Talk by the Staff Member** attempts to reach an agreement with the student as to acceptable behavior, positive interactive relationships, and acceptance of responsibilities. Parents/guardians may be contacted in person or by phone, providing communication, seeking involvement, and support.
- B. **Formal Conference Between Student and Teacher** occurs outside class. A record is kept of the student's commitment to corrective behavior. Parental/guardian contact in person or by phone, providing information, seeking involvement and support usually occurs.
- C. **Teacher Assigned Detention Period.** Significant time expenditure and work completion is expected. A record is kept and parent/guardian contact in person or by phone will occur.
- D. **Formal Conference Between Student, Teacher, and Other School Personnel (division chairperson, counselor, special education teacher, etc.)** Prescriptive action will occur by some form of teacher action, i.e., student improvement contract, teacher detention. A record is kept of student's commitment to corrective behavior. Parental/guardian contact in person or by phone will occur.
- E. **Office Referral/Formal Conference Between Student and One or More School Administrator.** Prescriptive action will occur, i.e., student contract, detention, apology, restitution, etc. A record is kept of the student's commitment to corrective behavior. Parent/guardian communication occurs in writing, by telephone, or in person.
- F. **Administrative Detention.** A student is detained before school, during lunch period, or after school for a specific purpose. Parent/guardian contact in person or by phone occurs.
- G. **Appropriate Individualized Assignment and/or Loss of Privileges.** The school official devises an assignment to fit the offense and/or removes from the student one or more privileges usually associated with the offense. Parent/guardian contact in person or by phone occurs.
- H. **Saturday School.** The student is assigned specific dates to attend class on Saturday to complete specified learning activities frequently related to the absence from class. (Students missing the assigned Saturday School will be assigned two days in-school suspension.) Parent/guardian contact in person or by phone occurs.
- I. **In-School Suspension.** The student is removed from class but must remain on campus isolated from other students under the supervision of a staff member. The student will be given appropriate assignments to complete for the class time being missed and will earn academic credit for work completed (one-five days). A missed in-school suspension will result in additional in-school days being added and in some cases, suspension from school. Parent/guardian contact in person or by phone occurs.
- J. **Formal Conference.** Parental/guardian involvement by personal conference with appropriate personnel (teacher, student, counselor, administrator, nurse, etc.) Prescriptive written action plan outlining student, school, and parent/guardian responsibilities will be created and maintained in the discipline file.
- K. **Temporary Removal from Class.** The student is not permitted to attend one or more classes for a brief period of time. During this period of removal, the student may be assigned appropriate on-campus duties. Parent/guardian contact in person or by phone occurs.
- L. **Exclusion for the Remainder of the Day.** The student is removed from classes usually following the offense to separate him/her from the school environment in a preventive manner. Credit may be given for makeup work completed unless the missed time becomes part of an out-of-school suspension. Parent/guardian contact in person or by phone occurs.
- M. **Short-Term Out-of-School Suspension.** The student is provided formal due process and is removed from school, campus, and activities and placed under the supervision/responsibility of the parent/guardian (1 to 10 days). Parent/guardian notification occurs by phone and in writing.
- N. **Long-Term Out-of-School Suspension.** The student is referred to the suspension and expulsion committee for a hearing which will follow formal due process procedures removing the student from school and placing the student under the supervision and responsibility of the parent/guardian for more than five days but not more than one semester. Parent/guardian contact in person or by phone occurs.
- O. **Expulsion.** A student, through actions by the hearing and expulsion committee in a due process

procedure, is removed from school for an appropriate length of time not less than one semester and not more than one full calendar year.

Parent/guardian contact in person or by phone occurs.



APPENDIX B

INSTITUTIONAL REVIEW BOARD APPROVAL

6 October 2009

Deborah Schluben
9772 Craig Drive
Overland Park, KS 66212



Dear Ms. Schluben:

The Baker University IRB has reviewed your research project application (M-0074-0909-1006-G) and approved this project under Exempt Review. As described, the project complies with all the requirements and policies established by the University for protection of human subjects in research. Unless renewed, approval lapses one year after approval date.

The Baker University IRB requires that your consent form must include the date of approval and expiration date (one year from today). Please be aware of the following:

1. At designated intervals (usually annually) until the project is completed, a Project Status Report must be returned to the IRB.
2. Any significant change in the research protocol as described should be reviewed by this Committee prior to altering the project.
3. Notify the OIR about any new investigators not named in original application.
4. Any injury to a subject because of the research procedure must be reported to the IRB Chair or representative immediately.
5. When signed consent documents are required, the primary investigator must retain the signed consent documents for at least three years past completion of the research activity. If you use a signed consent form, provide a copy of the consent form to subjects at the time of consent.
6. If this is a funded project, keep a copy of this approval letter with your proposal/grant file.

Please inform Office of Institutional Research (OIR) or myself when this project is terminated. As noted above, you must also provide OIR with an annual status report and receive approval for maintaining your status. If your project receives funding which requests an annual update approval, you must request this from the IRB one month prior to the annual update. Thanks for your cooperation. If you have any questions, please contact me.

