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EXAMINATION OF THE FIDELITY OF SCHOOL-WIDE POSITIVE BEHAVIOR  
SUPPORT IMPLEMENTATION AND ITS RELATIONSHIP TO ACADEMIC AND  
BEHAVIORAL OUTCOMES IN FLORIDA

by

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A dissertation submitted in partial fulfillment of the requirements  
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in the Department of Educational Research, Technology and Leadership  
in the College of Education  
at the University of Central Florida  
Orlando, Florida

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2009

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## ABSTRACT

The purpose of this quantitative research was to examine the level of implementation of School-wide Positive Behavior Support (SWPBS) in the State of Florida. The relationship between the fidelity of implementation of SWPBS as measured by the Benchmarks of Quality tool to academic and behavioral outcomes for middle and elementary schools was then analyzed. The academic outcomes for this study included FCAT Reading and Mathematics subtest scores. The behavioral outcomes were measured using the number of Office Discipline Referrals per 100 students and the number of days for Out of School Suspensions per 100 students.

The literature review suggests that many outcomes have been associated with implementation of SWPBS. These include a reduction in ODRs and OSS days, increased academic achievement, increased instructional time, decreased administrative time addressing discipline, increased teacher satisfaction, improved peer relationships, and an increase in perceived school safety (Muscott, Mann, & LeBrun, 2008; Lassen, 2006; Landers, 2006; Lassen, Steele, & Sailor, 2006; & Luiselli, Putnam, Handler, & Feinberg, 2005). The results of this study found that SWPBS is being implemented with fidelity in the majority of schools in one year and that these schools maintain or increase fidelity over time. Findings also suggest that there may be a relationship between greater implementation and lower ODR and OSS rates and to a lesser extent, academic outcomes. This research adds to the knowledge base regarding SWPBS

implementation fidelity and its relationship to academic and behavioral outcomes and may be of use to policy makers, practitioners, and future researchers.

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## TABLE OF CONTENTS

LIST OF FIGURES .....	ix
LIST OF TABLES .....	x
LIST OF ACRONYMS/ABBREVIATIONS .....	xii
CHAPTER ONE : INTRODUCTION .....	1
Introduction .....	1
Definition of Terms.....	2
Review of Literature.....	4
School-wide Positive Behavior Support Background .....	5
Application of School-wide Positive Behavior Support.....	7
Benchmarks of Quality .....	9
Office Discipline Referrals.....	10
Florida’s Comprehensive Assessment Test.....	11
Statement of the Problem .....	11
Research Questions and Hypotheses.....	12
Methodology .....	15
Population and Sample .....	15
Instrumentation .....	16
Data Collection Procedures .....	16
Analytic/Statistical Methods .....	17
Significance of the Study .....	19
Delimitations of the Study .....	20

Limitations.....	20
<b>CHAPTER TWO : REVIEW OF LITERATURE.....</b>	<b>21</b>
Introduction .....	21
Application of School-wide Positive Behavior Support.....	22
Features of Positive Behavior Support.....	26
Continuum of Support .....	26
Proactive instructional approaches .....	34
Conceptually sound and empirically validated practices .....	35
Data-based Decision Making .....	39
Systems Perspective.....	47
Research on SWPBS Outcomes .....	51
Behavioral studies.....	51
Academic and Behavioral Studies.....	56
Additional Outcomes of PBS.....	61
Summary.....	64
<b>CHAPTER THREE : METHODOLOGY .....</b>	<b>66</b>
Introduction .....	66
Problem Statement .....	66
Research Questions .....	67
Sample.....	69
Data Collection Procedures .....	71
Instrumentation .....	71
Analytic/Statistical Methods .....	72

Limitations .....	74
Delimitations of the Study .....	75
Summary .....	75
CHAPTER FOUR : ANALYSIS OF DATA .....	76
Introduction .....	76
Research Question 1 .....	82
Research Question 2 .....	86
Research Question 3 .....	92
Research Question 4 .....	97
Research Question 5 .....	102
Summary .....	108
CHAPTER FIVE : DISCUSSION AND RECOMMENDATIONS.....	109
Introduction .....	109
Purpose .....	109
Discussion .....	110
Recommendations for Policy .....	116
Recommendations for Practice.....	117
Recommendations for SWPBS Program Evaluation .....	119
APPENDIX A: SWPBS OUTCOME SUMMARY FORM .....	120
APPENDIX B: BENCHMARKS OF QUALITY SCORING FORM .....	122
APPENDIX C: Benchmarks of QUALITY SCORING GUIDE.....	126
APPENDIX D: PERMISSION TO USE DATA.....	140



APPENDIX E: IRB APPROVAL.....	142
LIST OF REFERENCES .....	144

## LIST OF FIGURES

Figure 1-1: SWPBS conceptual foundations .....	7
Figure 2-1: Major components of SWPBS.....	22
Figure 2-2: Continuum of School-wide Positive Behavior Support .....	26
Figure 2-3: Practices at the four levels of SWPBS .....	38
Figure 2-4: Keys elements of SWPBS.....	48
Figure 2-5: Implementation levels of SWPBS.....	49
Figure 4-1: Percentage of minority students and students receiving free and reduced lunch. ....	80
Figure 4-2: BoQ total score frequencies in Florida during the 2008-2009 school year. ....	83
Figure 4-3: Mean fidelity scores by years of implementation.....	85
Figure 4-4: Frequency of Out of School Suspension (OSS) days per 100 students. ....	88
Figure 4-5: Frequency of Office Discipline Referrals (ODR) per 100 students. ....	89
Figure 4-6: Frequency of mean FCAT Reading subtest scores.....	93
Figure 4-7: Frequency of mean FCAT Mathematics subtest scores.....	93
Figure 4-8: Mean FCAT Reading and Mathematics subtest scores .....	100

## LIST OF TABLES

Table 1: Core elements of SWPBS .....	34
Table 2: SET and BOQ subscales in relation to SWPBS critical elements.....	42
Table 3: ANOVA of BoQ scores by years of implementation.....	84
Table 4: Tukey HSD comparison of BoQ scores by years of implementation .....	84
Table 5: Pearson’s Correlations between BOQ total score and ODR per 100 students and OSS days per 100 students for all schools .....	89
Table 6: Pearson’s Correlations between BOQ total score and ODR per 100 students and OSS days per 100 students for elementary schools .....	90
Table 7: Pearson’s Correlations between BOQ total score and ODR per 100 students and OSS days per 100 students for middle schools .....	91
Table 8: Pearson’s Correlations between BOQ total score and Mean FCAT Reading and mean FCAT Mathematics subtest scores for all schools .....	94
Table 9: Pearson’s Correlations between BOQ total score and Mean FCAT Reading and mean FCAT Mathematics subtest scores for elementary schools .....	95
Table 10: Pearson’s Correlations between BOQ total score and Mean FCAT Reading and mean FCAT Mathematics subtest scores for middle schools.....	96

Table 11: ANOVA between FCAT Reading and FCAT Mathematics subtest scores and BoQ total scores for elementary schools.....	97
Table 12: Tukey HSD comparison of FCAT Reading and FCAT Mathematics subtest scores by BoQ total score for elementary schools .....	99
Table 13: ANOVA of FCAT Reading and FCAT Mathematics subtest scores by BoQ total scores for middle schools.....	101
Table 14: Pearson’s Correlations between BOQ total score and Mean FCAT Reading score for all schools .....	103
Table 15: Model summary for the FCAT Reading regression.....	104
Table 16: Multiple Regression procedure for predicting FCAT Reading subtest scores .....	104
Table 17: Coefficients to evaluate each of the independent variables for FCAT Reading.....	105
Table 18: Pearson’s Correlations between BoQ total score and Mean FCAT Mathematics subtest scores for all schools.....	106
Table 19: Multiple Regression procedure for predicting FCAT Mathematics subtest scores.....	107
Table 20: Coefficients to evaluate each of the independent variables for FCAT Mathematics.....	108

## LIST OF ACRONYMS/ABBREVIATIONS

ABA	Applied Behavioral Analysis
ANOVA	Analysis of Variance
AYP	Adequate Yearly Progress
BIP	Behavior Intervention Plan
BoQ	Benchmark of Quality
ESE	Exceptional Student Education
FBA	Functional Behavior Assessment
FCAT	Florida Comprehensive Achievement Test
FLDOE	Florida Department of Education
IDEA	Individuals with Disabilities Act
IEP	Individual Education Plan
NCLB	No Child Left Behind Act of 2001
ODR	Office Discipline Referrals
OSEP	Office of Special Education Programs, United States Department of Education
OSS	Out of School Suspension
PBS	Positive Behavior Support
SET	School-wide Evaluation Tool
SWPBS	School-wide Positive Behavior Support

## CHAPTER ONE: INTRODUCTION

### Introduction

Since the passage of the No Child Left Behind Act of 2001, schools have faced increased accountability for student achievement. One factor that researchers have identified as influencing academic achievement is high quality academic instruction. Other factors may include a child's peer acceptance in the classroom, cognitive ability, motivation, community factors, family involvement, academic expectations, and cultural beliefs (Flook, Repetti, & Ullman, 2005; Passolunghi, Mammarella, & Altoè, 2008; Chamorro-Premuzic, & Furnham, 2008; Phillipson & Phillipson, 2007; Mullis, Rathge, & Mullis, 2003; Tavani & Losh, 2003).

Another factor that has been identified as influencing the instruction that schools provide is student problem behavior (Lassen, 2006). Luiselli, Putnam, Handler, and Feinberg (2005) suggest that establishing effective discipline practices is critical to ensuring academic success. Recognizing this challenge, school leaders have instituted various programs to improve school culture and meet the needs of the students.

One system that is currently being used in more than 6000 schools in over 30 states throughout the nation is School-wide Positive Behavior Support (SWPBS) (Skiba & Sprague, 2008). Some outcomes associated with SWPBS include decreased office discipline referrals (ODR), increased instructional time, decreased administrative time addressing discipline, increased teacher

satisfaction, improved peer relationships, increased academic achievement, and an increase in perceived school safety (Glover, 2005; Lassen, 2006; Landers, 2006; Lassen, Steele, & Sailor, 2006; Rentz, 2007; & Luiselli, Putnam, Handler, & Feinberg, 2005). The purpose of this study was to examine the relationship between the fidelity of implementation of SWPBS to academic and behavioral outcomes. O'Donnell (2008) suggests that measuring the fidelity of implementation "is warranted to ensure internal and external validity". Examining possible relationships between the fidelity of implementation of SWPBS to academic achievement and student problem behaviors may help predict the usefulness of future implementations of this program.

### Definition of Terms

The following terms are defined to clarify terminology used in this study:

Adequate Yearly Progress (AYP) – is the measure of progress toward the goal of 100 percent of students achieving state academic standards in reading and mathematics. It sets the minimum level of proficiency that the state, its school districts, and schools must achieve each year on annual tests and related academic indicators (USDOE, 2008).

Benchmark of Quality (BoQ) – is an instrument for measuring implementation fidelity at the universal level of Positive Behavior Support application in individual schools. This tool was developed by Kincaid, Childs, and George (2005) at the University of South Florida.

Exceptional Student Education (ESE) – is provided to students with disabilities. The Individuals with Disabilities Act (IDEA) ensures that students who qualify for special services will receive a free appropriate public education to meet their individual needs. (FLDOE, 2008b).

Fidelity –has been defined in the Merriam-Webster dictionary (2008) as “having accuracy in details.” For the purpose of this study the fidelity of implementation will be defined as how well SWPBS is implemented at each school in comparison to the original program design.

Florida Comprehensive Achievement Test (FCAT) – This assessment consists of criterion-referenced tests in mathematics, reading, science, and writing, which measure student progress toward meeting the Sunshine State Standards (SSS) benchmarks.

Mean Scale Scores - FCAT Reading and Mathematics student results are reported by scale scores ranging from 100 to 500 for each grade level. Based on their scale scores, students are assigned one of five Achievement Level classifications with Level 1 being the lowest and Level 5 being the highest (FLDOE,2008a).

Office Discipline Referral (ODR) – is a written document made to administration for improper student behavior.

Out of School Suspension (OSS) – is a form of punishment that can last anywhere from one to ten days, during which time the student cannot attend school. This punishment is reserved for severe or repeated violations of school rules.



School-wide Evaluation Tool (SET) - is designed to assess and evaluate the critical features of school-wide effective behavior support across each academic school year. The SET was developed by Sugai, Lewis-Palmer, Todd, & Horner (2001) at the University of Oregon.

Socioeconomic status (SES) – is the combined measure of a family's economic and social position relative to others based on income, education, and occupation. The indicator of low socioeconomic status for this study is the percentage of students receiving free or reduced lunch.

The No Child Left Behind Act of 2001 (NCLB) – is a reauthorization of the Elementary and Secondary Act of 1965. The policies of this law are intended to improve academic achievement and provide accountability for schools.

### Review of Literature

A review of literature supports the contention that SWPBS is associated with decreases in problem behavior and increases in pro-social skills and academic outcomes (Horner & Sugai, 2002; Martella, Nelson, & Marchand-Martella, 2003; Sugai & Horner, 2001). However, in some cases research on SWPBS implementation produced mixed behavioral and academic outcomes. Lassen (2006) and Curry (2007) suggest one possible reason for mixed results is insufficient implementation. To date, relatively little research exists on the relationship between the fidelity of program implementation to academic and behavioral outcomes. This study will add to the body of research regarding

SWPBS implementation fidelity and its relationship to academic and behavioral outcomes.

### School-wide Positive Behavior Support Background

The classroom practices and behavior management strategies that support School-wide Positive Behavior Support have been known for over 40 years (Sugai & Horner, 2002). The conceptual framework has evolved from the work of the behaviorist B.F. Skinner (1953). Baer, Wolf, and Risley (1968) then laid the foundation for the application of applied behavior analysis (ABA) to the study and improvement of human behavior. The key components of ABA include a set of techniques designed to bring about socially acceptable behavioral changes. During the late 1960s, Madsen, Becker, and Thomas (1968) studied the importance of establishing appropriate classroom rules and behavior to achieve positive classroom atmospheres. This research developed into positive behavior support (PBS) which included proactive methods for improving the behavior of individual students with disabilities. Kane (1992) argued that school-wide behavioral planning and interventions should be based on factors such as the characteristics of the students, educators, and schools. Furthermore, Zins and Ponti (1990) identified the importance of policies and organizational systems that govern staff behavior in schools and the appropriate allocation of resources to positively influence school climate. Mayer (1995) then extended the principles of applied behavior analysis and organizational behavior management to whole school interventions. An emphasis on the collective behaviors and routines of

educators and a focus on the whole school as the unit of analysis then developed (Lewis & Sugai, 1999). In 2002, Sugai and Horner noted that attention to behavioral practices in schools had increased due to legislation such as the Individuals with Disabilities Act (IDEA) (2004). Recommendations to implement more preventive and positive approaches for addressing problem behavior by researchers have also lead to increased implementation of SWPBS (Elliott, Hamburg, & Williams, 1998; Epstein, Kutash, & Duchnowski, 1998; Gottfredson, Gottfredson, & Skroban, 1996; Mayer, 1995; Sugai et al., 2000). Recent efforts to elevate behavior curricula and instruction to levels of interest and importance that are similar to those found with academics have also fueled the utilization of this approach (Sandomierski, Kinkaid, & Algozzine, 2007). School-wide Positive Behavior Support is the current embodiment of this evolution. This preventative, whole school approach is currently being used nationwide in an attempt to improve student behavior and academic outcomes. Figure 1-1 illustrates this evolution.

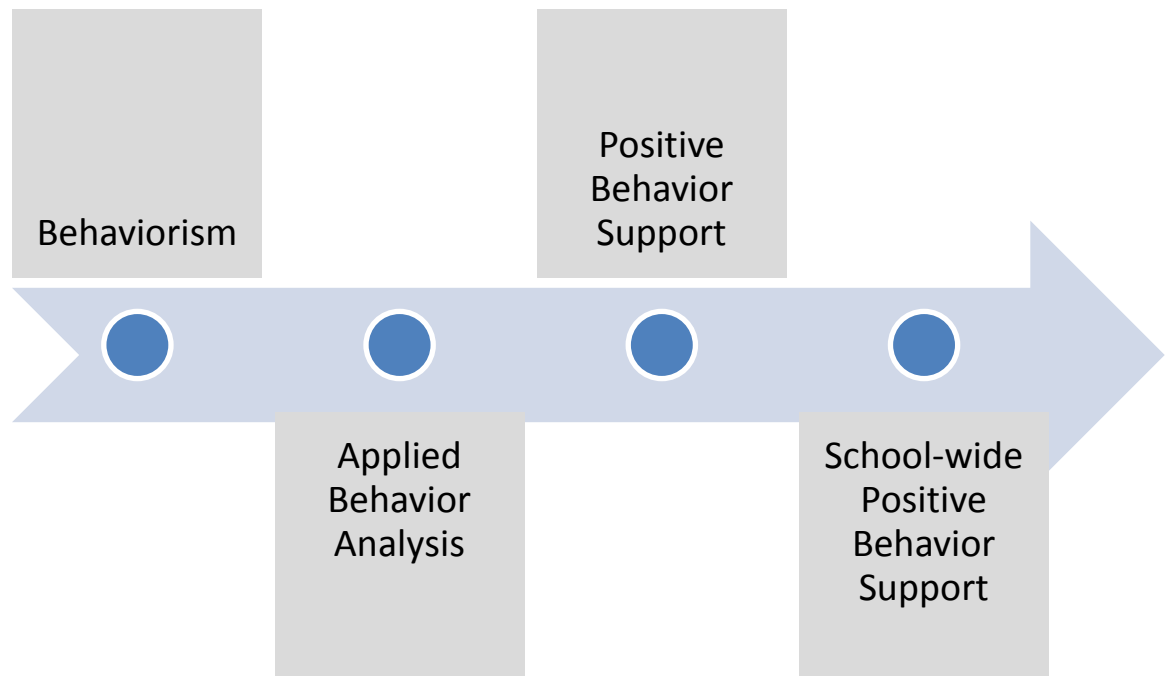


Figure 1-1: SWPBS conceptual foundations

Note. Adapted from The evolution of discipline practices: School-wide positive behavior supports by G. Sugai, and R.H. Horner, 2002, *Child and Family Behavior Therapy*, 24, p.24.