Sincerely,

Marc L. Carter, PhD
Chair, Baker University IRB

CC: Elizabeth Sanders

IRB Request

Date Sept. 24, 2009IRB Protocol Number _____
(IRB use only)**I. Research Investigator(s)** (students must list faculty sponsor first)Department(s) Education

Name	Signature	
1. <u>Deborah Schluben</u>		Principal Investigator
2. <u>Elizabeth Ann Sanders</u>		Check if faculty sponsor
3. <u>Peg Waterman</u>		Check if faculty sponsor
4. _____	_____	Check if faculty sponsor

Principal investigator or
faculty sponsor contact information:Phone (913) 993- 8668 or (913) 649- 4630email DeborahSchluben@smsd.org

Mailing address of Principal Investigator:

9772 Craig Drive
Overland Park KS 66212Expected Category of Review: Exempt Expedited Full Renewal**II: Protocol Title**An Examination of the Relationship Between School-Wide Positive Behavior Supports and Student Academic Achievement

III. Summary:

The following summary must accompany the proposal. Be specific about exactly what participants will experience, and about the protections that have been included to safeguard participants from harm. Careful attention to the following may help facilitate the review process:

In a sentence or two, please describe the background and purpose of the research.

Inappropriate student behavior has long been a concern for teachers and school administrators. Many students who exhibit inappropriate behaviors also struggle academically. The purpose of this research is to determine if implementation of a school-wide positive behavior supports (SW-PBS) model intended to improve student behavior meets that goal as well as improving student academic achievement. The study involves two middle schools in the same large suburban school district that implemented SW-PBS during the 2007-08 school year. The schools are comprised of students in grades 7 and 8. The study will examine the cohort of students at each school who were in seventh grade in 2006-07 (prior to SW-PBS implementation) and eighth grade in the same school in 2007-08 (the first year of SW-PBS implementation) to determine if there were changes in student behavior and academic achievement that coincided with the SW-PBS implementation.

Briefly describe each condition or manipulation to be included within the study.

The targeted schools in this study have already implemented the SW-PBS model. Implementation involved establishing consistency among the school staff regarding behavioral expectations, instructing students on the expectations and developing structures to support and reinforce appropriate behavior. The study will examine student behavior data (days suspended) and academic achievement data (course grades) to determine if there were changes in either of these measures that coincide with SW-PBS implementation.

What measures or observations will be taken in the study? If any questionnaire or other instruments are used, provide a brief description and attach a copy.

The measures will be existing data on student suspensions and grades during the 2006-07 and 2007-08 academic years.

Will the subjects encounter the risk of psychological, social, physical or legal risk? If so, please describe the nature of the risk and any measures designed to mitigate that risk.

No, the subjects will not encounter any risks during the study. The treatment has already been provided by the schools; the study will analyze existing data without any contact with the students who are the subjects of this study.

Will any stress to subjects be involved? If so, please describe.

No, there will not be any stress to the subjects. The treatment has already been provided by the schools; the study will analyze existing data without any contact with the subject students.

Will the subjects be deceived or misled in any way? If so, include an outline or script of the debriefing.

No, the subjects will not be deceived or misled. The treatment has already been provided by the schools; the study will analyze existing data without any contact with the subject students.

Will there be a request for information which subjects might consider to be personal or sensitive? If so, please include a description.

The researcher will request data from the school district including ethnicity, gender, socio-economic status, special education status, number of days suspended, and quarter grades. Students will not be identified by name at any time.

Will the subjects be presented with materials which might be considered to be offensive, threatening, or degrading? If so, please describe.

No, the subjects will not be presented with offensive, threatening, or degrading materials. The treatment has already been provided; the study will analyze existing data without any contact with the subject students.

Approximately how much time will be demanded of each subject?

No time will be demanded of the subjects. The treatment has already been provided; the study will analyze existing data without any contact with the subject students.

Who will be the subjects in this study? How will they be solicited or contacted? Provide an outline or script of the information which will be provided to subjects prior to their volunteering to participate. Include a copy of any written solicitation as well as an outline of any oral solicitation.

Subjects in the study will be students who were seventh graders at the study schools during the 2006-07 school year and eighth graders in the same school in 2007-08. A request will be made to the Associate Superintendent of Educational Services in the targeted school district for release of the data (see Appendix A).

What steps will be taken to insure that each subject's participation is voluntary? What if any inducements will be offered to the subjects for their participation?

The school district has the right to refuse participation by denying the researcher's data request. The subjects will have no direct contact with the researcher.

How will you insure that the subjects give their consent prior to participating? Will a written consent form be used? If so, include the form. If not, explain why not.

The school district has a request for research form (see Appendix A). Students will be identified only by ID number.

Will any aspect of the data be made a part of any permanent record that can be identified with the subject? If so, please explain the necessity.

No, the data will not become part of a permanent record that can be identified with the subject.

Will the fact that a subject did or did not participate in a specific experiment or study be made part of any permanent record available to a supervisor, teacher or employer? If so, explain.

No, the study utilizes archival data. Subjects will not participate in specific experiments or studies and therefore no record of non-participation in specific experiments or studies will exist to be made available to a supervisor, teacher or employer.

What steps will be taken to insure the confidentiality of the data?

Subjects will only be identified by ID number, they not be identified by name and the data will be seen only by the researcher.

If there are any risks involved in the study, are there any offsetting benefits that might accrue to either the subjects or society?

There are no risks involved in the study; the treatment has already been provided.

Will any data from files or archival data be used? If so, please describe.

Yes. The needed student demographic, suspension and grade data is archived in electronic databases by the school district.

Appendix A
Shawnee Mission Schools Research Request Form

SHAWNEE MISSION SCHOOLS

FORM A

**(to accompany a complete copy of the research proposal)
Application for Research Project**

Date form will be submitted upon Baker University IRB approval

Person Initiating Request:

Name: Deborah Schluben

Mailing Address: 9772 Craig Drive

City: Overland Park State: KS Zip: 66212

Telephone (913) 649-4630

The research is for: Master's _____ Ed.D. X Other _____
Specialist _____ Ph.D. _____

Project Title or Descriptor:

An Examination of the Relationship Between School-Wide Positive Behavior Supports and Student Academic Achievement

Has the project been submitted to a committee on human experimentation?

Yes X No _____

Participant Description: Number of Schools 2 Number of Students _____
Number of Teachers _____

Type of Research Design: Quantitative—Causal-comparative and correlational using archival data held by the district. Data requested includes demographic, suspension and academic grade data by academic quarter for the cohort of students who were 7th graders at Hocker Grove and Westridge during 2006-07 and 8th graders at the same school in 2007-08.

Anticipated Dates: Beginning Fall 2009 Ending Fall 2009

Final Report Available Spring 2010

Send to: Dr. Curtis Cain
Associate Superintendent for Educational Services
4401 West 103rd Street
Shawnee Mission, KS 66207-3618
(913) 993-8628

APPENDIX C

SCHOOL DISTRICT RESEARCH APPROVAL



Department of Educational Services

Shawnee Mission School District

Indian Creek Technology Center

4401 W. 103rd Street • Shawnee Mission, Kansas 66207-3618

Phone (913) 993-8625 • Fax (913) 993-8634 • www.smsd.org

SHAWNEE MISSION SCHOOLS

FORM B

Project Screening Action

To: Deborah Schluben
9772 Craig Drive
Overland Park, KS 66212

From: Dr. Curtis Cain 
Associate Superintendent for Educational Services

Date: November 19, 2009

Project Title: An Examination of the Relationship Between School-Wide Positive Behavior Supports and Student Academic Achievement

Your research project has been reviewed and the project has been:

approved
 not approved
 conditional approved based in changes to be made

Clarification/Comments:

This project has been assigned the following number for identification purposes:
 Project Number: **DS-02-10**

Please submit a copy of the completed project to our office.

If further clarification is needed concerning this action, please contact:

Dr. Curtis Cain
 Associate Superintendent for Educational Services
 Shawnee Mission Public Schools
 Indian Creek Technology Center
 4401 W. 103rd Street
 Overland Park, KS 66207-3618

APPENDIX D

ADDITIONAL ANALYSES DATA TABLES

Table D1

In-School Suspension (ISS) Descriptive Statistics

Grouping	Ethnicity	Eagle Landing					Steinmont				
		N	Mean		Std. Deviation		N	Mean		Std. Deviation	
			06-07	07-08	06-07	07-08		06-07	07-08	06-07	07-08
Ethnicity	American Indian	2	0.00	0.00	0.00	0.00	5	0.80	0.00	1.79	0.00
	Asian/Pac. Islander	9	0.00	0.11	0.00	0.33	10	0.00	0.30	0.00	0.95
	Black	12	0.75	1.08	1.36	1.73	35	1.46	1.14	2.61	2.02
	Hispanic	16	0.56	0.44	1.03	1.03	35	0.60	0.89	1.65	2.49
	Multi/Not Marked	5	0.00	0.40	0.00	0.89	10	0.10	0.40	0.32	0.97
	White	195	0.66	0.49	2.77	1.76	283	0.52	0.37	1.82	1.21
Gender	Female	121	0.12	0.10	0.48	0.47	183	0.25	0.33	0.87	1.09
	Male	118	1.12	0.91	3.51	2.25	195	0.92	0.63	2.40	1.73
SES	Free Lunch	39	1.49	1.03	3.32	2.48	73	1.14	0.86	2.58	1.74
	Full Pay Lunch	188	0.45	0.40	2.39	1.47	287	0.45	0.40	1.63	1.41
	Reduced Lunch	12	0.42	0.33	0.90	0.89	18	0.67	0.28	1.28	0.58
SPED Status	No IEP	211	0.41	0.42	1.52	1.56	339	0.40	0.40	1.29	1.28
	IEP	28	2.18	1.07	5.99	2.26	39	2.23	1.23	4.03	2.41

Table D2

Out-of-School Suspension (OSS) Descriptive Statistics

Grouping	Ethnicity	Eagle Landing					Steinmont				
		N	Mean		Std. Deviation		N	Mean		Std. Deviation	
			06-07	07-08	06-07	07-08		06-07	07-08	06-07	07-08
Ethnicity	American Indian	2	0.00	0.00	0.00	0.00	5	0.00	0.40	0.00	0.89
	Asian/Pac. Islander	9	0.00	0.00	0.00	0.00	10	0.30	0.10	0.95	0.32
	Black	12	1.08	0.67	1.73	1.23	35	1.46	1.14	2.61	2.02
	Hispanic	16	0.25	0.12	0.78	0.50	35	0.17	0.37	0.75	1.17
	Multi/Not Marked	5	1.20	0.00	1.64	0.00	10	0.80	0.00	1.75	0.00
	White	195	0.33	0.24	1.43	0.96	283	0.37	0.26	1.51	0.94
Gender	Female	121	0.19	0.04	0.85	0.27	183	0.25	0.26	1.06	0.94
	Male	118	0.54	0.43	1.77	1.26	195	0.68	0.40	1.93	1.19
SES	Free Lunch	39	1.15	0.38	2.59	1.07	73	1.23	0.64	2.21	1.54
	Full Pay Lunch	188	0.20	0.20	0.95	0.90	287	0.23	0.22	0.97	0.84
	Reduced Lunch	12	0.42	0.25	0.79	0.87	18	1.22	0.83	3.81	1.65
SPED Status	No IEP	211	0.25	0.16	1.18	0.70	339	0.37	0.27	1.39	0.96
	IEP	28	1.25	0.79	2.32	1.83	39	1.36	0.90	2.58	1.70