### Application of School-wide Positive Behavior Support

School-wide Positive Behavior Support (SWPBS) is the application of a broad range of systemic and individualized behavior approaches designed to achieve behavior change and learning outcomes (Murdock, 2007). It provides students with clearly defined, carefully taught, and consistently rewarded behavioral expectations. Specific consequences that are consistent with the level of misbehavior are also defined in this system (Smolkowski, 2006). The critical elements of SWPBS are identified by Lewis and Sugai (1999). The major components of school-wide applications of Positive Behavior Support (PBS)

include establishing a planning team, defining school-wide behavioral expectations, training teachers, teaching behavioral expectations to students, developing procedures for acknowledging appropriate behaviors and discouraging inappropriate behavior, utilizing data to monitor behaviors, and evaluating the system (Sugai & Horner, 2002). Data collected from sources such as office discipline referrals are one of the primary measures used for evaluation and decision making to appropriately address student behavior in public areas of the school such as the hallways, cafeteria, playground, and restrooms (Smolkowski, 2006).

Many schools choose to implement SWPBS in an effort to maximize academic achievement and to create a safe and orderly environment due to the research-validated behavior management practices incorporated by the system (Murdock, 2007). SWPBS in the school setting is implemented in a three-tier model that provides a continuum of support that includes primary universal support for all students, secondary support that is targeted for students at-risk for problem behavior or academic failure, and tertiary support that is individualized for students who do not respond to either of the first two levels of support (Martella, Nelson, & Marchand, 2003). Each of the three levels of support is important for successful outcomes within the school setting (Lassen, 2006).

These elements are important in creating a positive cultural change. Scott and Martinek (2006) note that this framework could be unsuccessful in achieving desirable outcomes if the proactive changes are not implemented with fidelity. Buy-in from administration and teachers, the development of environments that

facilitate student success, effective teaching of rules and procedures, and consistent consequences for behavior are also important implementation components. Formative and summative evaluations of the system are also critical (Scott & Martinek, 2006). The tool that was used to measure implementation fidelity for this study is the Benchmarks of Quality (BoQ).

### Benchmarks of Quality

The School-wide Evaluation Tool (SET) and the Benchmarks of Quality (BoQ) are two tools that have been used to measure the fidelity of implementation of SWPBS throughout the United States. The BoQ is the primary tool for measuring fidelity in the state of Florida and will be used for this study. The BoQ is a 53-item rating scale that measures the degree of fidelity with which a school is implementing SWPBS (BoQ; Kincaid, Childs, & George, 2005). This instrument was developed as a self-evaluation tool to allow school teams to review their progress toward implementing the critical elements of PBS. The critical elements are PBS Team, Faculty Commitment, Effective Discipline Procedures, Data Entry, Expectations and Rules, Reward System, Lesson Plans, Implementation Plans, Crisis Plans, and Evaluation. Cohen, Kincaid, and Childs, (2007) suggest:

The results of our evaluation indicate that the School-wide Benchmarks of Quality for SWPBS is a reliable, valid, efficient, and useful instrument for measuring the degree of implementation of the primary or universal level of PBS application within individual schools. The high test-retest reliability (above 90%) indicates that the BoQ is a stable instrument, and the high interrater reliability (also above 90%) indicates that the BoQ process, including the Scoring Guide, allows for accurate and consistent scoring across different evaluators. (p. 210)

A Cronbach alpha coefficient of 0.96 was reported for the BoQ scale. This indicated good internal consistency between questions. These scores fell above the threshold set by Nunnally (1978) to determine if there is internal consistency between the items on the scale. Based on the validity and reliability of this tool for assessing the implementation of School-wide Positive Behavior Support in a school, it was selected for collecting fidelity data for this study. Cohen, Kinkaid, and Childs (2007) also suggested that an overall implementation score of 70% or higher indicates that the critical features are in place to provide effective behavior support. The 70% benchmark was used to indicate sufficient implementation fidelity for this study.

#### Office Discipline Referrals

Office Discipline Referrals (ODRs) are a useful tool in that they are a common form of documentation for student problem behavior and they have been shown to be a valid measure (Irvin, Tobin, Sprague, Sugai, & Vincent, 2004). These researchers demonstrated that ODR data are highly correlated with other measures of behavior such as student self-report, teacher perceptions, and juvenile delinquency. Research has shown higher levels of school-wide ODRs are associated with higher levels of problematic behavior in schools. In addition, violent events at school can be reliably predicted by the number and type of ODRs received at school (Tobin & Sugai, 1999). For this study, ODR's were used to measure student problem behavior.

## Florida's Comprehensive Assessment Test

For this study, academic performance in reading and mathematics were assessed using standardized test data from the FCAT. This comprehensive battery of academic tests was designed to assess student knowledge and understanding of reading, writing, mathematics, and science content as described in the Sunshine State Standards (FLDOE, 2007). The test meets all professional standards of psychometric quality traditionally associated with standardized achievement tests. Reliability coefficients that have been used in relation to the FCAT are internal consistency, test-retest reliability, inter-rater reliability, and reliability of classifications. Content-related evidence, criterion-related evidence, and construct-related evidence are used for evidence of validity (FLDOE, 2007). This reliability and evidence is further supported by the research of Schatschneider, Buck, Torgesen, Wagner, Hassler, Hecht, & Powell-Smith (2004). Mean scale scores from the FCAT reading and mathematics subtests were used as measures of academic achievement for this study.

### Statement of the Problem

Although researchers have studied the relationship between the implementation of SWPBS to academic and behavioral outcomes, few have included data in their studies regarding how closely the program is implemented as it is intended (Muscott, Mann & Lebrun, 2008). Dumas, Lynch, Laughlin, Smith, and Prinz (2001) suggested that the conclusions that can be drawn about a program are limited if fidelity is not established. The purpose of this study was



to examine the extent which SWPBS was implemented in elementary and middle schools in Florida during the 2007-2008 school year. Furthermore, the number of years that SWPBS has been implemented in each school as a factor in proper implementation was analyzed. This study also examined possible relationships between the fidelity of implementation of SWPBS as indicated by the total BoQ score and the Florida Comprehensive Achievement Test reading and mathematics subtests. The relationship between BoQ scores and students' behaviors within the school as measured by office disciplinary referrals and total days of out of school suspensions during the 2007 - 2008 school year in the state of Florida were also studied. Next, differences between schools that scored in the top quartile of total BoQ scores, the lowest quartile of total BoQ scores, and a control group were examined. The final purpose of this study was to determine if the fidelity of implementation and the number of years that a school has implemented SWPBS can be used to predict future FCAT reading or mathematics scores. After analyzing possible relationships and differences, conclusions were made regarding the implementation of SWPBS.

### Research Questions and Hypotheses

The study was guided by the following research questions:

1. To what extent is SWPBS implemented with fidelity as measured using the BoQ in selected elementary and middle schools in Florida during the 2007-2008 school year? Is there any difference in fidelity scores between

schools that have implemented SWPBS for one year, two years, or three or more years?

2. What is the relationship, if any, between fidelity of implementation of SWPBS as measured using the BoQ during the 2007-2008 school year and student problem behaviors as measured by office discipline referrals and the number of days for out of school suspensions in selected elementary and middle schools in Florida?
3. What is the relationship, if any, between fidelity of implementation of SWPBS as measured using the BoQ during the 2007-2008 school year and academic achievement as measured by FCAT reading and mathematics subtest scores in selected elementary and middle schools in Florida?
4. Is there a statistically significant difference during the 2007-2008 school year in mathematics and reading FCAT scores among elementary and middle schools that scored in the top quartile of BoQ scores, those that were in the bottom quartile of BoQ scores, and those schools which did not implement SWPBS?
5. To what extent can FCAT reading and mathematics scores be predicted by the fidelity of implementation of SWPBS as measured using the BoQ and by the number of years that the program has been implemented?

It is hypothesized that:

1. The majority of schools that have implemented SWPBS in Florida have implemented the necessary components to achieve desirable

outcomes as demonstrated by a BoQ score of 70 or higher. Schools that have implemented SWPBS for three or more years will have higher fidelity scores than schools who have implemented the program for one or two years.

2. A negative relationship will be observed between the total BoQ score and student problem behavior as measured by office discipline referrals and the number of days for out of school suspensions.
3. A positive relationship will be observed between the total BoQ score and FCAT reading and mathematics subtest scores.
4. There will be statistically significant differences in mathematics and reading FCAT scores among elementary and middle schools that scored in the top quartile of BoQ scores, those that were in the bottom quartile of BoQ scores, and those schools which did not implement SWPBS during the 2007-2008 school year.
5. FCAT reading and mathematics scores can be significantly predicted by the fidelity of implementation of SWPBS as measured using the BoQ and by the number of years that the program has been implemented.

## Methodology

### Population and Sample

The population for this study was 2,889 public elementary and middle schools in the state of Florida during the 2007- 2008 school year (FLDOE, 2008c). For research question one, the sample included 145 elementary and 60 middle schools that actively utilized SWPBS during the 2007-2008 school year and have completed the BoQ survey. The sample for research question two included 134 elementary and 59 middle schools that actively utilized SWPBS during the 2007-2008 school year, had completed the BoQ survey, and had reported ODR and OSS data. Research question three was answered using a sample which included 134 elementary and 59 middle schools that actively utilized SWPBS during the 2007-2008 school year, had completed the BoQ survey, had reported ODR and OSS data and had valid FCAT Reading and Mathematics subtest scores. For question four, three groups of elementary schools and three groups of middle schools were selected. Group 1 included 30 elementary schools that scored in the lowest quartile of total BoQ scores. Group 2 consisted of 30 schools in the highest quartile of total BoQ scores. A comparison group, Group 3, included 30 schools that did not participated in SWPBS training. Group 4, Group 5, and Group 6 consisted of 14 middle schools each. Group 4 included middle schools that scored in bottom quartile of BoQ scores, Group 5 consisted of middle schools in the top quartile of BoQ scores, and Group 6 included non-SWPBS middle schools. The fifth question was

answered using a sample which included 134 elementary and 59 middle schools that actively utilized SWPBS during the 2007-2008 school year and had completed the BoQ survey.

### Instrumentation

The Benchmark of Quality (BoQ) survey was used to measure the fidelity of implementation of the program. Cronbach's alpha was used to test the reliability of this scale. Academic achievement was measured using grade level mean scale scores from the Reading and Mathematics subtests of the Florida Comprehensive Achievement Test (FCAT). Data about students' behavior was gathered using a School-wide Positive Behavior Support Outcome Data Summary form (Appendix A). Information about the number of Office Discipline Referrals (ODR) and the total number of days of out of school for suspensions was recorded on this form.

### Data Collection Procedures

The results of the BoQ survey, the School-wide Positive Behavior Support Outcome Data Summary (Appendix A), and demographic information for the 2007-2008 school year were gathered by the Positive Behavior Support Project at the Mental Health Institute, University of South Florida and provided to the researcher. Discipline data were for the total school population for each elementary and middle school. Mean scale scores from the reading and mathematics portions of the 2008 FCAT for each grade level were obtained

from the Florida Department of Education website. The average Mean Scale Score in grades three through five for each subject area were used to determine elementary school scores. For middle schools the average Mean Scale Score for grades six through eight were used for each subject area.

### Analytic/Statistical Methods

Tables were presented for student demographical information for each group used in this study including socioeconomic status (SES), racial and cultural background, ODRs per 100 students, and number of days for suspensions annually per 100 students.

BoQ total scores were examined for the 2007-2008 school year to evaluate the target schools' adherence to universal SWPBS procedures. A total score of 70 indicated that the program was being implemented with fidelity. Descriptive statistics including the mean, median, standard deviation, skewness, and kurtosis were analyzed to determine the level of implementation. A histogram and a line graph were used as graphic representation of the data. A one-way between groups ANOVA with post-hoc tests was run to determine if there was a relationship between years of implementation and fidelity.

Two sets of analyses were conducted in order to examine the mean ODR and out of school suspensions days at the target schools. The first analysis was of detailed descriptive statistics generated for ODR's and suspensions. Second, a Pearson's Product-moment Correlation was conducted between the fidelity of implementation (BOQ total score) and the number of office discipline referrals per

100 students and the number of days of out of school suspensions, respectively. Histograms were used to display the data.

Two sets of analyses were conducted to examine the relationship between the fidelity of implementation and Mathematics and Reading FCAT scores. The first analysis was a set of detailed descriptive statistics generated for mathematics and reading mean scale scores. Second, a Pearson's Product-moment Correlation was conducted between the fidelity of implementation (BOQ total score) and the mean scale scores for the mathematics and reading subtests of the FCAT. Histograms were used to display the data.

To examine the differences between elementary schools that have implemented SWPBS with fidelity and those who have not, two sets of analyses were conducted to address questions four. The first analysis was a set of detailed descriptives. For the second analysis, Analysis of Variance (ANOVA) tests were conducted. The independent variable, fidelity of implementation, had three categories: lowest quartile of BoQ scores (Group 1), highest quartile of BoQ scores (Group 2), or did not participate in SWPBS training (Group 3). The dependent variable was the FCAT Reading and Mathematics mean scale scores. The ANOVA tests were conducted to compare Group 1, Group 2, and Group 3 for each year using reading and mathematics subtest mean scale scores of the FCAT. This procedure was repeated for middle schools with the three categories for fidelity of implementation identified as lowest quartile of BoQ scores (Group 4), highest quartile of BoQ scores (Group 5), or did not participate in SWPBS training (Group 6).

For question five, a Pearson's correlation and a multiple regression analyses was conducted to evaluate if reading and mathematics scores could be significantly predicted by the fidelity of implementation of SWPBS or by the number of years that the program had been implemented.

### Significance of the Study

To address the challenges occurring since the passage of NCLB, educators have begun using School-wide Positive Behavior Support to improve student achievement and reduce student problem behaviors. The use of SWPBS as a proactive behavioral program has grown nationwide from 500 schools during 2002 to over 6000 schools during 2008 (Sugai & Horner, 2002; Skiba & Sprague, 2008). This rapid increase has occurred despite mixed evidence of its impact on academic achievement. It has been suggested that schools that have not seen statistically significant positive quantitative changes in behavioral and academic outcomes may not have implemented SWPBS with sufficient fidelity (Scott & Martinek, 2006). This study is significant because it evaluated the claims that a greater level of fidelity of implementation will lead to positive academic and behavioral outcomes. Utilizing data gathered from the BoQ, FCAT, and ODR's, statistical analyses were run to examine possible relationships between the fidelity of implementation of SWPBS to reading and mathematics achievement and the relationship between the fidelity of implementation of SWPBS to student problem behaviors as measured by office discipline referrals and total days for out of school suspensions. Furthermore, this study adds to the research on this



topic by specifically addressing the issue of fidelity of implementation in relation to the success or failure of academic and behavioral outcomes.

### Delimitations of the Study

The study will be delimited to:

1. Schools in the State of Florida.
2. Schools with reading and mathematics FCAT scores for grades three through eight.

### Limitations

The study will be limited to:

1. The BoQ data and Positive Behavior Support Outcome Data Summary form are reported by each school. As a self evaluation tool, some inconsistency could result.
2. The level of fidelity at each grade level is assumed to be consistent with the level of implementation of the school as a whole since grade level data was not collected regarding implementation.
3. Data from different cohorts of students will be analyzed in aggregate. This limits any conclusions regarding individual academic and behavioral functioning.
4. Due to the relatively small sample size for correlational statistics, conclusions are limited.

## CHAPTER TWO: REVIEW OF LITERATURE

### Introduction

A meta-analysis of more than 800 studies concerned with school discipline problems and challenging behaviors identified social skills training, system-wide behavioral interventions and academic curricula modifications as effective strategies in school intervention (Gottfredson, 2001). These are some of the underlying concepts behind SWPBS. In recent years, SWPBS has expanded nationally and globally to address challenging school-wide, classroom, and individual behavior (Shultz, 2007). Many journals, technical assistance centers and personnel preparation programs have helped increase the capacity of schools to provide effective behavior interventions (Sugai et al., 2000; Horner, Sugai, & Horner, 2000). An increasing number of states are currently engaged in large-scale statewide systems of SWPBS and have reported significant decreases in the amount of ODRs in schools that have implemented this framework on their campuses (Freeman et al., 2006). Networks have been set up in every state in the country (OSEP, 2008). Promising data from many states have helped expand SWPBS efforts (Muscott et al., 2004). It appears that successful implementation is dependent on the delivery of the training at both the state and local level (Dunlap et al., 2001). Sugai, Horner, and McIntosh (2008) reported the results supporting the SWPBS approach are solid, compelling, and growing.

## Application of School-wide Positive Behavior Support

The critical elements of SWPBS were initially identified by Lewis and Sugai (1999). The major components of school-wide applications of Positive Behavior Support (PBS) include establishing a planning team, defining school-wide behavioral expectations, training teachers, teaching behavioral expectations to students, developing procedures for acknowledging appropriate behaviors and discouraging inappropriate behavior, utilizing data to monitor behaviors, and evaluating the system (Sugai & Horner, 2002). These components are illustrated in Figure 2-1.

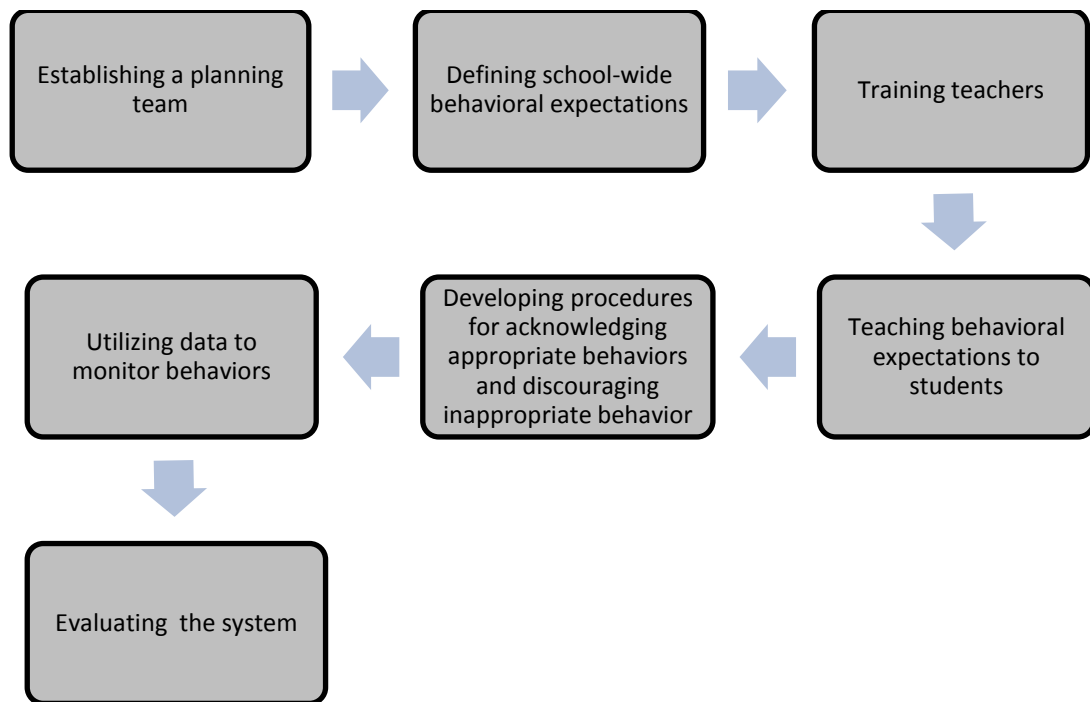


Figure 2-1: Major components of SWPBS

Note. Adapted from “The evolution of discipline practices: School-wide positive behavior supports” by G. Sugai, and R.H. Horner, 2002, *Child and Family Behavior Therapy*, 24, p.40.

The logic behind SWPBS is based on the assumption that a set of clearly stated expectations is the central feature for promoting appropriate student behavior and that the behavioral climate of the school is influenced by peer interactions as much as, or more than adult-student interactions. When all students know the behavioral expectations they are more likely to support appropriate behavior by peers (Horner, et al., 2004).

There are some indications, from research of SWPBS implementation in K–12 settings, that without at least 80% implementation of the components of SWPBS as measured by the SET, sustainability of critical features is threatened (Scott & Martinek, 2006). In other words, partial implementation of SWPBS may not be adequate to improve student behaviors or sustain positive change over time (Benedict, Horner, & Squires, 2007). Bradshaw, et al. (2008) recommended that schools utilize a fidelity instrument such as the SET or BoQ to identify baseline data regarding implementation of these components. This information can be used by administrators, PBS behavior support coaches, and PBS trainers to implement training to address weaknesses specific to each school.

The formation and use of a leadership team to implement PBS within the school is one of initial key features of PBS (Albin, Lucyshyn, Horner, & Flannery, 1996; Benazzi, Horner, & Good, 2006). The leadership team may include classroom administrators, teachers, family members, and related service personnel such as mental health specialists (Benedict, Horner, & Squires, 2007). Liaupsin, Jolivette, and Scott (2004) suggested that one of the first characteristics of effective implementation is a shared vision of the staff.

Defining school-wide expectations is another important component of successfully implementation. Once there is buy in to the shared vision, there must be collaboration to determine what the agreed set of academic and social expectations will be. These expectations will then be taught, modeled, and reinforced by all staff. Liaupsin, Jolivette, and Scott (2004) stated that these expectations are likely to differ among age groups and should be operationally defined for each setting. Expectations such as “be responsible, be respectful, be safe” would fit for primary aged students, but would differ for students in high school. A school may determine that “be responsible” in the cafeteria is defined as keeping tables clean and throwing away garbage at the end of the lunch period. These expectations are then communicated effectively with all stakeholders (Liaupsin, Jolivette, & Scott, 2004).

It is important that all staff members are trained properly in behavior management strategies and school-wide expectations so disciplinary policies are fairly and equitably applied because inconsistency will decrease the effectiveness of any program (Liaupsin, Jolivette, & Scott, 2004). Research has shown that schools without formal SWPBS training tend to utilize traditional behavioral approaches rather than a proactive, positive approach (Bradshaw et al., 2008).

According to Safran and Oswald (2003), assessment is the foundation for initiating and planning SWPBS in individual schools. Multiple procedures and tools for conducting functional assessments of problem behavior such as interviews, rating scales, direct observation, and functional assessments are

included as part of this system. The results of these assessments are used to develop supports to meet the needs of all students. These supports include the expansion of interventions beyond consequence manipulations to include altering the environment and teaching appropriate behaviors (Horner & Carr, 1997). These multi-component interventions are designed to address multiple issues that influence an individual's behavior (Carr et al., 2002).

Data collected from sources such as office discipline referrals are one of the primary measures used for evaluation and decision making to appropriately address student behavior in public areas of the school such as the hallways, cafeteria, playground, and restrooms (Smolkowski, 2006). This is supported by LeTendre's (2000) assertion that good schools require educators who work together to collect, analyze and act on data regarding student behavior.

SWPBS is organized along a focused continuum from three primary perspectives (Walker et al., 1996). These perspectives are aligned into three tiers of support. The Tiers are illustrated in Figure 2-2. In the school setting this continuum of support includes primary universal support for all students, secondary support that is targeted for students at-risk for problem behavior or academic failure, and tertiary support that is individualized for students who do not respond to either of the first two levels of support (Martella, Nelson, & Marchand, 2003). Each of the three levels of support is important for successful outcomes within the school setting (Lassen, 2006).

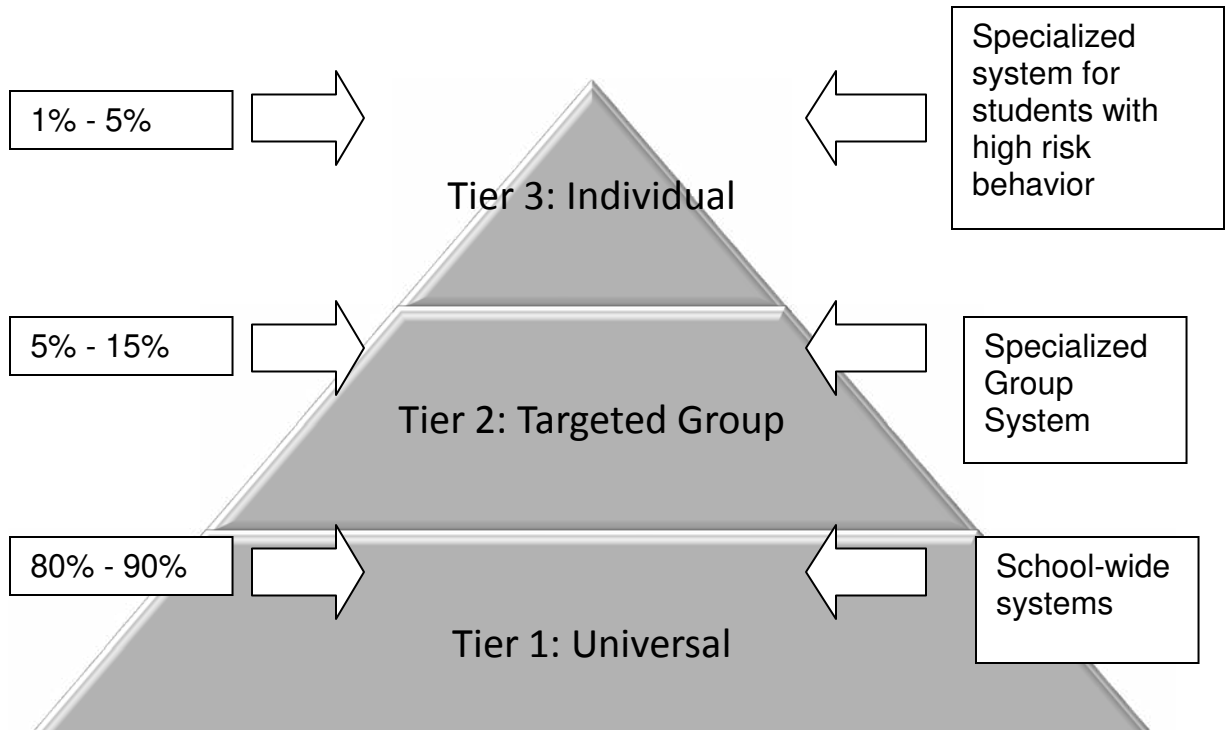


Figure 2-2: Continuum of School-wide Positive Behavior Support

Note. Adapted from “School-wide positive behavior support: Implementers’ blueprint and self-assessment” by G. Sugai, R.H. Horner, W. Sailor, G. Dunlap, L. Eber, T. Lewis, D. Kinciad, T. Scott, S. Barrett, R. Algozzine, R. Putnam, C. Massanari, and M. Nelson, 2005 . Eugene, OR: University of Oregon, p.17.

### Features of Positive Behavior Support

Sugai and Horner (2002) identified five key features of SWPBS. These are a prevention based continuum of support, a proactive instructional perspective, conceptually and empirically sound practices, data based decision making, and a systems perspective.

### Continuum of Support

PBS is a three tiered problem-solving model that aims to prevent inappropriate behavior through teaching and reinforcing appropriate behaviors

(Sugai et al., 2005). The three levels of support are modeled after the US Public Health service levels of “prevention” outcomes (Guetzloe, 1992). The purpose of this model is to match the intensity of the intervention with the severity of the problem (Gresham, 2004;Turnbull et al., 2002). This approach is grounded in differentiated instruction at the universal (Tier 1), targeted group (Tier 2), and individual (Tier 3) levels. The goal of SWPBS is to discover how best to meet the needs of children experiencing academic and behavioral difficulties in school and to ensure that the critical factors and components are in place (Sandomierski, Kinkaid, & Algozzine, 2007).

#### Tier 1 (Universal)

At the universal level, the focus is on decreasing the number of cases of a problem behavior by utilizing the most effective practices for all students. The desired outcome of primary prevention is to prevent harm (Gresham, 2004). School-wide discipline, classroom-wide behavior management, and instructional practices and systems are emphasized (Sugai & Horner, 2002). A universal behavioral curriculum focuses attention on the set of social skills all students are expected to display. For SWPBS this consists of the school-wide expectations, rules, and procedures. Tier 1 focuses on providing all students with a safe and predictable environment with a focus on building positive relationships (Fox, Dunlap, Hemmeter, Joseph, & Strain, 2003). Supports at this level include teaching and reinforcing school wide expectations, providing an appropriate classroom environment, and utilizing data on factors such as time and location to proactively improve the school environment.



The practice of teaching and reinforcing students for displaying the school-wide expectations is considered to be a universal intervention, delivered to every student in every setting. It is expected that reinforcing expected behaviors increases the frequency that students will act according to the expectations (Sandomierski, Kinkaid, & Algozzine, 2007). These clearly defined expectations are explicitly taught daily, with examples and non-examples, during large group instruction (Stormont et al., 2005; Sugai et al., 2000). The expectations are generally three to five simple rules that are displayed in poster form throughout the school for children and others to refer to (Benedict, Horner, and Squires, 2007). Staff throughout the school should continuously give students feedback regarding their use of socially appropriate behaviors (Stormont et al., 2005).

Providing an appropriate classroom environment is another aspect of the first Tier. Attention is given to the physical classroom design, organization, and verbal interactions with children. The physical classroom layout includes the set up of classroom furniture and well-defined learning centers. It is also important that the class schedule is routinely followed (Fox et al., 2003). This component is especially important because an intervention in a maladaptive environment would make it difficult to determine that the student had a poor response to the intervention (Sandomierski, Kinkaid, & Algozzine, 2007). Schools must continually look at their classroom-level data to determine the overall health of each of their classrooms. If many students are experiencing difficulties in a particular classroom the underlying causes should be analyzed. Potential indicators of a maladaptive classroom include a high number of ODRs, high

levels of off-task behavior, continuing low achievement, or extended periods of unstructured time. In these cases, administrators and school based PBS teams should work with the teacher to identify and address deficiencies (Sandomierski, Kinkaid, & Algozzine, 2007). Beyond the classroom, attention is given to the layout of the facility (Fox et al., 2003).

In addition to evaluating interventions at the class level, utilizing data at the school-wide level is important in making decisions in the best interest of all students. For example, a high level of ODRs early in the morning in the bus area may be addressed by increasing supervision or changing the procedures for students exiting the buses and entering the building. When a universal intervention is carried out with fidelity, students who are in need of additional support can be identified. These are the students who continue to display social problems despite the universal supports that are in place. Students may be identified as needing further support if they have a history of ODRs or have a high number of ODRs relative to the rest of the school's population. In addition, students may be identified for Tier 2 supports through screening measures that proactively identify at-risk students. This method is useful for students who may have internalizing behaviors or less severe externalizing behaviors that are not captured in school-wide ODR information (Clonin, McDougal, Clark, & Davison, 2007; Severson, Walker, Hope-Doolittle, Kratochwill, & Gresham, 2007).

Universal interventions are generally effective for approximately 80% of the students in a typical school (Sugai et al., 2005). When behavior instruction and interventions are established at both the school-wide and classroom levels

student who continue to struggle may be identified as needing additional services (Sandomierski, Kinkaid, & Algozzine, 2007).

#### Tier 2 (Targeted Group)

At the secondary or targeted group level, the goal is to reduce the number of existing problem behavior cases by providing additional instructional and behavioral supports for the relatively smaller number of students who exhibit negative social behaviors and need more specialized supports than those provided by primary prevention efforts (Sugai & Horner, 2002). According to Gresham (2004), efforts at this level are intended to reduce or reverse harm. These supports include a common set of specialized interventions used in small groups for these students (Hawken & Horner, 2003). Targeted group interventions should be evidence-based, appropriate to the student's level of need, easy to administer, and require limited time and staff involvement. Once they are in place, the progress of students receiving those interventions should be monitored. Progress monitoring may include teacher rating scales that reflect students' behavior goals and tracking forms that record the social behavior of the student. Rating scales generally record the observer's opinion of a student's behavior during a specific time period (Sandomierski, Kinkaid, & Algozzine, 2007). This level of support is needed for 15% of the students in a typical school (Sugai et al.,2005).

In addition, the fidelity with which the interventions are implemented should also be monitored (Sandomierski, Kinkaid, & Algozzine, 2007). Some examples of this type of support are social skills groups, group counseling, peer

mentoring programs, or teacher-implemented strategies that are used throughout the day to support several children (Fox et al., 2003; Fuchs & Deshler, 2007). Tools associated with secondary supports include function-based behavior support planning, Individualized Education Programs (IEPs), person-centered planning, and specially designed instruction. These are also associated with supports at this level as well (Sugai & Horner, 2002). It should be noted that academic supports are critically important as a part of the comprehensive system at Tier 2 and 3 of SWPBS (Gresham, 2004; O'Shaughnessy et al., 2003; Putman, Horner, & Algozzine, 2006).

If a student has shown a poor response to universal and classroom-level behavioral interventions the academic proficiency of a student should then be assessed. If academic deficiencies are found, those should be addressed and the student's response to behavioral interventions should be interpreted cautiously until the academic problems are remediated (Sandomierski, Kinkaid, & Algozzine, 2007). If all academic deficiencies have been remediated and a student still displays inappropriate behaviors for the school setting despite Tier 1 and Tier 2 interventions, individual (Tier 3) interventions may be necessary.

### Tier 3 (Individual Student)

At the Tier 3 level the goal is to reduce the number of existing cases of problem behaviors displayed by students who are at high risk for significant emotional, behavioral, and social failure and to improve the students overall quality of life (Warren, et al., 2003). To achieve this goal, highly individualized, intensive, and team-derived interventions are implemented to decrease the

duration, intensity, complexity, and frequency of the problem behavior (Sugai & Horner, 2002). Generally up to 5% of the students in a typical school need tertiary supports (Sugai et al.,2005). Interventions at the Tier 3 level continue to use the guiding principle of matching services, time, and resources to a student's demonstrated need with the desired outcome being a reduction or reversal of harm (Gresham, 2004). Since the student has not responded to universal and small group interventions, interventions at this level are conducted on an individual basis. At Tier 3, the school team conducts an in-depth analysis of information regarding the response to and the fidelity of Tier 1 and Tier 2 interventions. In addition, additional sources of data are necessary for identifying students in need of more intensive support, for assessing the function(s) of their problem behaviors, and for evaluating the outcomes of the individualized education programs. At the beginning this process, a Functional Behavior Assessment (FBA) and a behavioral or mental health rating scale should be examined (Scott & Eber, 2003; Anderson & Kinkaid,2005). Based on this information, a Behavior Improvement Plan (BIP) should be developed, implemented, and monitored. If the student does not respond to this plan, additional data collection procedures such as direct observation by non-classroom personnel may become necessary. At this stage, access to an array of assessment information is essential for effective team decision-making (Sandomierski, Kinkaid, and Algozzine, 2007). Through the systemic utilization of positive behavior supports of increasing intensity and focus based on the students needs, appropriate social skills are taught. These individual supports

may include special education, individualized education plans (IEPs), specially designed instruction, functional assessment, or wraparound services (Sugai & Horner, 2002; Eber, Sugai, Smith, & Scott, 2002; Scott & Eber, 2003). These Individualized interventions are based on assessment information focusing on the prevention of problem contexts, instruction on functionally equivalent skills, and instruction on desired performance skills, strategies for placing problem behavior on extinction, strategies for enhancing contingency reward of desired behavior, and the use of negative or safety consequences if needed (OSEP, 2009). Parental involvement at this level should also be intensified to increase the potential for success (Minke & Anderson, 2005; Smith & Turnbull, 2005). Table 1 summarizes the core elements of the 3 tiers of SWPBS.