Table D3

Language Arts GPA Descriptive Statistics

Grouping	Ethnicity	Eagle Landing					Steinmont				
		N	Mean		Std. Deviation		N	Mean		Std. Deviation	
			06-07	07-08	06-07	07-08		06-07	07-08	06-07	07-08
Ethnicity	American Indian	2	2.31	2.81	1.50	0.97	5	3.77	3.90	0.38	0.16
	Asian/Pac. Islander	9	3.51	3.48	0.58	0.50	10	3.46	3.53	0.56	0.83
	Black	12	2.75	3.13	0.93	0.78	35	2.88	3.02	0.91	0.71
	Hispanic	16	2.88	3.11	0.71	0.70	35	2.70	2.78	1.10	0.96
	Multi/Not Marked	5	2.34	3.07	0.90	0.58	10	3.24	2.96	1.07	1.05
	White	195	3.19	3.39	0.91	0.65	283	3.24	3.14	0.87	0.90
Gender	Female	121	3.36	3.51	0.73	0.52	183	3.35	3.30	0.76	0.80
	Male	118	2.90	3.18	1.01	0.74	194	3.00	2.93	1.00	0.94
SES	Free Lunch	39	2.61	2.98	1.07	0.83	73	2.66	2.61	0.98	0.90
	Full Pay Lunch	188	3.26	3.43	0.84	0.59	286	3.33	3.25	0.83	0.85
	Reduced Lunch	12	2.84	3.33	0.81	0.64	18	2.79	2.88	0.85	0.89
SPED Status	No IEP	211	3.21	3.41	0.90	0.64	339	3.23	3.19	0.90	0.87
	IEP	28	2.55	2.93	0.79	0.60	38	2.66	2.41	0.85	0.85

Table D4

Mathematics GPA Descriptive Statistics

Grouping	Ethnicity	Eagle Landing					Steinmont				
		N	Mean		Std. Deviation		N	Mean		Std. Deviation	
			06-07	07-08	06-07	07-08		06-07	07-08	06-07	07-08
Ethnicity	American Indian	2	2.38	1.88	0.53	1.94	5	3.65	3.75	0.42	0.18
	Asian/Pac. Islander	9	3.22	3.11	0.79	0.94	10	3.45	2.78	0.59	1.00
	Black	12	2.76	2.50	1.04	0.97	35	2.54	2.54	0.83	0.86
	Hispanic	16	2.92	2.30	0.67	0.83	35	2.85	2.21	0.91	1.05
	Multi/Not Marked	5	2.40	2.25	0.88	0.68	10	2.98	2.40	0.99	0.88
	White	195	3.12	2.81	0.96	0.94	283	3.05	2.69	0.96	1.02
Gender	Female	121	3.26	2.85	0.79	0.79	182	3.11	2.76	0.92	0.95
	Male	118	2.88	2.65	1.04	1.08	194	2.90	2.53	0.96	1.06
SES	Free Lunch	39	2.66	2.19	1.02	1.01	73	2.57	2.12	0.98	0.89
	Full Pay Lunch	188	3.19	2.89	0.88	0.90	285	3.14	2.78	0.90	1.00
	Reduced Lunch	12	2.63	2.50	1.17	0.79	18	2.60	2.53	0.85	1.05
SPED Status	No IEP	211	3.14	2.80	0.92	0.97	339	3.07	2.69	0.92	0.99
	IEP	28	2.55	2.43	0.96	0.70	37	2.39	2.14	0.95	1.05

Table D5

Science GPA Descriptive Statistics

Grouping	Ethnicity	Eagle Landing					Steinmont				
		N	Mean		Std. Deviation		N	Mean		Std. Deviation	
			06-07	07-08	06-07	07-08		06-07	07-08	06-07	07-08
Ethnicity	American Indian	2	3.00	2.38	1.06	0.88	5	3.85	3.65	0.34	0.52
	Asian/Pac. Islander	9	3.22	3.33	0.79	0.54	10	3.75	3.23	0.29	1.14
	Black	12	2.63	2.73	1.02	0.59	35	2.71	2.46	1.02	1.01
	Hispanic	16	2.58	2.78	1.02	0.47	35	2.61	2.46	1.07	1.02
	Multi/Not Marked	5	1.80	2.05	0.86	0.69	10	3.20	2.85	0.95	1.06
	White	195	3.12	3.06	0.99	0.88	283	3.20	2.98	0.90	0.94
Gender	Female	121	3.24	3.12	0.86	0.83	182	3.25	2.95	0.88	0.97
	Male	118	2.81	2.89	1.10	0.85	188	3.00	2.84	1.00	0.99
SES	Free Lunch	39	2.55	2.47	1.04	0.94	70	2.67	2.30	0.94	0.99
	Full Pay Lunch	188	3.15	3.11	0.97	0.81	282	3.25	3.07	0.90	0.90
	Reduced Lunch	12	2.72	3.14	1.03	0.42	18	2.81	2.41	1.13	1.13
SPED Status	No IEP	211	3.14	3.06	1.00	0.85	339	3.18	2.93	0.91	0.97
	IEP	28	2.25	2.60	0.71	0.78	31	2.50	2.52	1.10	1.03