Table 1: Core elements of SWPBS

Prevention Tier	Core Elements
Primary	Behavioral Expectations Defined Behavioral Expectations Taught Reward system for appropriate behavior Continuum of consequences for problem behavior Continuous collection and use of data for decision-making
Secondary	Universal screening Progress monitoring for at risk students System for increasing structure and predictability System for increasing contingent adult feedback System for linking academic and behavioral performance System for increasing home/school communication Collection and use of data for decision-making
Tertiary	Functional Behavioral Assessment Team-based comprehensive assessment Linking of academic and behavior supports Individualized intervention based on assessment information. Collection and use of data for decision-making

Note. Adapted from “SWPBS Research” by OSEP Technical Assistance Center on Positive Behavioral Interventions and Supports, 2009,p.1. Retrieved March 29, 2009 from <http://www.pbis.org/research/default.aspx>

### Proactive instructional approaches

Schools frequently utilize reactive, punitive strategies to maintain discipline in schools (Netzel & Eber, 2003). Strout (2005) suggested that this strategy has little chance of changing behaviors without reteaching and positive correction. Unlike these traditional reactive approaches to discipline, SWPBS focuses a proactive and instructional approach to improving social behaviors. Sailor, Stowe, Turnbull and Kleinhammer-Tramill (2007) recommended utilizing the SWPBS framework for embedding social-behavioral instruction into academic content areas. This approach is characterized by carefully reviewing instructional

practices, structures, and processes within the school for the purpose of maximizing academic outcomes, selecting and teaching school-wide and classroom-wide expectations, rules, and routines, and practicing and encouraging the use of academic skills and behavioral expectations across multiple relevant settings and contexts (Sugai & Horner, 2002). Sprick, Garrison, and Howard (1998) noted that instructional time devoted to teaching behavioral expectations varies based on the composition of the class. This instruction should be delivered in a manner consistent with the ways that academics are taught as part of the daily routine. As part of the universal level of interventions, routines and behavioral expectations should be taught proactively at the beginning of the school year and after prolonged breaks in the school calendar (Strout, 2005).

#### Conceptually sound and empirically validated practices

Knoster and Kinkaid (2005) found that PBS brings together the conceptual theories of social, behavioral, and biomedical science. The practices of SWPBS are based on the conceptual logic of behavioral theory and the empirical foundations of applied behavior analysis (ABA). Positive Behavior support then evolved from ABA which first appeared in the *Journal of Applied Behavior Analysis* in 1968 (Baer, Wolf, & Risley, 1968). Since that time, the applications, practices, and procedures of ABA have been refined, tested, and replicated to form an important disciplinary approach for improving behavioral outcomes for individual students. Two major components of ABA are functional behavioral



assessments (FBAs) and behavior intervention plans (BIPs; Sugai & Horner, 2002; Sugai, Lewis-Palmer, & Hagen-Burke, 2000). These are also important pieces of PBS (Sugai & Horner, 2002). FBAs are used to determine the relationship between behaviors and environmental events. This is associated with the belief from behaviorism that most behaviors are learned responses to environmental stimuli (Schloss & Smith, 1994). Functional behavioral assessments are problem-solving processes conducted by support teams. The purpose of an FBA is to collect information relevant to the context in which the problem behavior occurred such as the setting, antecedent, and consequences. Examining the environment can help educators discover variables that negatively affect a student, classroom, or entire school and make necessary adjustments and help promote pro-social behaviors (Overton, 2004). Based on this information, a hypothesis is developed to summarize and highlight factors related to the problem behavior. Finally, this information is used to build and implement a specific behavior intervention plans to meet the needs of the individual (Sugai & Horner, 2002). While the FBA is used to collect data about behaviors, an individualized BIP is developed at the secondary and/or tertiary level for students who do not respond positively to Tier 1 or Tier 2 interventions (Shultz, 2007).

Behavior intervention plans use the data from FBAs to create a plan that involves the application of multiple procedures across the full spectrum of times, behaviors, and settings (Horner, 2000; Sugai et al., 2000; Turnbull et al., 2002). The purpose of the BIP is to make problem behavior an undesirable choice so that more desirable behaviors can be encouraged (Sugai & Horner, 2002). The

improvement in a student's behavior is often directly related to an associated change in the environment (Shultz, 2007). Once in place, the effectiveness of BIPs and changes to the environment need to be monitored, evaluated, and revised based on data collected after the intervention plan has been implemented (Scott & Eber, 2003; Sugai et al., 2000).

In SWPBS, this function-based perspective is used to organize empirically supported practices at the school, the classroom, specific non-classroom, and the individual student levels. These practices are illustrated in Figure 2-3. The school includes all students in all settings. The classroom focus includes instructional and behavior management practices. Specific non-classroom settings include various areas on a campus such as hallways, playgrounds, and cafeterias. The focus of individual student practices are function-based, specialized interventions (Sugai & Horner, 2002).

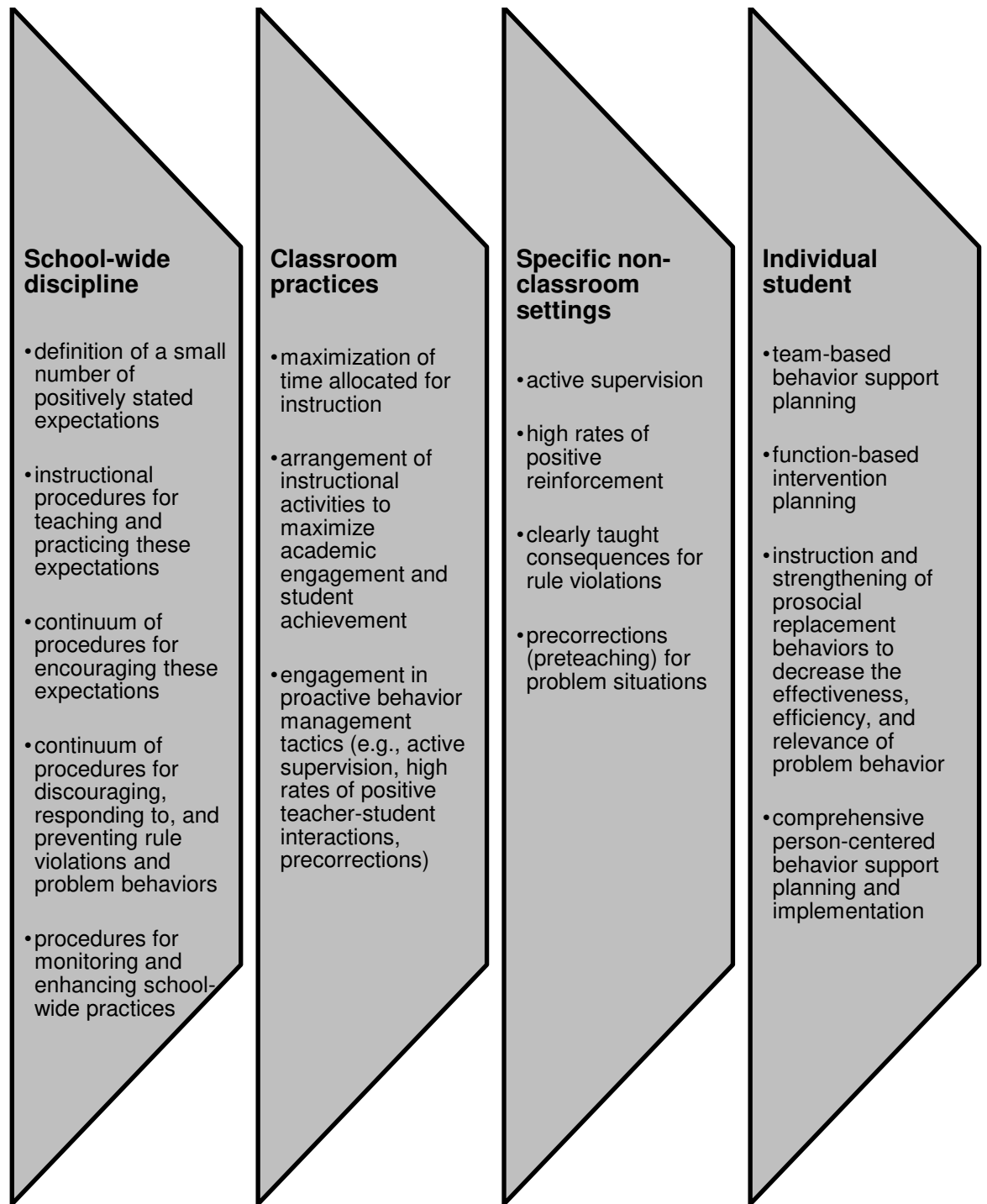


Figure 2-3: Practices at the four levels of SWPBS

Note. Adapted from The evolution of discipline practices: School-wide positive behavior supports by G. Sugai, and R.H. Horner, 2002, *Child and Family Behavior Therapy*, 24,p.43.

## Data-based Decision Making

Data-based decision making is one of the defining aspects of the SWPBS approach. These data are used for a variety of purposes such as defining and prioritizing areas of concern, selecting practices to address concerns, evaluating the efficacy of these practices, and for guiding long term action planning (Sugai & Horner, 2002). Useful sources of data may include standardized achievement scores, academic grades, office discipline referrals, attendance rates, archival records, direct observation, interviews, surveys, IEP goals and objectives, and functional behavioral assessments. These are all useful in developing and evaluating BIPs and assessing the effectiveness of school-wide interventions (Irvin et al., 2004; Irvin et al., 2006; Putman et al., 2003; Sugai et al., 2000). For data to be used efficiently it is critical that relevant data is identified, accurate data collection methods are used, efficient data summarization and presentation procedures are available, and clear decision rules are in place to guide data analysis. For this data-based action planning to occur, it is important leadership teams must have regularly scheduled meetings and be supported by administration (Sugai & Horner, 2002).

### SET and Benchmarks of Quality

The School-wide Evaluation Tool (SET) and the Benchmarks of Quality (BoQ) are the two primary tools that have been used to measure the fidelity of implementation of SWPBS throughout the United States. The BoQ is the primary tool for measuring fidelity in the state of Florida and will be used for this study.

The School-wide Evaluation Tool (SET; Sugai, Lewis-Palmer, Todd, & Horner, 2001) is a research instrument that was designed in 2001 at the University of Oregon to measure the implementation of SWPBS procedures (SET; Horner et al., 2004). The 28 items of this instrument are organized into seven subscales that represent the seven key features of school-wide PBS. These subscales are listed on Table 2 (Horner, et al., 2004). Each of the items are assigned a value of 0 (not implemented), 1 (partially implemented), or 2 (fully implemented). The percentage of total points is calculated for each subscale, and then the mean of the seven subscales is calculated. This percentage is considered the total SET score. Although not empirically validated, the authors suggested that a total SET score of 80% or greater indicates adequate implementation fidelity of the primary prevention practices based on observations of the initial group of 44 schools in Oregon, Illinois, and Hawaii. To measure the reliability of the SET, internal consistency, test-retest and inter-observer agreement were examined. SET scores were correlated with Effective Behavior Support: Self-Assessment Survey (EBSSAS; Sugai, Horner, & Todd, 2000) scores to measure validity. Horner and his colleagues found this tool to be a valid and reliable tool to measure implementation fidelity of the primary level of SWPBS (SET; Horner et al., 2004). Kinkaid, Childs, and George (2007) stated that the SET provides excellent information about implementation and has acceptable psychometric properties, however, it has a few weaknesses. The SET is time intensive, requires on-site implementation, and schools can score an 80% without having many of the critical features of SWPBS, such as lesson plans and

an evaluation plan in place. The BoQ was designed to address these weaknesses.

The BoQ is a 53-item rating scale developed by Florida's Positive Behavior Support Project at the University of South Florida to measure the degree of fidelity with which a school is implementing SWPBS (BoQ; Kincaid, Childs, & George, 2005) (Appendix B). This instrument was developed as a self-evaluation tool to allow school teams to review their progress toward implementing the critical elements of PBS as defined by Lewis and Sugai (1999). The 10 subscales of the BoQ instrument are aligned with these critical elements (Kincaid, Childs, & George, 2007). The subscales of the BoQ and the critical elements of SWPBS are listed in Table 2.

The BoQ consists of a Coach Scoring Form, the Scoring Guide, and the Team Member Rating Form. A total BoQ score is obtained when the PBS coach utilizes the scoring guide to complete the Coach Scoring Form and the team members complete a simplified version of the Coach Scoring Form called the Team Member Rating Form. The raters indicate whether the content of each item is not in place, needs improvement, or is in place. After the coach and the team members complete their forms, the coach compares the results, addresses discrepancies with the team, and completes the Team Summary Report. On the Team Summary Report each of the ten subscales has 3 to 8 items with a value from 1 to 3 points each. Items with a value of 1 are considered to be minimally important and items with a value of 3 are considered to be critically important.

These points are added to calculate the total BoQ score. The possible range of scores is from 0 to 100 points.

Table 2: SET and BOQ subscales in relation to SWPBS critical elements

Critical Elements of PBS	BoQ	SET
Establishing a planning team	PBS Team	District Support Management
Defining school-wide behavioral expectations	Expectations and Rules	Expectations Defined
Training teachers	Faculty Commitment Implementation Plan	
Teaching behavioral expectations to students	Lesson Plans for teaching expectations	Behavioral Expectations Taught
Developing procedures for acknowledging appropriate behaviors and discouraging inappropriate behavior	Effective Discipline Procedures Reward System Crisis Plan	Reward System Violation System
Utilizing data to monitor behaviors	Data Entry and Analysis	
Evaluating the system	Evaluation	Monitoring/Evaluation

Note. Adapted from “Effective behavior support: A systems approach to proactive school-wide management” by T. J. Lewis, and G. Sugai, 1999. *Focus on Exceptional Children*, 31, 1–17; “School-wide benchmarks of quality.” by D. Kincaid, K. Childs, and H. George, 2005, University of South Florida; and “The school-wide evaluation tool (SET): A research instrument for assessing school-wide positive behavior support” by R.H Horner, A.W. Todd, T. Lewis-Palmer, L. K. Irvin, G. Sugai, and J.B. Boland, 2004, *Journal of Positive Behavior Interventions*, 6, 3–12.

Cohen, Kinkaid, and Childs (2007) conducted a study to analyze the internal consistency, test–retest reliability, interrater reliability, and concurrent validity of this instrument at the universal level of SWPBS. Data were collected from 105 schools in Florida and Maryland. Each of the 105 schools completed the BoQ and 47 schools also completed the SET. The BoQ was completed during the end of the year evaluation period between March and June. At schools that completed both instruments, the SET was completed within 2 weeks of completing the BoQ.

To determine internal consistency between items on the scale, Cronbach's coefficient alpha was calculated for the total score and for all BoQ subscales. The Cronbach alpha coefficient for the BoQ total score was 0.96. And the alpha for the subscales ranged from 0.74 to 0.87 with one outlier at .43. This indicates good internal consistency between questions based on the threshold of .70 set by Nunnally (1978) to determine if the items on the scale fit together (Cohen, Kinkaid, & Childs, 2007).

To measure test-retest reliability, 28 of the coaches that participated in this study completed the Coach Scoring Form on two separate occasions a week apart. Pearson's product-moment correlations were conducted for each subscale. The results indicated a high correlation of .94. Test-retest reliability for the total score is calculated by dividing the lower score by the higher score and multiplying by 100. The average percentage of agreement score that is calculated by this method was 97% which also indicates a high correlation (Cohen, Kinkaid, & Childs, 2007).



To determine the interrater reliability for this tool, Pearson's product-moment correlations were calculated using the scores from 34 schools from which two people completed the BoQ. The results indicated a high correlation of 0.87 ( $p < .01$ ) (Cohen, Kinkaid, & Childs, 2007).

Concurrent validity, or the relationship between one instrument and another similar instrument, was measured by correlating the total scores of the BoQ to the total scores of the SET for the schools that completed both. The results of the Pearson's product-moment correlations indicated a correlation of 0.51 ( $p < .05$ ). The BoQ scores averaged more than 15 points and 9 points lower than the comparable SET scores in Florida and Maryland, respectively. Cohen, Kinkaid, and Childs (2007) suggested that this may be due to the BoQ covering critical features of SWPBS that are not covered by the SET. Due to this difference, the BoQ may be able to discriminate among schools that are implementing these critical features with high fidelity.

Cohen, Kinkaid, and Childs, (2007) suggest:

The results of our evaluation indicate that the School-wide Benchmarks of Quality for SWPBS is a reliable, valid, efficient, and useful instrument for measuring the degree of implementation of the primary or universal level of PBS application within individual schools. The high test-retest reliability (above 90%) indicates that the BoQ is a stable instrument, and the high interrater reliability (also above 90%) indicates that the BoQ process, including the Scoring Guide, allows for accurate and consistent scoring across different evaluators. (p. 210)

Based on the validity and reliability of the BoQ for assessing the implementation of School-wide Positive Behavior Support in a school, it was selected for measuring fidelity data in this study. Cohen, Kinkaid, and Childs suggested that an overall implementation score of 70% or higher indicates that

the critical features are in place to provide effective behavior support. Sufficient implementation fidelity will be considered in this study using this benchmark.

#### Office Discipline Referrals

One of the critical components of SWPBS is data based decision making. A form of data that is frequently used by school personnel to evaluate student behavior and the behavioral climate of schools are Office Discipline Referrals (Irvin, Tobin, Sprague, Sugai, & Vincent, 2004). Multiple authors have attempted to evaluate the validity of ODR's as an indices of the behavioral climate of schools (Irvin, et al.,2006; Wright & Dusek,1998; Sprague, Sugai, Horner, & Walker,1999; Skiba, Peterson, & Williams,1997; Clonan, McDougal, Clark, & Davison, 2007).

Irvin, Horner, Ingram, Todd, Sugai, Sampson, and Boland (2006) conducted an empirical evaluation using a single group, nonexperimental design using Messick's construct validity as the conceptual framework. This evaluation assessed the validity of use, utility, and impact of ODR measures for data based decision making about student behavior in schools. Users of ODR measures were surveyed from 22 elementary schools and 10 middle schools. Results indicated that ODR measures were regularly used for a variety of data-based decisions. Referral data was also found to be effective and efficient for this use.

A case study analyzing discipline referrals across a 3-year period at two elementary schools in an urban school district conducted by Wright and Dusek (1998) suggested that limitations to using disciplinary referrals for compiling school base rates for disruptive behaviors exist. At the classroom level, these

included teacher bias in recording student behaviors, differing levels of teacher tolerance of disruptive behaviors, and the absence of independent, objective verification of disruptive student behaviors. At the school and district level, assumptions may be made prior to data collection which influence the resources dedicated to collect data that support that assumption, schools may be reluctant to accurately record data that would be unflattering when viewed by the public, and time and cost of accurately tracking individual incidents of student misbehavior may be limited. Irvin et al. (2004) also recognized using referral data is limited due to challenges such as the number of players involved in the referral process and their inherent biases and the complexity of the interactions among students, teachers, and administrators. Despite these limitations Wright and Dusek (1998) concluded that “the results of the analysis indicate both a stable rate of disciplinary referral of student subgroups in both schools across school years and a high and stable rate of recidivism, or re-referral, for individual students within a school year.” Based on these findings, the authors noted that disciplinary referrals provided useful information about emerging patterns of behavior within schools. Additional researchers also supported the use of office discipline referrals to identify intervention needs and successes (Sprague, Sugai, Horner, & Walker, 1999; Skiba, Peterson, & Williams, 1997; Clonan, McDougal, Clark, & Davison, 2007; Irvin et al, 2004).

Sugai et al. (2000) analyzed ODRs to improve school-wide support and discussed how ODRs might be used to select interventions. For example, if an elementary school had a referral per student ratio of 0.5, or a middle school had

45% of its students receiving one or more referrals, then the development of universal systems might be warranted. Group interventions would target students who received 10 or more referrals per year, and individual interventions would be developed for the 5% of students with the most referrals. The authors suggested that schools could utilize ODR data in a similar fashion to match student needs to specific intervention levels (Sugai et al., 2000).

### Systems Perspective

It has been suggested that large-scale initiatives are likely to fail after 2 to 3 years if system-level factors are not been considered (Latham, 1988). Therefore, systems must be in place to support behavior practices if they are to become ingrained in the culture of a school (Sugai & Horner, 2002). The SWPBS approach addresses this need by specifying which measurable behavioral outcomes are of concern. Second, data systems must be in place to monitor SWPBS implementation efforts. Third, evidence based practices must be adopted to maximize achievement of targeted outcomes. Finally, systems supports must be in place to support the sustained use of evidence based practices and data management systems (Sugai & Horner, 2002; Lewis, 2001). The SWPBS approach focuses on an interactive and self-checking process of organizational correction and improvement around four key elements; outcomes, practices, data, and systems. These elements are illustrated in Figure 2-4.

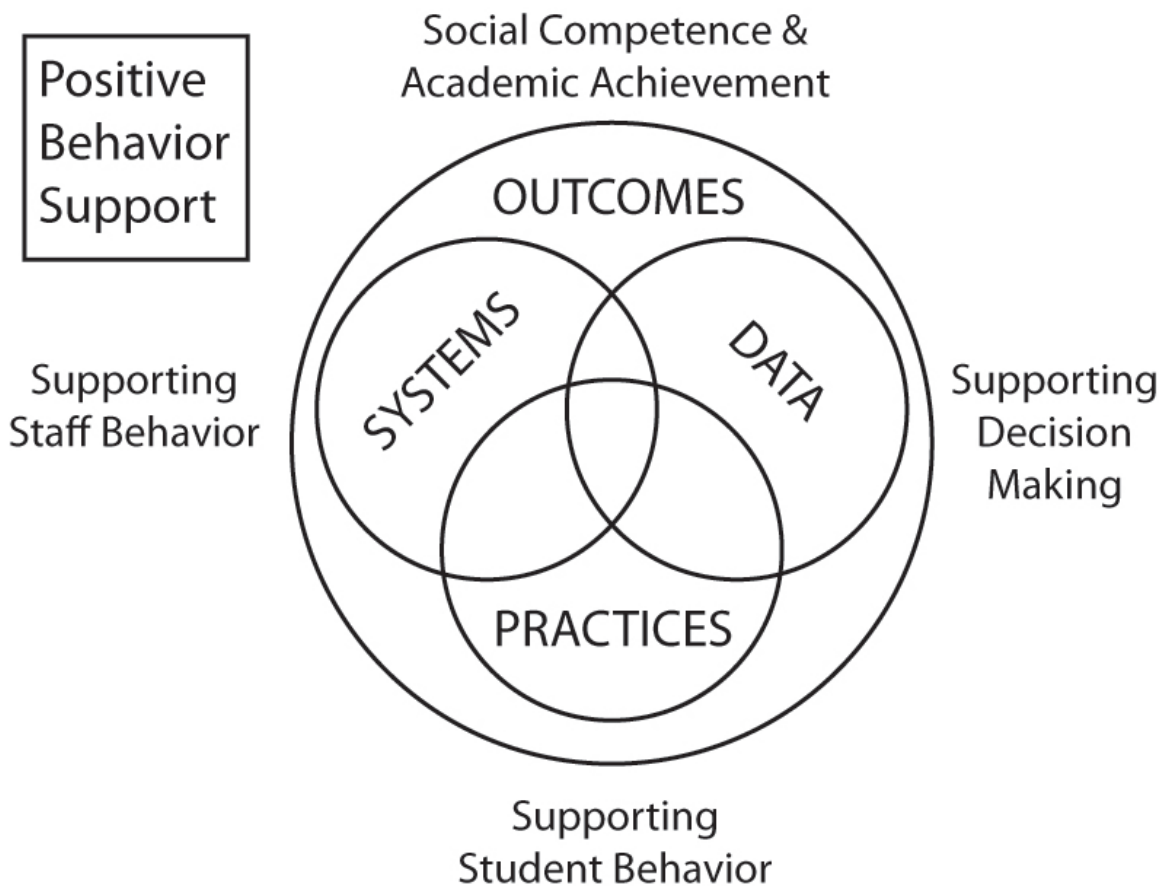


Figure 2-4: Keys elements of SWPBS

Note. Adapted from “School-wide positive behavior support: Implementers’ blueprint and self-assessment” by G. Sugai, R.H. Horner, W. Sailor, G. Dunlap, L. Eber, T. Lewis, D. Kinciad, T. Scott, S. Barrett, R. Algozzine, R. Putnam, C. Massanari, and M. Nelson, 2005, *p.15*. Eugene, OR: University of Oregon.

Crone and Horner (2003) suggested systemic strategies must be in place to embed positive behavioral support into the fabric of school routines and practice. A major obstacle to the sustainability and expansion of SWPBS is the lack of knowledge and experiences needed by many school districts and state departments of education to build action plans that maximize the establishment and expansion of their school-wide initiatives (Sugai & Horner, 2006).

Sugai et al (2005) noted that SWPBS depends on multiple points of support. These are illustrated in Figure 2-5.

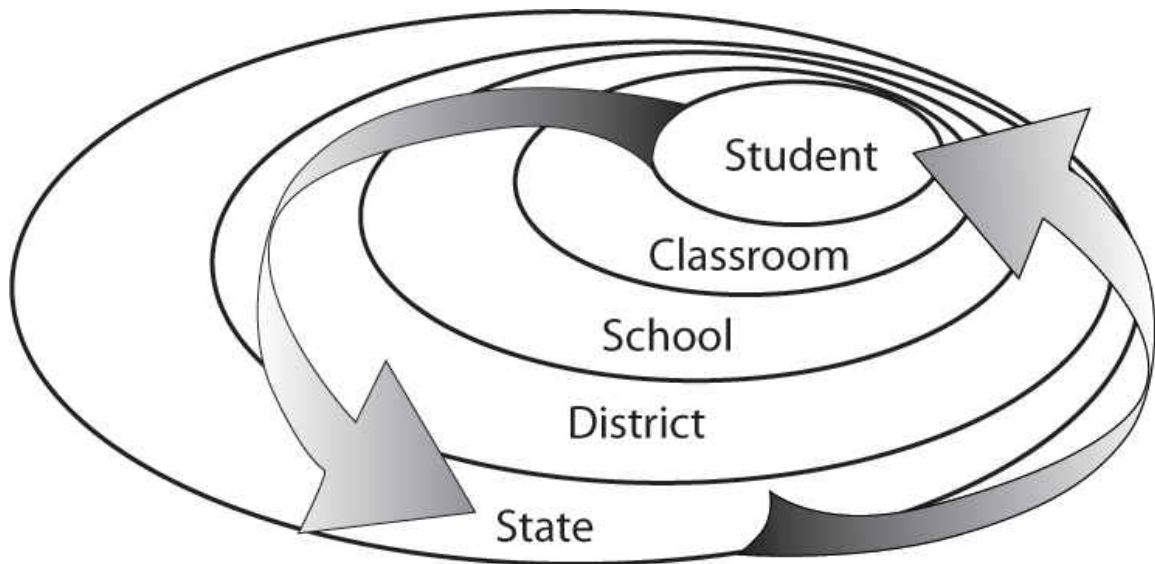


Figure 2-5: Implementation levels of SWPBS

Note. Adapted from “School-wide positive behavior support: Implementers’ blueprint and self-assessment” by G. Sugai, R.H. Horner, W. Sailor, G. Dunlap, L. Eber, T. Lewis, D. Kinciad, T. Scott, S. Barrett, R. Algozzine, R. Putnam, C. Massanari, and M. Nelson, 2005, *p.16*. Eugene, OR: University of Oregon.

At the student level there are intensive individualized supports. At the class level expectations, routines, and structures are established. School-wide behavioral expectations and supports across all setting serve as the foundation for classroom and individual support. The district provides specialized behavioral supports and provides resources for effective implementation. Finally, the state supports through policy decisions and resource management that serves as the foundation for district implementation (Sugai et al., 2005).

It should also be noted that schools are complex social systems and the continuum of behavioral supports are central to successful implementation of this framework. Each level of support must consider prevention, intensity of problem behavior, human and financial resources, and settings when making decisions (Sugai et al., 2000). Scott and Eber, (2003) suggested that systems are sustained when they have proven to be effective and are maintained. For this to occur, efforts need to be consistently monitored and evaluated by measurable academic and behavioral outcomes. In addition, evidence-based practices must be implemented with fidelity to produce maximum benefit to the student and other stakeholders. Furthermore, supports must be in place for the implementers, students, and families. These supports may come from training, leadership, and collaboration with other systems (Sugai & Horner, 2002).

Sugai and Horner (2002) suggested that no single intervention or approach will solve the social issues facing educators today, however, the features and structures of a comprehensive proactive response have been studied and demonstrated (Colvin, Kame'enui, & Sugai, 1993; Taylor-Greene et al., 1997). Safran and Oswald (2003) suggested numerous unanswered questions remain in the emerging literature. While collaborative behavior support teams are listed as a critical element of the support process, other factors such as strong leadership and staff commitment to the process are additional factors that influence the intervention effectiveness. Additionally, it is uncertain whether schools can effectively implement SWPBS without technical assistance from outside agencies and universities. While conclusions can be made regarding the

effectiveness in these studies, these limitations should be considered. (Safran & Oswald, 2003).

### Research on SWPBS Outcomes

Various studies have been conducted to evaluate the impact of PBS at each of the four levels: universal, non-classroom, classroom, and individual (Horner, Sugai, & Horner, 2000; Anderson & Spaulding, 2007; Crone and Horner, 2003). These studies have investigated behavioral, academic, time, and quality of life outcomes in multiple diverse settings in Pre-K, elementary, middle and high schools throughout the United States (Lewis & Garrison-Harrell, 1999; Duda et al., 2004; Benedict, Horner, & Squires, 2007; Bohanen et al., 2006). The scope of these studies range from studies of individual student behaviors to large scale statewide studies (Horner, Sugai, Todd, & Lewis-Palmer, 2005; Doolittle et al, 2007)

#### Behavioral studies

Since its inception, some studies have focused solely on the behavioral outcomes of SWPBS. Studies of SWPBS have generally found reductions in problem behavior as measured by Office Discipline Referrals. This supports the well documented, positive, outcomes reported for the conceptual background of SWPBS. These studies have focused on the student behaviors in multiple independent settings in schools as well as the school as a whole (Duda, Dunlap, Fox, Lentili, & Clarke, 2004; Benedict, Horner, & Squires, 2007; Ern, 2006; Scott



& Barrett,2004; Luiselli, Putnam, & Sunderland, 2002; Mass-Galloway, Panyan, Smith, & Wessendorf, 2008).

Duda, et al. (2004) studied the effects of PBS in childcare and preschool settings for two 3-year-old girls. Although fidelity data indicated that only some components of PBS were in place, reductions in challenging behaviors and increases in engagement for both girls were reported.

Benedict, et al.(2007) assessed the implementation of PBS in fifteen preschool classrooms in a medium-size U.S. Pacific Northwest community. The impact of consultation on teacher and student behavior in four of the classrooms was also evaluated. This study included Preschool-wide Evaluation Tool (Pre-SET; Horner, Benedict, & Todd, 2005) scores and SET scores to determine the features of PBS that were in place pre- and post-consultation for each class. The Pre-SET was modified from the School-wide Evaluation Tool (SET; Sugai, Lewis-Palmer, Todd, & Horner, 2001). Modifications included removing, adding, and amending items. From the original fifteen classes that participated, four classes were selected to participate in PBS consultation based on low Pre-SET scores. In these classes the mean Pre-SET score rose from 38.43% to 51% on the SET over the course of the study. This change suggested that consultation is effective in increasing the level of implementation of universal PBS practices including increased use of classroom rules, schedules, transition supports, specific verbal praise and positive statements. Due to a relatively low occurrence of students exhibiting problem behaviors, conclusions regarding changes in student behavior were limited in this study (Benedict, Horner, & Squires, 2007).

Studies have also been conducted in elementary schools. Ern (2006) examined the relationship between the presence of the critical components of classroom positive behavior support and student behavior in forty diverse elementary schools. The study found low to moderate degrees of association between the features of SWPBS and positive student outcomes. The author also reported that teacher's consistent use of classroom management strategies had a significant impact on the number of office discipline referrals that were written. Unlike other studies, Ern found that fidelity at the school level did not significantly predict implementation at the classroom level.

Conversely, positive behavioral outcomes at the elementary level have been reported by Scott and Barrett (2004). These researchers reported decreased office discipline referrals and suspensions during two years of PBS intervention at an urban elementary school.

At the middle school level, a 4-year longitudinal study conducted by Luiselli, et al. (2002) evaluated school-wide PBS efforts. The authors reported a reduction in disciplinary actions during the course of the study in the three main disruptive behaviors at the school, disruptive-antisocial behavior, vandalism, and substance use. In addition, except for Year 2 Vandalism detentions, the number of detentions in each category was reduced each year.

SWPBS behavioral outcomes have also been evaluated at the state level. In a three year study of the statewide SWPBS initiative in Iowa, Mass-Galloway et al. (2008) examined if SWPBS was being implemented with fidelity and whether it impacted behavioral outcomes. For this study 39 of the 103 schools

actively utilizing positive behavior supports were selected. They were divided into Cohort 1 (8 schools), Cohort 2 (7 schools) and Cohort 3 (24 schools) based on the year that implementation began. The authors found that all of the schools in the study were implementing PBS with fidelity after one or two years of implementation. Fidelity was defined as schools having a mean total SET score of above 80%. Furthermore, the authors reported that seventy-five percent of the schools in Cohorts 1 and 3 had a 43% average rate of decrease in ODRs per day per 100 students. Cohort 2 reported an increase in the number of referrals during each year of the study.

A statewide examination of SWPBS implementation in 467 schools in Maryland was conducted by Barrett, Bradshaw, and Lewis-Palmer (2008). Findings from this study indicated that Maryland schools that implemented SWPBS experienced fewer rates of ODRs across all grade levels when compared with similar schools across the nation. Elementary schools reported 43% fewer ODRs, middle schools reported 33% fewer ODRs and high schools reported 37% fewer ODRs. Suspension rates were also found to be reduced within one year of implementation.