Table D6

Social Studies GPA Descriptive Statistics

Grouping	Ethnicity	Eagle Landing					Steinmont				
		N	Mean		Std. Deviation		N	Mean		Std. Deviation	
			06-07	07-08	06-07	07-08		06-07	07-08	06-07	07-08
Ethnicity	American Indian	2	2.63	2.00	1.59	2.47	5	3.65	3.85	0.34	0.34
	Asian/Pac. Islander	9	3.47	3.17	0.65	1.02	10	3.50	3.48	0.51	0.79
	Black	12	3.02	2.75	0.79	0.93	35	2.42	2.49	0.96	1.04
	Hispanic	16	2.92	2.53	0.88	1.03	35	2.56	2.28	1.01	1.24
	Multi/Not Marked	5	2.45	2.60	0.74	0.89	10	3.22	2.67	0.85	1.42
	White	195	3.36	3.14	0.87	0.95	283	3.06	2.96	1.02	1.06
Gender	Female	121	3.44	3.28	0.70	0.79	183	3.06	2.97	0.98	1.07
	Male	118	3.13	2.83	1.00	1.10	188	2.90	2.77	1.05	1.12
SES	Free Lunch	39	2.74	2.43	1.03	1.06	70	2.41	2.17	0.98	1.16
	Full Pay Lunch	188	3.43	3.19	0.79	0.90	283	3.15	3.06	0.97	1.02
	Reduced Lunch	12	2.97	3.04	0.93	1.15	18	2.50	2.72	1.04	0.96
SPED Status	No IEP	211	3.39	3.10	0.85	1.00	338	3.05	2.92	0.98	1.09
	IEP	28	2.56	2.74	0.76	0.70	33	2.25	2.37	1.14	1.03

Table D7

Physical Education GPA Descriptive Statistics

Grouping	Ethnicity	Eagle Landing					Steinmont				
		N	Mean		Std. Deviation		N	Mean		Std. Deviation	
			06-07	07-08	06-07	07-08		06-07	07-08	06-07	07-08
Ethnicity	American Indian	2	4.00	4.00	0.00	0.00	5	4.00	3.90	0.00	0.14
	Asian/Pac. Islander	9	3.97	3.94	0.08	0.17	10	3.98	3.90	0.08	0.32
	Black	12	3.71	3.95	0.51	0.11	35	3.59	3.52	0.45	0.62
	Hispanic	16	3.79	3.86	0.35	0.38	35	3.56	3.65	0.54	0.49
	Multi/Not Marked	5	3.80	3.90	0.45	0.22	10	3.75	3.70	0.49	0.61
	White	195	3.90	3.92	0.28	0.22	283	3.77	3.72	0.40	0.53
Gender	Female	121	3.94	3.95	0.20	0.16	183	3.81	3.77	0.34	0.44
	Male	118	3.82	3.89	0.36	0.27	194	3.68	3.63	0.48	0.60
SES	Free Lunch	39	3.69	3.86	0.46	0.26	73	3.57	3.45	0.50	0.68
	Full Pay Lunch	188	3.92	3.93	0.25	0.22	286	3.80	3.76	0.38	0.43
	Reduced Lunch	12	3.96	3.92	0.10	0.19	18	3.67	3.49	1.04	0.96
SPED Status	No IEP	211	3.91	3.94	0.26	0.20	339	3.77	3.73	0.40	0.51
	IEP	28	3.70	3.82	0.47	0.36	38	3.49	3.42	0.51	0.64

Table D8

Elective GPA Descriptive Statistics

Grouping	Ethnicity	Eagle Landing					Steinmont				
		N	Mean		Std. Deviation		N	Mean		Std. Deviation	
			06-07	07-08	06-07	07-08		06-07	07-08	06-07	07-08
Ethnicity	American Indian	2	3.25	3.38	0.71	0.53	5	3.90	3.85	0.22	0.27
	Asian/Pac. Islander	9	3.68	3.23	0.47	0.74	10	3.81	3.78	0.28	0.30
	Black	12	3.06	3.07	1.08	1.03	35	3.27	3.24	0.65	0.58
	Hispanic	16	3.19	3.26	1.04	0.56	35	3.23	3.08	0.79	0.91
	Multi/Not Marked	5	2.89	2.78	1.16	0.84	10	3.56	3.08	0.70	1.03
	White	195	3.49	3.45	0.65	0.66	283	3.52	3.40	0.62	0.68
Gender	Female	120	3.62	3.58	0.71	0.57	182	3.64	3.49	0.53	0.69
	Male	117	3.25	3.20	0.68	0.74	191	3.34	3.25	0.71	0.70
SES	Free Lunch	38	3.04	3.02	0.92	0.93	70	3.20	3.04	0.72	0.71
	Full Pay Lunch	187	3.52	3.48	0.65	0.60	285	3.58	3.46	0.60	0.67
	Reduced Lunch	12	3.41	3.29	0.57	0.76	18	3.19	3.17	0.58	0.86
SPED Status	No IEP	211	3.52	3.47	0.64	0.61	334	3.55	3.41	0.60	0.68
	IEP	26	2.80	2.76	0.98	0.92	39	2.96	2.96	0.78	0.81