Additional empirical studies that have examined school-wide PBS in urban schools have generally found reductions in the frequency of overall problem behavior as measured by ODRs (McCurdy, Mannella, & Eldridge, 2003; Scott, 2001; Warren et al., 2003). Other studies have demonstrated a positive reduction in problem behaviors that progressively improves over time (Lusielli, Putnam, & Sunderland, 2002).

SWPBS has also been evaluated in multiple settings. A review of research conducted by Oswald, Safran, and Johansenon (2005) found that the use of school-based PBS in non-classroom settings such as hallways, transition times, cafeterias, recess, playgrounds, and arrival at school demonstrated promising improvement in student behavior (Colvin, et al., 1997; Kartub et al., 2000; Leedy et al.,2004; Lewis, Colvin, & Sugai, 2000; Lewis & Garrison-Harrell, 1999; Lewis et al., 1998; Nelson et al., 1996). Effective interventions, including the use of pre-correction, active supervision and group contingencies, were successfully implemented at individual schools to create safer and more orderly environments at the elementary and middle school levels. Oswald, et al. (2005) examined the effectiveness of PBS on the hallway behavior of 950 rural, small town, middle school students and observed a 42% decrease in problematic hallway behaviors.

Studies have also shown positive results in targeting behaviors in specific areas of schools such as hallways (Kartub, Taylor-Greene, March, & Horner, 2005; Oswald, Safran, & Johanson, 2005), parking lots (Bohanon et al., 2006) elementary school playgrounds (Lewis, Powers, Kelk, and Newcomer, 2002), cafeterias and recess (Lewis, Sugai, & Colvin, 1998).

Studies describing behavioral outcomes only touch the surface of claims describing the greater benefits of implementing SWPBS. Although the program targets behaviors, academic benefits have also been studied.

## Academic and Behavioral Studies

Recent literature has begun to focus on the impact of School-wide PBS on academic outcomes in addition to behavioral outcomes. Frequently positive outcomes have been associated with sufficient implementation of the core elements of SWPBS as indicated by SET scores (Lusielli, Putnam, Handler, & Feinberg, 2005; Lassen, Steele, & Sailor, 2006; Shultz, 2007).

Lusielli, et al. (2005) conducted a three year longitudinal study of the effects of SWPBS on discipline problems and academic outcomes in an urban elementary school in the Midwest. The average attendance during the study was approximately 560 and the 90% of the students qualified for free or reduced lunch. Office Discipline Referrals and suspension data was used to measure behavioral outcomes. Academic performance in reading and math for grades 3 through 5 was measured using the Metropolitan Achievement Test – Seventh Edition (MAT-7; Harcourt Educational Measurement, 1998). The authors found that the average number of discipline referrals and suspensions varied from month to month, but the average number of referrals per day dropped over the three year period. Academic outcomes also showed improvement during this study. MAT-7 Reading comprehension percentile ranks improved by 18 percent and Mat-7 Math percentile ranks improved by 35 percent. It is suggested that the improvement in scores could be associated with the implementation of SWPBS (Lusielli et al., 2005).

This positive result were supported by another study at the elementary level conducted by Lane and Menzies (2003). These authors noted behavior

remained stable while reading skills improved for the at risk students that made up the student population of the study.

Analysis of implementation at the middle school level also indicated positive academic and behavioral results. Lassen, Steele, and Sailor (2006) examined the relationship of SWPBS to academic achievement in an urban, inner city middle school in the Midwest over a three year period using data on ODRs, suspensions, standardized reading and math test scores, and treatment fidelity using the SET. The average attendance for each year of the study was 623 students. In this study approximately 80% of the student population was economically disadvantaged based on the number of students that received free or reduced price lunch. The results of this examination indicated that ODRs and suspensions were significantly reduced and there were increases in standardized math and reading scores. The authors also suggested that students with fewer ODRs scored higher on standardized math and reading tests. In addition, the fidelity with which PBS was implemented school-wide was significantly correlated to reductions in problem behavior in this study.

In another study of an urban, low SES, middle school, Lassen (2006), reported results contrary to expected outcomes. Close examination of this study revealed that the comparison school reported a greater reduction in ODRs than the PBS target school. The author suggested this may be a result of the target school failing to reach an acceptable level of implementation as measured by the SET. In addition, there was no reduction in suspensions at the target school during the course of this study. Furthermore, reading and math scores on the

standardized achievement test, Metropolitan Achievement Tests, Seventh Edition (MAT7) (Harcourt, 2000), declined in both the target and comparison school over the course of the study.

Large scale statewide studies of SWPBS implementation at elementary, middle and high schools generally reported positive results. Often fidelity of implementation was correlated to a reduction in ODRs and increased academic achievement. Curry (2007) studied the fidelity of implementation and behavioral outcomes of PBS in a school system consisting of 17 schools in Alabama over a three year period of time. These schools included seven high schools, three middle schools, and seven elementary schools. Forty seven percent of the students in these schools were receiving free or reduced lunch. The average fidelity for the district was measured using a PBS self assessment survey that was completed by teachers and administrators was 68.5%, with different schools implementing PBS at various degrees. In an analysis of ODRs during this study Curry (2007) found that the number of referrals increased system-wide. However, a correlation between the fidelity of implementation and the number of referrals reveals schools with greater implementation had fewer referrals. Closer examination reveals the seven schools with greater than 75 % implementation had fewer referrals in Year 3 than in Year 1 and the remaining ten schools had more referrals.

A three year longitudinal study conducted from the 2002-2003 through 2004-2005 school years of the Texas Behavior Support Initiative by Schultz (2007) suggested that the impact of SWPBS increases over time. Analysis of the

impact of the initial training completed by core campus teams that disseminated the information in their schools suggested that despite large scale training and commitment of resources in 61 schools across the state, it did not impact the disciplinary variables in the study. These included discipline referrals, In School Suspensions (ISSs), Out of School Suspensions (OSSs), Disciplinary Alternative Education Placements (DAEPs) and expulsions. Data suggested a statistically significant increase in discipline referrals during this study existed. Possible explanations included a lack of participant buy in, the training method, and competing initiatives such as Texas Reading First and the Texas Math Initiative. When analyzed over time, the effectiveness of school-wide PBS in Texas indicated statistically significant reductions in ODRs, ISS, OSS, and DAEPs while the rate of expulsions showed a slight decrease. Schultz (2007) concluded that when training was intensified and implemented with fidelity, meaningful organizational change occurred in a relatively short period of time. When these schools were matched with comparison schools, school-wide PBS schools had lower rates of ODRs, ISS, OSS, and expulsions although these differences were not found to be statistically significant.

Since 2002, SWPBS has been implemented in four cohorts consisting of 124 schools in New Hampshire (Muscott, Mann, & LeBrun, 2008). An evaluation of outcomes for the first cohort of 28 early childhood education programs and K-12 schools in New Hampshire reported information regarding implementation fidelity in addition to behavioral and academic outcomes. The Universal Team Checklist (UTC; Sugai, Horner, & Lewis-Palmer, 2002) Effective behavioral



Support Survey (EBS; Sugai, Horner, & Todd, 2003), and the SET were used to determine if the features of PBS are in place or not. By the second year of implementation 88% of the schools met the 80% standard for implementation fidelity and the majority were able to sustain this level. Behavioral data were unavailable for six schools from this cohort due to changes in recording or collection procedures, inconsistency in staff recording, or no longer utilizing the system. Collectively, the 22 schools that participated saw a 28 % reduction in ODRs and a 19% reduction in suspensions with the most significant results occurring in the five middle and two high schools. Overall 83% of the schools were successful in reducing the average referral rate (Muscott, Mann, & LeBrun, 2008).

In addition to positive behavioral results, academic improvement was also reported. Seventy three percent of the schools that achieved higher than an 80% on the SET improved in the percentage of students achieving basic or above in Math on the standardized statewide assessment, New Hampshire Educational Improvement and Assessment Program (NHEIAP). When disaggregated by grade level the majority of elementary, multilevel, and high schools experienced gains in math achievement while only one of the 5 middle schools experienced math gains. Conversely, improvements in reading scores on the NHEIAP were found in only 41% of the schools that score above 80% on the SET. (Muscott, Mann, & LeBrun, 2008).

Further research supporting academic and behavioral outcomes of SWPBS have been conducted by Nelson, Martella, and Marchand-Martella

(2002). This study reported a decline in disciplinary actions, improved academic achievement, and improved social competence of students.

Research regarding behavioral and academic outcomes continues to emerge regarding SWPBS implementation nationwide. Often a decline in student problem behaviors and an increase in student achievement have been reported. Further research has begun to explore other outcomes of utilizing the SWPBS framework (Lassen, 2006; Landers, 2006; Lassen, Steele, & Sailor, 2006; & Luiselli, Putnam, Handler, & Feinberg, 2005).

#### Additional Outcomes of PBS

The majority of research regarding positive behavior supports has been conducted within elementary and middle school settings in the area of reducing student problem behaviors and academic outcomes. Recent research has suggested that the positive outcomes of SWPBS go well beyond behavioral and academic outcomes. Positive outcomes associated with SWPBS include increased instructional time, decreased administrative time addressing discipline, increased teacher satisfaction, improved peer relationships, and an increase in perceived school safety (Lassen, 2006; Landers, 2006; Lassen, Steele, & Sailor, 2006; & Luiselli, Putnam, Handler, & Feinberg, 2005). In addition to qualitative studies, quantitative information has been used to evaluate SWPBS outcomes.

Results of assessments of 78 student-centered teams consisting of 397 individuals from Pennsylvania, West Virginia, and Virginia were collected and

assessed by Kinkaid, Knoster, Harrower, Shannon, and Bustamante (2002). Using these team members' ratings, the authors evaluated behavioral and quality of life outcomes. For this study a personal and team satisfaction survey was developed to measure quality of life and a behavioral outcomes survey was developed to measure team participants subjective assessments of the behavioral intervention approaches. Results of the Behavior Outcomes survey indicated that more than 76% of the respondents felt that the occurrence, severity, and duration of problem behavior was reduced as a result of PBS implementation. Respondents also indicated that PBS strategies fit the context of home and school environments and were comfortable to use. The results of the quality of life scale recorded the perceived level of change in overall quality of life, interpersonal relationships, self-determination skills, social inclusion, personal well-being, and emotional well-being. In each of these areas modest improvements were reported. The authors suggested that broader issues such as of quality of life and social validity were important in garnering a complete picture of the impact of PBS. An anecdotal statement such as, "Johnny seems to have more friends" indicated that PBS approaches could have significant impacts on individuals beyond simple behavioral change (Kinkaid, Knoster, Harrower, Shannon, & Bustamante, 2002). This was supported by Carr's (2007) suggestion that PBS may lead to improved quality of life, greater happiness, and increased personal satisfaction.

Another outcome that has been reported is additional time for instruction and administrative leadership. Muscott, Mann, and LeBrun (2008) used a survey

of all the PBS schools in New Hampshire to evaluate the impact of SWPBS on instructional time and time for administrative leadership. The researchers found a reduction in referrals and suspensions were associated with a savings of 864 days of teaching time, 1701 days of learning for students, and 571 days of leadership time. This was based on the average ODR costing 45 minutes of instructional time, and 10 minutes of teaching time at all levels. Administratively referrals were calculated at 15 minutes per incident in elementary schools and 30 minutes per incident in middle and high schools. Suspensions were calculated as a loss of instructional time of one full day, 360 minutes. This increase in time for learning, teaching, and leadership is considered an additional positive outcome for this program. This was supported by Scott, Park, Swain-Bradway, and Landers (2007) research that proposed the framework of PBS helped teachers create instructional environments that increased teacher's ability to deliver effective instruction.

In addition to increased time, an overall increase in positive perceptions and efficacy were reported by various stakeholders in schools. An analysis of leadership teams' perceptions of SWPBS by Cheney, Blum, and Walker (2004) suggested positive outcomes. In this study, members of leadership teams noted the ability of the staff to meet the needs of the entire student population improved and parent participation in school programs increased. Rentz (2007) presented findings that suggested classroom and school-wide behavior support systems were significantly correlated with the collective efficacy of teachers. Potential benefits of higher efficacy included improved teacher satisfaction and student

achievement (Rentz, 2007). Glover (2005) found that implementation of SWPBS influenced high school student's perception on school climate and peer relationships in an urban high school in Chicago, Illinois although the change was not statistically significant. Further investigation revealed that areas of the SET which had above an 80% score were associated with a greater degree of positive student responses.

The emerging research regarding SWPBS appears to be positive, but continued research needs to be conducted to validate these results.

### Summary

In recent years SWPBS implementation has expanded exponentially nationally and globally to address challenging school-wide, classroom, and individual behaviors (Shultz, 2007). The critical elements that were identified by Lewis and Sugai (1999) include establishing a planning team, defining school-wide behavioral expectations, training teachers, teaching behavioral expectations to students, developing procedures for acknowledging appropriate behaviors and discouraging inappropriate behavior, utilizing data to monitor behaviors, and evaluating the system. Two tools used to measure the fidelity of implementation are the School-wide Evaluation tool (SET) and the Benchmark of Quality (BoQ).

School-wide Positive Behavioral Support is a three tiered continuum of support which includes primary universal support for all students, secondary support for targeted at risk students, and tertiary support for individual students who do not respond to the first two tiers of support. (Martella, Nelson, &

Marchand, 2003). These tiers of support are designed to meet the needs of all students within a school.

Sugai and Horner (2002) also identified five key features of SWPBS. These are a prevention based continuum of support, a proactive instructional perspective, conceptually and empirically sound practices, data based decision making, and a systems perspective. These features are designed to support staff behavior, student behavior, support decision making, and promote social competence. The features are also designed to promote sustainability of these practices (Crone and Horner, 2003).

Research regarding SWPBS has generally focused on behavioral and academic outcomes (Lusielli, Putnam, Handler, & Feinberg, 2005; Lassen, Steele, & Sailor, 2006; Shultz, 2007). Recent researchers have reported increased instructional time, decreased administrative time addressing discipline, increased teacher satisfaction, improved peer relationships, and an increase in perceived school safety (Lassen, 2006; Landers, 2006; Lassen, Steele, & Sailor, 2006; & Luiselli, Putnam, Handler, & Feinberg, 2005). Emerging research regarding SWPBS tends to be positive, however, further research regarding implementation fidelity in association with desired outcomes should be conducted to validate these results.

## CHAPTER THREE: METHODOLOGY

### Introduction

This study utilized multiple measures to examine the influence of implementation fidelity on various behavioral and academic outcomes in elementary and middle schools in the state of Florida. Independent variables that were considered include total BoQ score and years of SWPBS training. Dependent variables include Office Discipline Referrals, Out of School Suspensions, FCAT Reading subtest score, and FCAT math subtest score.

### Problem Statement

Although researchers have studied the relationship between the implementation of SWPBS to academic and behavioral outcomes, few have included data in their studies regarding how closely the program was implemented as it was intended (Muscott, Mann & Lebrun, 2008). Dumas, Lynch, Laughlin, Smith, and Prinz (2001) suggested that the conclusions that could be drawn about a program are limited if fidelity is not established. The purpose of this study was to examine the extent to which SWPBS was implemented in elementary and middle schools in Florida during the 2007-2008 school year. Furthermore, the number of years that SWPBS has been implemented in each school as a factor in proper implementation was analyzed. This study also examined possible relationships between the fidelity of implementation of SWPBS as indicated by the total BoQ score to the Florida Comprehensive

Achievement Test reading and mathematics subtest. The relationship between BoQ scores and students' behaviors within the school as measured by office disciplinary referrals and total days of out of school suspensions during the 2007 - 2008 school year in the state of Florida was also studied. Next, differences between schools that scored in the top quartile of total BoQ scores, the lowest quartile of total BoQ scores, and a control group were be examined. The final purpose of this study was to determine if the fidelity of implementation or the number of years that a school has implemented SWPBS could be used to predict future FCAT reading or mathematics scores. After analyzing possible relationships and differences, conclusions were made regarding the implementation of SWPBS.

### Research Questions

The current study was guided by the following research questions:

1. To what extent was SWPBS implemented with fidelity as measured using the BoQ in selected elementary and middle schools in Florida during the 2007-2008 school year? Is there any difference in fidelity scores between schools that have implemented SWPBS for one year, two years, or three or more years?
2. What is the relationship, if any, between fidelity of implementation of SWPBS as measured using the BoQ during the 2007-2008 school year and student problem behaviors as measured by office discipline referrals



and the number of days for out of school suspensions in selected elementary and middle schools in Florida?

3. What is the relationship, if any, between fidelity of implementation of SWPBS as measured using the BoQ during the 2007-2008 school year and academic achievement as measured by FCAT reading and mathematics subtest scores in selected elementary and middle schools in Florida?
4. To what extent is there a statistically significant difference during the 2007-2008 school year in mathematics and reading FCAT scores among elementary and middle schools that scored in the top quartile of BoQ scores, those that were in the bottom quartile of BoQ scores, and those schools which did not implement SWPBS?
5. To what extent can FCAT reading and mathematics scores be significantly predicted by the fidelity of implementation of SWPBS as measured using the BoQ and by the number of years that the program has been implemented?

Thus, the following hypotheses were generated for examination in this study:

1. The majority of elementary and middle schools that have implemented SWPBS in Florida will have implemented the necessary components to achieve desirable outcomes as demonstrated by a BoQ score of 70 or higher. Schools that have implemented SWPBS for three or more years will have higher fidelity scores than schools who have implemented the program for one or two years.