Table D9

Overall GPA Descriptive Statistics

Grouping	Ethnicity	Eagle Landing					Steinmont				
		N	Mean		Std. Deviation		N	Mean		Std. Deviation	
			06-07	07-08	06-07	07-08		06-07	07-08	06-07	07-08
Ethnicity	American Indian	2	2.89	2.81	0.95	1.06	5	3.80	3.83	0.23	0.21
	Asian/Pac. Islander	9	3.51	3.37	0.50	0.48	10	3.65	3.43	0.31	0.58
	Black	12	2.95	3.03	0.81	0.59	35	2.91	2.91	0.71	0.68
	Hispanic	16	3.05	3.00	0.61	0.50	35	2.91	2.76	0.82	0.81
	Multi/Not Marked	5	2.61	2.84	0.61	0.25	10	3.28	2.87	0.82	0.90
	White	195	3.34	3.32	0.72	0.62	283	3.31	3.15	0.72	0.74
Gender	Female	121	3.47	3.41	0.59	0.50	183	3.38	3.23	0.65	0.70
	Male	118	3.11	3.13	0.79	0.67	195	3.12	2.97	0.80	0.78
SES	Free Lunch	39	2.85	2.86	0.82	0.68	73	2.83	2.63	0.75	0.75
	Full Pay Lunch	188	3.40	3.36	0.66	0.56	287	3.38	3.23	0.69	0.70
	Reduced Lunch	12	3.08	3.23	0.63	0.53	18	2.92	2.88	0.71	0.80
SPED Status	No IEP	211	3.37	3.32	0.70	0.60	339	3.31	3.15	0.71	0.74
	IEP	28	2.72	2.88	0.63	0.51	39	2.70	2.62	0.75	0.75

Table D10

ANOVA Interaction Effect for Year by Subject Area GPA Results by Demographic Group

School	Subject Area	Ethnicity			Gender			SES			SPED Status		
		<i>F</i>	<i>p</i>	<i>df</i>	<i>F</i>	<i>p</i>	<i>df</i>	<i>F</i>	<i>p</i>	<i>df</i>	<i>F</i>	<i>p</i>	<i>Df</i>
Eagle Landing	Language Arts	1.372	0.235	5,233	2.666	0.104	1,237	2.933	0.055	2,236	2.291	0.131	1,237
	Mathematics	0.560	0.731	5,233	2.573	0.110	1,237	0.928	0.397	2,236	1.540	0.216	1,237
	Science	0.898	0.483	5,233	4.372	0.038	1,237	2.465	0.087	2,236	8.362	0.004	1,237
	Social Studies	0.644	0.666	5,233	2.031	0.155	1,237	1.426	0.242	2,236	11.937	0.001	1,237
	Physical Ed.	2.194	0.056	5,233	2.692	0.102	1,237	7.878	0.000	2,236	4.067	0.045	1,237
	Electives	1.138	0.341	5,231	0.004	0.951	1,235	0.142	0.868	2,234	0.001	0.981	1,235
	Overall	0.781	0.564	5,233	2.067	0.152	1,237	1.489	0.228	2,236	7.333	0.007	1,237
Steinmont	Language Arts	2.666	0.022	5,371	0.072	0.789	1,375	0.886	0.413	2,374	5.788	0.017	1,375
	Mathematics	3.139	0.009	5,370	0.028	0.866	1,374	1.663	0.191	2,373	0.773	0.380	1,374
	Science	0.514	0.765	5,364	3.438	0.065	1,368	2.572	0.078	2,367	4.144	0.042	1,368
	Social Studies	2.012	0.076	5,365	0.359	0.549	1,369	3.851	0.022	2,368	4.217	0.041	1,369
	Physical Ed.	0.700	0.624	5,371	0.000	0.991	1,375	2.120	0.122	2,374	0.142	0.707	1,375
	Electives	0.953	0.447	5,367	1.170	0.280	1,371	0.412	0.663	2,370	1.832	0.177	1,371
	Overall	2.807	0.017	5,372	0.001	0.972	1,376	1.845	0.159	2,375	1.637	0.201	1,376

Table D11

ANOVA Main Effect for Subject Area Results by Demographic Group

School	Subject Area	Ethnicity			Gender			SES			SPED Status		
		<i>F</i>	<i>p</i>	<i>df</i>	<i>F</i>	<i>p</i>	<i>df</i>	<i>F</i>	<i>p</i>	<i>df</i>	<i>F</i>	<i>p</i>	<i>df</i>
Eagle Landing	Language Arts	2.113	0.065	5,233	18.952	0.000	1,237	10.197	0.000	2,236	15.835	0.000	1,237
	Mathematics	1.893	0.096	5,233	7.291	0.007	1,237	10.571	0.000	2,236	8.229	0.004	1,237
	Science	3.121	0.010	5,233	9.516	0.002	1,237	9.204	0.000	2,236	16.384	0.000	1,237
	Social Studies	2.524	0.030	5,233	11.913	0.001	1,237	12.746	0.000	2,236	12.207	0.001	1,237
	Physical Ed.	0.810	0.543	5,233	8.916	0.003	1,237	6.646	0.002	2,236	11.962	0.001	1,237
	Electives	2.089	0.068	5,231	22.300	0.000	1,235	8.935	0.000	2,234	31.774	0.000	1,235
	Overall	2.376	0.040	5,233	16.648	0.000	1,237	12.100	0.000	2,236	19.311	0.000	1,237
Steinmont	Language Arts	3.050	0.010	5,371	16.896	0.000	1,375	19.788	0.000	2,374	21.609	0.000	1,375
	Mathematics	2.883	0.014	5,370	5.489	0.020	1,374	15.463	0.000	2,373	16.416	0.000	1,374
	Science	5.485	0.000	5,364	3.846	0.051	1,368	19.621	0.000	2,367	10.850	0.001	1,368
	Social Studies	5.229	0.000	5,365	2.887	0.090	1,369	21.390	0.000	2,368	14.230	0.000	1,369
	Physical Ed.	2.603	0.025	5,371	9.349	0.002	1,375	14.158	0.000	2,374	17.403	0.000	1,375
	Electives	3.480	0.004	5,367	18.325	0.000	1,371	14.607	0.000	2,370	27.149	0.000	1,371
	Overall	4.244	0.001	5,372	12.609	0.000	1,376	21.968	0.000	2,375	23.186	0.000	1,376