2. A negative relationship will be observed between the total BoQ score and student problem behavior as measured by office discipline referrals and the number of days for out of school suspensions in elementary and middle schools.
3. A positive relationship will be observed between the total BoQ score and FCAT reading and mathematics subtest scores in elementary and middle schools.
4. There will be statistically significant differences in mathematics and reading FCAT scores among elementary and middle schools that scored in the top quartile of BoQ scores, those that were in the bottom quartile of BoQ scores, and those schools which did not implement SWPBS during the 2007-2008 school year.
5. FCAT reading and mathematics scores can be significantly predicted by the fidelity of implementation of SWPBS as measured using the BoQ and by the number of years that the program has been implemented in elementary and middle schools.

### Sample

The population for this study was 2,889 public elementary and middle schools in the state of Florida during the 2007- 2008 school year (FLDOE, 2008c). For research question one, the sample included 145 elementary and 60 middle schools that actively utilized SWPBS during the 2007-2008 school year and have completed the BoQ survey. The sample for research question two

included 134 elementary and 59 middle schools that actively utilized SWPBS during the 2007-2008 school year, had completed the BoQ survey, and had reported ODR and OSS data.

Research question three was answered using a sample which included 134 elementary and 59 middle schools that actively utilized SWPBS during the 2007-2008 school year, had completed the BoQ survey, had reported ODR and OSS data and had valid FCAT Reading and Mathematics subtest scores.

For question four, three groups of elementary schools and three groups of middle schools were selected. Group 1 included 30 elementary schools that scored in the lowest quartile of total BoQ scores. Group 2 consisted of 30 schools in the highest quartile of total BoQ scores. These schools were selected based on their total BoQ scores from the population of 145 elementary schools that actively utilized SWPBS during the 2007-2008 school year and had completed the BoQ survey. A comparison group, Group 3, included 30 schools that did not participated in SWPBS training. This group was randomly selected from the population of schools in Florida that had not participated in SWPBS training.

Group 4, Group 5, and Group 6 consisted of 14 middle schools each. Group 4 included middle schools that scored in bottom quartile of BoQ scores, Group 5 consisted of middle schools in the top quartile of BoQ scores, and Group 6 included non-SWPBS middle schools. Group 4 and Group 5 were selected based on BoQ scores from the population of 60 middle schools that actively utilized SWPBS during the 2007-2008 school year and had completed the BoQ

survey. Group 6 was randomly selected from the population of schools in Florida that had not participated in SWPBS training.

The fifth question was answered using a sample which included 134 elementary and 59 middle schools that actively utilized SWPBS during the 2007-2008 school year and had completed the BoQ survey.

### Data Collection Procedures

The results of the BoQ survey, the School-wide Positive Behavior Support Outcome Data Summary, and demographic information for the 2007-2008 school year have been gathered by the Positive Behavior Support Project at the Mental Health Institute, University of South Florida and released to the researcher. Discipline data in the form of ODRs and OSSs were for the total school population at each elementary and middle school. Mean scale scores from the reading and mathematics portions of the 2008 FCAT for each grade level were obtained from the Florida Department of Education website. The average Mean Scale Score in grades three through five for each subject area were used to determine elementary school scores. For middle schools the average Mean Scale Score for grades six through eight were used for each subject area.

### Instrumentation

The Benchmark of Quality (BoQ) survey was used to measure the fidelity of implementation of the program. Cronbach's alpha was used to test the reliability of this scale. Academic achievement was be measured using grade

level mean scale scores from the Reading and Mathematics subtests of the Florida Comprehensive Achievement Test (FCAT). Data about students' behaviors have been gathered using a School-wide Positive Behavior Support Outcome Data Summary form (Appendix A). Information about the number of Office Discipline Referrals (ODR) and the total number of days of out of school for suspensions was recorded on this form. BoQ scores were calculated using the Benchmarks of Quality Scoring Form (Appendix B) and the Benchmarks of Quality Scoring Guide (Appendix C).

### Analytic/Statistical Methods

Figures and tables were presented for student demographic information for each group in this study including student enrollment, the number of students with Individual Education Plans (IEPs), socioeconomic status (SES), racial and cultural background, ODR per 100 students, and number of days for suspensions per 100 students annually. The variety of hypotheses presented required several different approaches for testing.

In order to answer question one, BoQ total scores were examined for the 2007-2008 school year to evaluate the target schools' adherence to universal SWPBS procedures. A total score of 70 indicated that the program was being implemented with fidelity. Descriptive statistics including the mean, median, standard deviation, skewness, and kurtosis were analyzed to determine the level of implementation. A histogram and a line graph were used as graphic representations of the data. One-way between-groups ANOVAs with post-hoc

tests were run to determine if there was a relationship between years of implementation and fidelity.

To answer the second question, two sets of analyses were conducted in order to examine the mean ODR and out of school suspensions days at the target schools. The first was an analysis of detailed descriptive statistics generated for ODR's and suspensions. Second, Pearson's Product-moment Correlations were conducted between the fidelity of implementation (BOQ total score) and the number of office discipline referrals per 100 students and the number of days of out of school suspensions per 100 students, respectively. These analyses were conducted for the sample as a whole and at the elementary and middle schools levels. Histograms were used to display ODR and OSS data.

To answer the third question, two sets of analyses were conducted in order to examine the relationship between the fidelity of implementation and mathematics and reading FCAT scores. The first was an analysis of a set of detailed descriptive statistics generated for mathematics and reading mean scale scores. Histograms were used to display the frequency of FCAT reading and mathematics data. Second, Pearson's Product-moment Correlations were conducted between the fidelity of implementation (BoQ total score) and the mean scale scores for the mathematics and reading subtests of the FCAT. These analyses were conducted for the sample as a whole and at the elementary and middle schools levels.

To answer the fourth question, Analysis of Variance (ANOVA) tests were conducted to examine the differences between elementary schools that have

implemented SWPBS with fidelity and those who have not. The independent variable, fidelity of implementation, had three categories: lowest quartile of BoQ scores (Group 1), highest quartile of BoQ scores (Group 2), or did not participate in SWPBS training (Group 3). The dependent variable was the FCAT reading and mathematics mean scale scores. This procedure was repeated for middle schools with the three categories for fidelity of implementation identified as lowest quartile of BoQ scores (Group 4), highest quartile of BoQ scores (Group 5), or did not participate in SWPBS training (Group 6). A bar chart was used to display mean FCAT reading and math scores for each of the groups and for the State of Florida. Finally, the mean score for FCAT Reading and Mathematics subtests at the state level will be compared to the mean scores each group for descriptive purposes.

To answer the fifth question Pearson's correlations and a multiple regression analyses were conducted to evaluate if reading and mathematics scores could be significantly predicted by the fidelity of implementation of SWPBS and by the number of years that the program has been implemented.

### Limitations

The study will be limited to:

1. The BoQ data and Positive Behavior Support Outcome Data Summary form are reported by each school. As a self evaluation tool, some inconsistency could result.

2. The level of fidelity at each grade level is assumed to be consistent with the level of implementation of the school as a whole since grade level data was not collected regarding implementation.
3. Data from different cohorts of students will be analyzed in aggregate. This limits any conclusions regarding individual academic and behavioral functioning.
4. Due to the relatively small sample size for correlational statistics, conclusions are limited.

#### Delimitations of the Study

The study will be delimited to:

1. Schools in the State of Florida.
2. Schools with reading and mathematics FCAT scores for grades three through eight.

#### Summary

The methodology used to collect and analyze data for this study has been detailed within this chapter. Research questions were presented as well as hypotheses for examination. Chapter four will present the raw data collected and the results of the statistical analyses designed to answer the research questions and address the hypotheses. Chapter five will conclude with a discussion of the results as well as implications and recommendations for further research into this area of inquiry.



## CHAPTER FOUR: ANALYSIS OF DATA

### Introduction

SWPBS is currently being used in more than 6000 schools in over 30 states throughout the nation is School-wide Positive Behavior Support (SWPBS) (Skiba & Sprague, 2008). Some outcomes associated with SWPBS include decreased office discipline referrals (ODR), increased instructional time, decreased administrative time addressing discipline, increased teacher satisfaction, improved peer relationships, increased academic achievement, and an increase in perceived school safety (Glover, 2005; Lassen, 2006; Landers, 2006; Lassen, Steele, & Sailor, 2006; Rentz, 2007; & Luiselli, Putnam, Handler, & Feinberg, 2005). Although researchers have studied the relationship between the implementation of SWPBS to academic and behavioral outcomes, few have included data in their studies regarding how closely the program is implemented as it is intended. Dumas, Lynch, Laughlin, Smith, and Prinz (2001) suggested that the conclusions that can be drawn about a program are limited if fidelity is not established. The purpose of this study was to examine the relationship between the fidelity of implementation of SWPBS to academic and behavioral outcomes. The research was guided by the following five research questions:

1. To what extent is SWPBS implemented with fidelity as measured using the BoQ in selected elementary and middle schools in Florida during the 2007-2008 school year? Is there any difference in fidelity scores

between schools that have implemented SWPBS for one year, two years, or three or more years?

2. What is the relationship, if any, between fidelity of implementation of SWPBS as measured using the BoQ during the 2007-2008 school year and student problem behaviors as measured by office discipline referrals and the number of days for out of school suspensions in selected elementary and middle schools in Florida?
3. What is the relationship, if any, between fidelity of implementation of SWPBS as measured using the BoQ during the 2007-2008 school year and academic achievement as measured by FCAT reading and mathematics subtest scores in selected elementary and middle schools in Florida?
4. Is there a statistically significant difference during the 2007-2008 school year in mathematics and reading FCAT scores among elementary and middle schools that scored in the top quartile of BoQ scores, those that were in the bottom quartile of BoQ scores, and those schools which did not implement SWPBS?
5. To what extent can FCAT reading and mathematics scores be predicted by the fidelity of implementation of SWPBS as measured using the BoQ and by the number of years that the program has been implemented?

It is hypothesized that:

1. The majority of schools that have implemented SWPBS in Florida have implemented the necessary components to achieve desirable outcomes as demonstrated by a BoQ score of 70 or higher. Schools that have implemented SWPBS for three or more years will have higher fidelity scores than schools who have implemented the program for one or two years.
2. A negative relationship will be observed between the total BoQ score and student problem behavior as measured by office discipline referrals and the number of days for out of school suspensions.
3. A positive relationship will be observed between the total BoQ score and FCAT reading and mathematics subtest scores.
4. There will be statistically significant differences in mathematics and reading FCAT scores among elementary and middle schools that scored in the top quartile of BoQ scores, those that were in the bottom quartile of BoQ scores, and those schools which did not implement SWPBS during the 2007-2008 school year.
5. FCAT reading and mathematics scores can be significantly predicted by the fidelity of implementation of SWPBS as measured using the BoQ and by the number of years that the program has been implemented.

In the following sections, each research question is addressed independently.

The population for this study was 2,889 public elementary and middle schools in the state of Florida during the 2007- 2008 school year (FLDOE, 2008c). The total sample for the study included 205 schools. Demographic information for these schools are displayed in Table 2 and in Figure 4-1.

Table 2: Total enrollment and number of students with IEPs

	Descriptive Statistics					
	N	Range	Minimum	Maximum	Mean	Std. Deviation
Total Enrollment	205	1574	110	1684	748.14	249.834
Students With IEP	200	354	8	362	121.64	54.121

A diverse group of schools was represented in this study based on the wide range of student populations and the diverse student characteristics. Some of the demographic information included for descriptive purposes includes the percentages of IEPs, student ethnicities, and percentage of students receiving free and reduced lunch.

The 205 schools in this study varied in student population from 110 to 1684 students with a mean on 748 and a standard deviation of 249. Elementary schools populations (M=692.30, SD=210) had a range from 110 to 1684 and middle schools (M=883.08, SD=285) had a range from 233 to 1401.

The number of students with IEPs in these schools varied from 8 to 354 with a mean of 121 and a standard deviation of 54. Elementary schools (M=110, SD=45) had a range from 8 to 224 and middle schools (M=883, SD=285) had a

range from 16 to 346. Data regarding whether schools were urban, suburban, or rural was not available to the researcher.

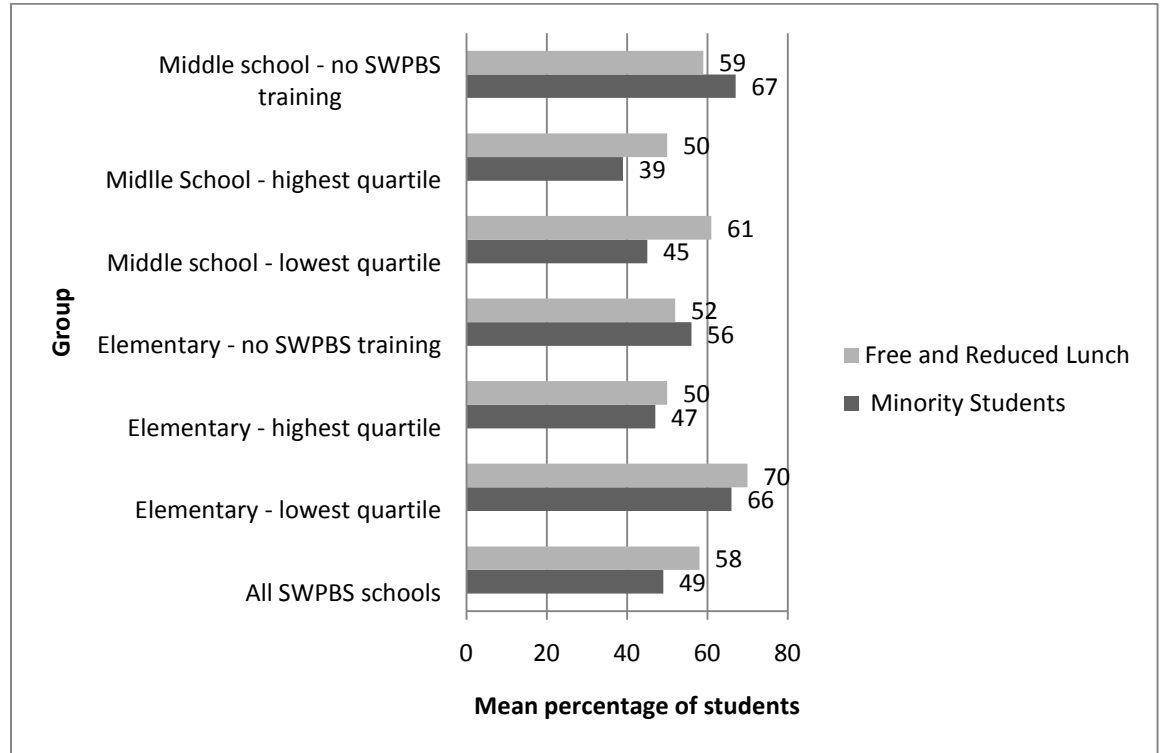


Figure 4-1: Percentage of minority students and students receiving free and reduced lunch.

Note: The percentage of minority students and students receiving free and reduced lunch is the mean percentage for the population of schools in each group. For the SWPBS trained schools group, N= 205, elementary schools, N=30, and for middle Schools, N=14.

The minority designation for students included American Indian, Asian, African American, Hispanic, and multicultural students. An examination of the

percentage of minority students in the middle school groups for this study indicated that the schools with no SWPBS training had the highest percentage (67%) of minority students. The group within the lowest quartile of BoQ scores consisted of 61% minority students and the schools with the highest quartile of BoQ scores had the lowest percentage (39%) of minority students. At the elementary level the lowest quartile group had the highest percentage of minority students (66%), while the group that scored in highest quartile of BoQ scores had the lowest percentage of minority students (47%). The elementary group that did not participate in SWPBS training had 56% of minority students in their population.

An examination of the percentage of students receiving free or reduced lunch in the middle school groups for this study indicated that the schools in the lowest quartile of BoQ scores had the highest percentage of students (61%). The group of schools with no SWPBS training had a similar percentage (59%). Schools in the highest quartile of BoQ scores had 50% of the students receiving free or reduced lunch.

At the elementary level the lowest quartile of BoQ scores had 70% of the students receiving free or reduced lunch. Schools with no SWPBS training (52%) and schools in the highest quartile (50%) had similar percentages. It is interesting to note that the group with the highest levels of implementation fidelity as measured by BoQ scores also had the lowest percentages of minority students and students receiving free and reduced lunch. Data described above regarding student enrollment, the number of students with IEPs, minority percentages, and

percentage of students on free and reduced lunch are intended to describe to population in the following research questions.

### Research Question 1

To what extent was SWPBS implemented with fidelity as measured using the BoQ in selected elementary and middle schools in Florida during the 2007-2008 school year? Is there any difference in fidelity scores between schools that have implemented SWPBS for one year, two years, or three or more years?

BoQ scores were examined for 145 elementary schools and 60 middle schools from the 2007-2008 school year to evaluate the implementation of the critical components of SWPBS in the State of Florida. Collectively, 71.7% of the schools in the study implemented SWPBS with fidelity as indicated by a total BoQ score of 70 or greater. Closer examination revealed 75.2 % of the elementary schools and 63.3% of the middle schools scored above a 70. Figure 4-2 illustrates the frequency of BoQ scores.