Table D12

Eagle Landing Pearson's Correlation Coefficients for ISS Change and GPA Change

Grouping	Ethnicity	N	Language Arts		Mathematics		Science		Social Studies		Physical Education		Electives		Overall	
			<i>r</i>	<i>p</i>	<i>r</i>	<i>p</i>	<i>r</i>	<i>p</i>	<i>r</i>	<i>p</i>	<i>r</i>	<i>p</i>	<i>r</i>	<i>p</i>	<i>r</i>	<i>p</i>
Ethnicity	American Indian	2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Asian/Pac. Islander	9	0.124	0.751	0.407	0.277	-0.262	0.496	-0.561	0.116	0.053	0.892	0.239	0.536	0.040	0.919
	Black	12	-0.479	0.115	0.287	0.366	0.302	0.340	0.442	0.150	0.354	0.259	0.094	0.771	0.296	0.350
	Hispanic	16	-0.077	0.777	0.040	0.884	-0.338	0.200	-0.145	0.592	-0.070	0.795	-0.372	0.172	-0.213	0.429
	Multi/Not Marked	5	0.026	0.968	0.094	0.881	0.598	0.287	-0.221	0.721	1.000	NA	0.075	0.904	0.150	0.810
	White	195	-0.193	0.007	-0.215	0.002	-0.050	0.487	-0.131	0.067	-0.147	0.041	0.015	0.830	-0.187	0.009
Gender	Female	120	-0.052	0.569	-0.050	0.585	0.003	0.975	0.085	0.354	0.152	0.096	-0.164	0.073	-0.046	0.620
	Male	117	-0.211	0.022	-0.222	0.016	-0.046	0.618	-0.150	0.106	-0.155	0.093	0.033	0.727	-0.213	0.021
SES	Free Lunch	38	-0.555	0.000	-0.390	0.014	-0.160	0.331	-0.188	0.253	0.056	0.735	-0.135	0.420	-0.451	0.004
	Full Pay Lunch	187	-0.020	0.780	-0.123	0.092	0.006	0.932	-0.063	0.389	-0.148	0.042	0.050	0.494	-0.065	0.374
	Reduced Lunch	11	-0.423	0.170	0.057	0.860	-0.180	0.575	-0.508	0.091	0.308	0.330	-0.523	0.081	-0.316	0.318
SPED Status	No IEP	210	-0.208	0.002	-0.101	0.144	-0.132	0.056	-0.129	0.061	-0.155	0.024	-0.059	0.394	-0.216	0.002
	IEP	27	-0.181	0.357	-0.383	0.044	0.245	0.208	0.004	0.985	0.019	0.925	0.096	0.640	-0.069	0.728

Table D13

Steinmont Pearson's Correlation Coefficients for ISS Change and GPA Change

Grouping	Ethnicity	N	Language Arts		Mathematics		Science		Social Studies		Physical Education		Electives		Overall	
			<i>r</i>	<i>p</i>	<i>r</i>	<i>p</i>	<i>r</i>	<i>p</i>	<i>r</i>	<i>p</i>	<i>r</i>	<i>p</i>	<i>r</i>	<i>p</i>	<i>R</i>	<i>p</i>
Ethnicity	American Indian	5	-0.937	0.019	-0.919	0.028	0.907	0.034	0.612	0.272	0.612	0.272	0.612	0.272	0.169	0.786
	Asian/Pac. Islander	10	0.100	0.783	0.287	0.421	0.009	0.981	0.023	0.950	0.079	0.829	-0.109	0.765	-0.001	0.998
	Black	35	-0.229	0.186	-0.058	0.742	-0.025	0.887	-0.133	0.446	0.005	0.978	-0.517	0.002	-0.326	0.056
	Hispanic	35	-0.607	0.000	-0.457	0.007	-0.234	0.175	-0.321	0.064	-0.226	0.192	-0.158	0.380	-0.600	0.000
	Multi/Not Marked	10	0.664	0.036	0.258	0.472	-0.279	0.436	0.168	0.666	-0.348	0.324	-0.082	0.834	0.367	0.297
	White	283	-0.019	0.750	-0.047	0.429	-0.108	0.072	-0.017	0.774	-0.006	0.914	-0.107	0.073	-0.093	0.120
Gender	Female	182	-0.170	0.021	-0.043	0.564	-0.071	0.338	-0.089	0.230	-0.032	0.670	-0.131	0.077	-0.187	0.011
	Male	193	-0.061	0.396	-0.141	0.049	-0.103	0.158	-0.073	0.317	-0.014	0.847	-0.167	0.021	-0.174	0.015
SES	Free Lunch	72	0.013	0.912	-0.267	0.022	-0.111	0.362	-0.292	0.014	0.079	0.504	-0.287	0.016	-0.241	0.040
	Full Pay Lunch	285	-0.150	0.011	0.014	0.810	-0.114	0.057	0.026	0.660	-0.122	0.039	-0.081	0.170	-0.140	0.017
	Reduced Lunch	17	-0.204	0.417	-0.462	0.054	0.025	0.922	0.152	0.548	0.303	0.222	-0.052	0.837	-0.173	0.494
SPED Status	No IEP	338	-0.219	0.000	-0.038	0.481	-0.097	0.074	-0.104	0.056	-0.078	0.151	-0.138	0.012	-0.219	0.000
	IEP	37	0.170	0.307	-0.334	0.043	-0.076	0.685	0.058	0.749	0.097	0.561	-0.184	0.261	-0.049	0.768

Table D14

Eagle Landing Pearson's Correlation Coefficients for OSS Change and GPA Change

Grouping	Ethnicity	N	Language Arts		Mathematics		Science		Social Studies		Physical Education		Electives		Overall	
			<i>r</i>	<i>p</i>	<i>r</i>	<i>p</i>	<i>r</i>	<i>p</i>	<i>r</i>	<i>p</i>	<i>r</i>	<i>p</i>	<i>r</i>	<i>p</i>	<i>r</i>	<i>P</i>
Ethnicity	American Indian	2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Asian/Pac. Islander	9	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Black	12	-0.671	0.017	0.460	0.132	-0.262	0.411	-0.277	0.384	0.238	0.456	0.290	0.360	-0.085	0.792
	Hispanic	16	-0.193	0.475	0.281	0.291	-0.424	0.102	-0.218	0.418	-0.517	0.040	-0.754	0.001	-0.393	0.133
	Multi/Not Marked	5	0.102	0.871	-0.408	0.495	-0.244	0.692	0.361	0.550	-0.612	0.272	0.404	0.500	0.016	0.979
	White	195	-0.144	0.044	-0.035	0.631	0.035	0.628	-0.080	0.268	-0.237	0.001	0.040	0.578	-0.078	0.281
Gender	Female	120	-0.241	0.008	-0.017	0.854	-0.106	0.246	0.029	0.755	-0.225	0.013	-0.119	0.195	-0.179	0.050
	Male	117	-0.145	0.117	0.001	0.994	0.028	0.767	-0.148	0.111	-0.186	0.044	0.145	0.118	-0.064	0.492
SES	Free Lunch	38	-0.256	0.115	0.050	0.765	-0.169	0.305	-0.244	0.134	-0.231	0.157	0.071	0.672	-0.207	0.206
	Full Pay Lunch	187	-0.084	0.250	-0.062	0.399	0.099	0.175	-0.035	0.636	-0.075	0.309	0.052	0.479	-0.018	0.807
	Reduced Lunch	11	-0.044	0.891	-0.207	0.519	0.131	0.685	0.320	0.311	0.294	0.353	-0.108	0.739	-0.020	0.950
SPED Status	No IEP	210	-0.176	0.010	0.017	0.804	-0.042	0.545	-0.132	0.056	-0.285	0.000	-0.052	0.455	-0.141	0.041
	IEP	27	-0.039	0.844	-0.061	0.759	0.296	0.127	0.304	0.116	0.178	0.363	0.415	0.035	0.327	0.090

Table D15

Steinmont Pearson's Correlation Coefficients for OSS Change and GPA Change

Grouping	Ethnicity	N	Language Arts		Mathematics		Science		Social Studies		Physical Education		Electives		Overall	
			<i>r</i>	<i>p</i>	<i>r</i>	<i>p</i>	<i>r</i>	<i>p</i>	<i>r</i>	<i>p</i>	<i>r</i>	<i>p</i>	<i>r</i>	<i>p</i>	<i>r</i>	<i>p</i>
Ethnicity	American Indian	5	0.937	0.019	0.919	0.028	-0.907	0.034	-0.612	0.272	-0.612	0.272	-0.612	0.272	-0.169	0.786
	Asian/Pac. Islander	10	-0.244	0.496	-0.371	0.291	-0.086	0.812	-0.438	0.206	-0.290	0.417	0.637	0.048	-0.322	0.364
	Black	35	-0.203	0.242	-0.040	0.819	-0.171	0.333	0.322	0.059	-0.249	0.149	0.244	0.165	-0.080	0.648
	Hispanic	35	-0.175	0.323	-0.443	0.009	-0.092	0.598	-0.342	0.047	0.040	0.819	0.005	0.978	-0.239	0.167
	Multi/Not Marked	10	-0.326	0.358	-0.454	0.187	-0.228	0.526	0.657	0.055	0.637	0.048	-0.208	0.591	-0.330	0.351
	White	283	-0.005	0.937	-0.121	0.043	-0.175	0.003	-0.017	0.782	0.112	0.060	-0.085	0.156	-0.116	0.050
Gender	Female	182	-0.067	0.365	-0.014	0.853	-0.189	0.011	0.048	0.003	-0.045	0.548	0.117	0.117	0.000	0.998
	Male	193	-0.065	0.371	-0.239	0.001	-0.121	0.098	-0.165	0.023	0.090	0.210	-0.117	0.108	-0.207	0.004
SES	Free Lunch	72	-0.104	0.381	-0.310	0.008	-0.220	0.068	0.087	0.476	0.044	0.714	0.023	0.852	-0.177	0.134
	Full Pay Lunch	285	-0.026	0.666	-0.031	0.602	-0.101	0.089	-0.085	0.154	-0.110	0.064	-0.095	0.108	-0.127	0.031
	Reduced Lunch	17	-0.072	0.778	-0.206	0.412	-0.425	0.079	0.139	0.581	0.482	0.043	0.158	0.531	-0.084	0.739
SPED Status	No IEP	338	-0.081	0.136	-0.122	0.024	-0.164	0.002	0.005	0.928	0.064	0.238	0.016	0.770	-0.105	0.054
	IEP	37	-0.039	0.815	-0.255	0.127	-0.082	0.661	0.074	0.683	-0.087	0.605	-0.144	0.381	-0.187	0.253