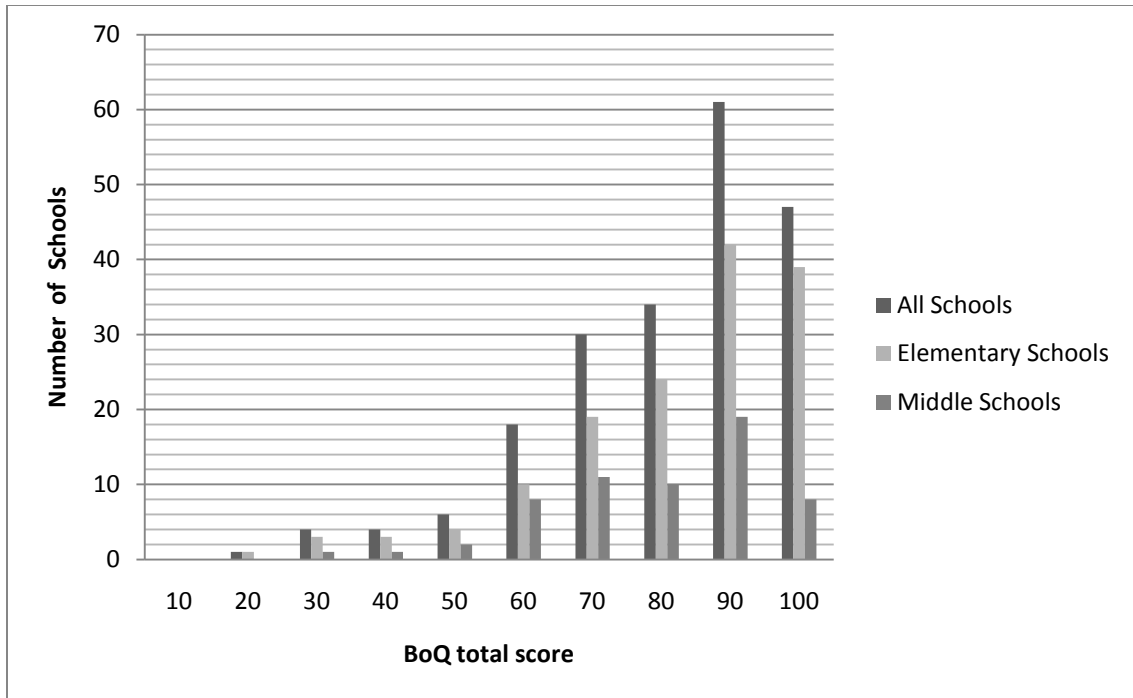


Figure 4-2: BoQ total score frequencies in Florida during the 2008-2009 school year.

Note: This figure depicts the frequency of BoQ total scores for schools in Florida during the 2008-2009 school year. The BoQ total scores ranged from 0 to 100. For this figure 10 on the BOQ total score axis represents 0-10, 20 represents BoQ scores from 11-20, and so on. Schools with a BoQ total score of 70 or greater are considered to have implemented School-wide Positive Behavior Support with fidelity. For all schools, N=205, for elementary schools, N=145 and for middle schools, N=60.

A one-way between groups analysis of variance was conducted to explore the impact of years of implementation on implementation fidelity as measured by



the BoQ (Table 3). Schools were identified as having one year of implementation, two years of implementation, or three or more years of implementation.

Table 3: ANOVA of BoQ scores by years of implementation

BoQTotal					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	2167.816	2	1083.908	3.697	.027
Within Groups	58936.184	201	293.215		
Total	61104.000	203			

There was a statistically significant difference at the  $p < .05$  level in BoQ scores for the three groups [ $F(2,201)=3.7, p=.03$ ]. Post-hoc comparisons using the Tukey HSD test indicated that the mean score for schools after one year of implementation ( $M=72.96, SD=13.77$ ) was significantly different from schools that had implemented SWPBS for three or more years ( $M=80.01, SD=18.19$ ). Schools that had implemented SWPBS for two years ( $M=74.42, SD=18.45$ ) did not differ significantly from either of the two other groups (Table 4).

Table 4: Tukey HSD comparison of BoQ scores by years of implementation

(I) Year	(J) Year	Mean Difference			95% Confidence Interval	
		(I-J)	Std. Error	Sig.	Lower Bound	Upper Bound
1	2	-1.456	3.586	.913	-9.92	7.01
	3	-7.044*	2.799	.034	-13.65	-.44
2	1	1.456	3.586	.913	-7.01	9.92
	3	-5.588	3.226	.196	-13.21	2.03
3	1	7.044*	2.799	.034	.44	13.65
	2	5.588	3.226	.196	-2.03	13.21

(I) Year	(J) Year	Mean Difference			95% Confidence Interval	
		(I-J)	Std. Error	Sig.	Lower Bound	Upper Bound
1	2	-1.456	3.586	.913	-9.92	7.01
	3	-7.044*	2.799	.034	-13.65	-.44
2	1	1.456	3.586	.913	-7.01	9.92
	3	-5.588	3.226	.196	-13.21	2.03
3	1	7.044*	2.799	.034	.44	13.65
	2	5.588	3.226	.196	-2.03	13.21

\*. The mean difference is significant at the 0.05 level.

The mean scores for the implementation time periods are illustrated in Figure 4-3.

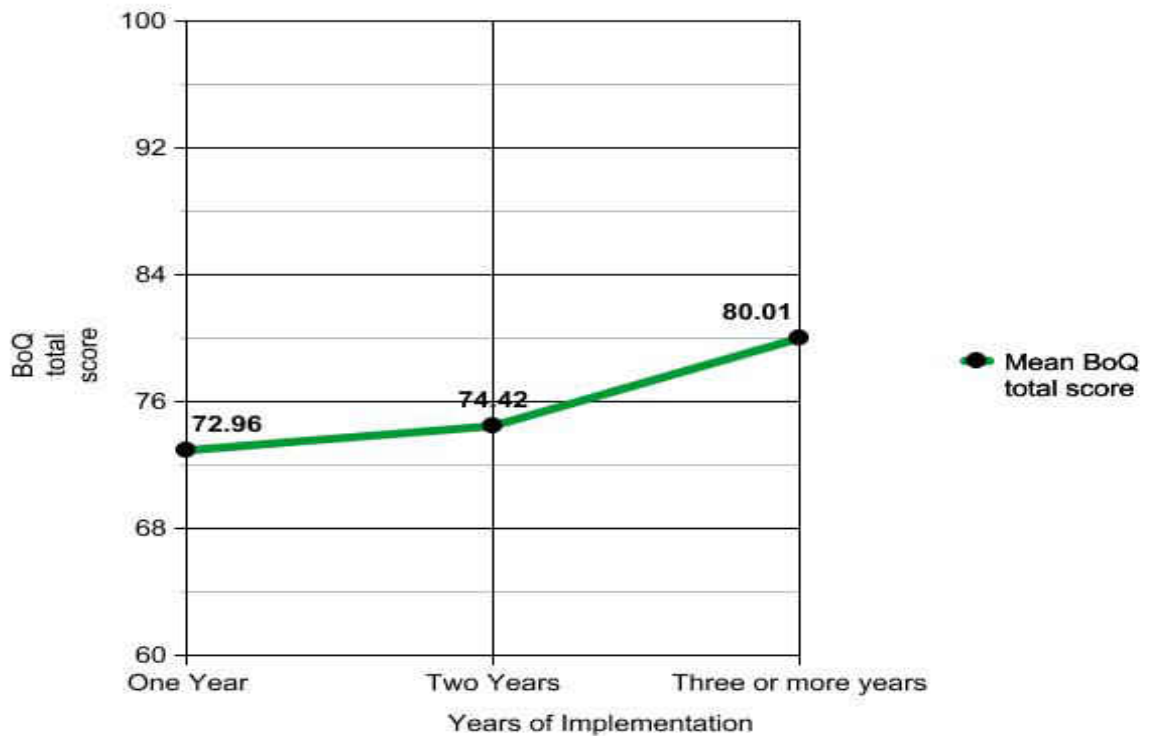


Figure 4-3: Mean fidelity scores by years of implementation.

Note: For schools with one year of implementation, N=57, with two years of implementation, N=38 and for schools with three or more years of implementation, N=109. The total possible fidelity score measured by the Benchmark of Quality tool (BoQ) range from 0 to 100.

### Research Question 2

What is the relationship, if any, between fidelity of implementation of SWPBS as measured using the BoQ during the 2007-2008 school year and student problem behaviors as measured by office discipline referrals and the number of days for out of school suspensions in selected elementary and middle schools in Florida?

To answer this question the researcher conducted Pearson's Product Moment Correlations between the fidelity measure, BoQ total score, and each of the behavioral measures, ODR per 100 students and OSS days per 100 students for each school.

The assumptions for Pearson's correlations include the level of measurement having the same number of cases, related pairs of data from the same subject, normality, linearity, and homoscedasticity. Issues generally associated with correlations include non-linear relationships, outliers, and a restriction of range. Preliminary analyses were performed to ensure no violation of these assumptions.

First, it was determined that the assumptions of the level of measurement and related pairs were met for each variable. To reduce the concern regarding a restriction of range, as wide a range of values as possible was used.

The initial investigation by the researcher also included inspection of a scatterplot for each of the variables to examine linearity, homoscedasticity, and outliers. This visual inspection suggested reasonable linearity and homoscedasticity for each variable and one significant outlier. The outlier was a middle school with a BoQ total score of 24, ODR per 100 students of 521, and OSS days per 100 students of 319. The values for ODRs and OSS days were 43% and 20% higher than the next highest value respectively. Reasons for this disparity were unavailable to the researcher since there was no contact between the researcher and individual schools. This outlier was removed from the study.

The researcher then analyzed histograms, Normal QQ plots, Komogrov-Smirnov, skewness and kurtosis statistics to assess normality for each variable. These analyses indicated scores for OSS days per 100 students (Figure 4-4) and ODR per 100 students (Figure 4-5) were positively skewed. Further analysis indicated BoQ scores were negatively skewed (Figure 4-2). One alternative when facing skewed distributions when conducting a parametric statistical test is to transform the variables so that the distribution better meets the assumptions of the parametric technique (Pallant, 2005). Since the assumption of normality was not met, the researcher transformed these variables. ODR and OSS scores were transformed using the square root to meet the assumption of normality for Pearson's correlations. BoQ scores were reflected and then the square root was

used to meet the assumption of normality. To examine if these transformations had an impact on the Pearson's correlation coefficients, the subsequent analyses were conducted using both the transformed and non-transformed scores. This was not found to make any significant differences to the individual coefficients or the overall amount of variance. Thus, only the transformed scores are reported.

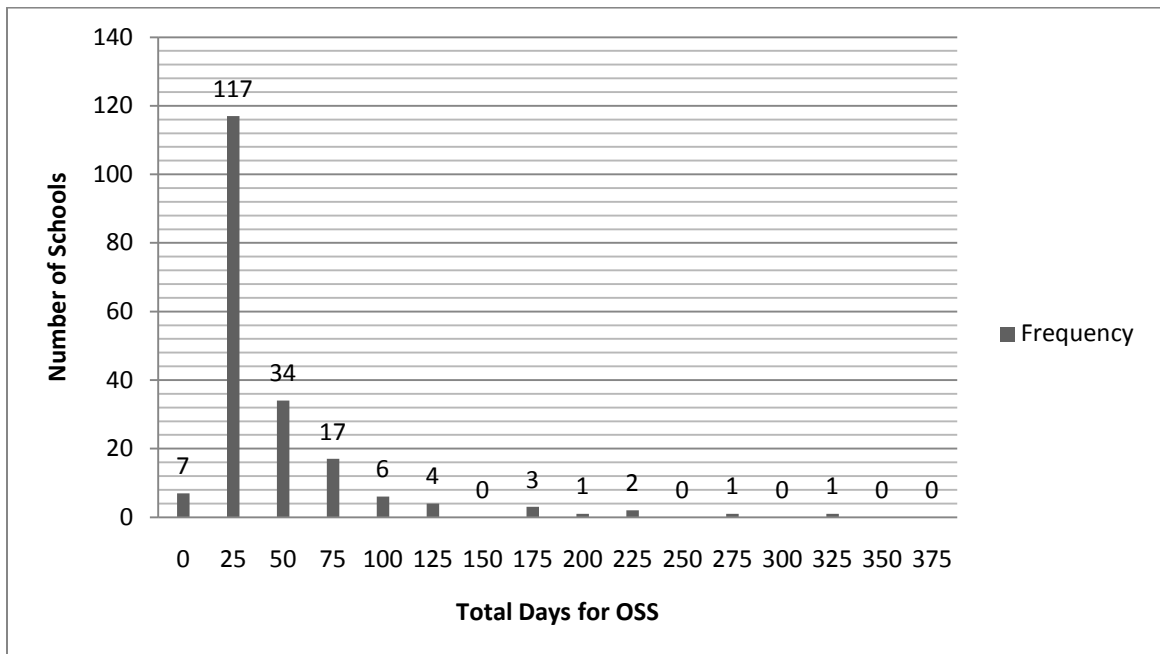


Figure 4-4: Frequency of Out of School Suspension (OSS) days per 100 students.

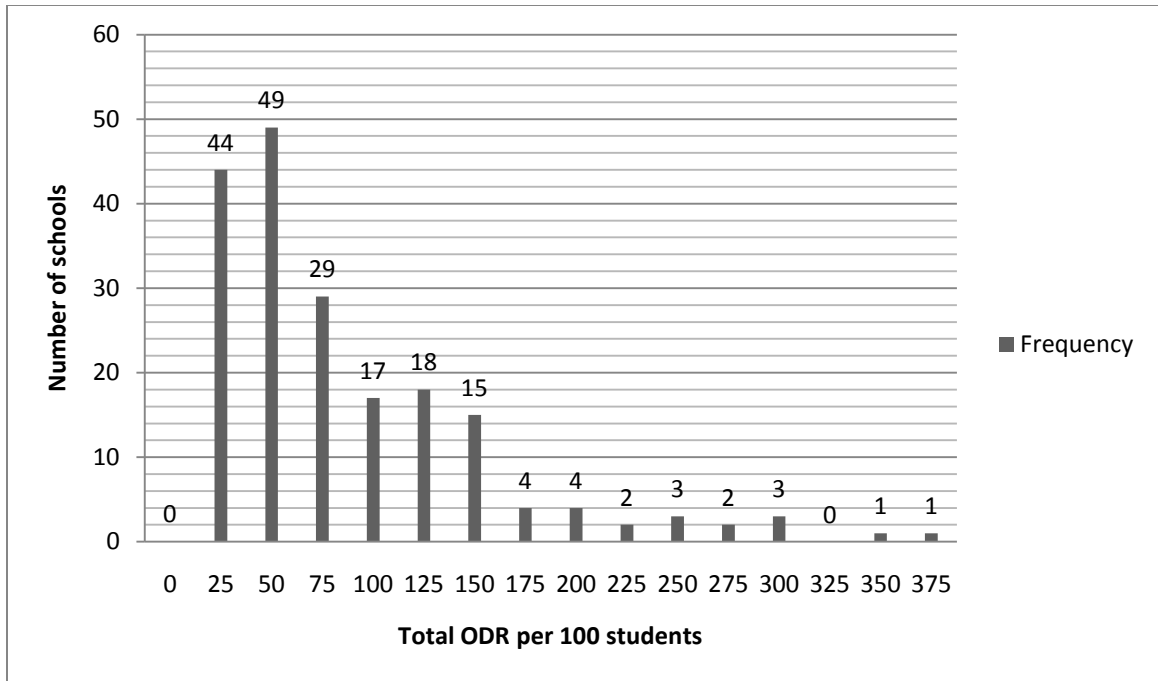


Figure 4-5: Frequency of Office Discipline Referrals (ODR) per 100 students.

The relationship between implementation fidelity as measured by BoQ total score and the ODR per 100 students was investigated using Pearson’s product-moment correlation coefficient (Table 5).

Table 5: Pearson’s Correlations between BOQ total score and ODR per 100 students and OSS days per 100 students for all schools

Correlations				
		Square Root reflected BoQ	Square Root ODR100	Square Root OSS100
Square Root reflected BoQ	Pearson’s Correlation	1	.180*	.325**
	Sig. (2-tailed)		.012	.000
	N	193	193	193
Square Root ODR100	Pearson’s Correlation	.180*	1	.685**

		Sig. (2-tailed)	.012		.000
		N	193	193	193
Square Root OSS100	Pearson's Correlation		.325**	.685**	1
		Sig. (2-tailed)	.000	.000	
		N	193	193	193

\*. Correlation is significant at the 0.05 level (2-tailed).

\*\*. Correlation is significant at the 0.01 level (2-tailed).

There was a small, negative correlation between the two variables [ $r = -.18$ ,  $n = 193$ ,  $p < .05$ ], with higher levels of fidelity associated with lower ODRs being reported per 100 students. This finding was significant at the  $p < .05$  level with three percent of the variance shared by the two variables.

The relationship between implementation fidelity as measured by BoQ total score and the OSS days per 100 students was investigated using Pearson's product-moment correlation coefficient. There was a moderate, negative correlation between the two variables [ $r = -.33$ ,  $n = 193$ ,  $p < .01$ ], with higher levels of fidelity associated with lower numbers of OSS days being reported per 100 students. This finding was significant at the  $p < .01$  level with 11 percent of the variance shared by the two variables.

The researcher then examined these relationships based on if the schools served students at the elementary level or middle school level. At the elementary level, no relationship between fidelity and ODR was noted (Table 6).

Table 6: Pearson's Correlations between BOQ total score and ODR per 100 students and OSS days per 100 students for elementary schools

Correlations <sup>a</sup>				
		Square Root reflected BoQ	Square Root ODR100	Square Root OSS100
Square Root reflected BoQ	Pearson's Correlation	1	.003	.230**
	Sig. (2-tailed)		.968	.008
	N	134	134	134
Square Root ODR100	Pearson's Correlation	.003	1	.392**
	Sig. (2-tailed)	.968		.000
	N	134	134	134
Square Root OSS100	Pearson's Correlation	.230**	.392**	1
	Sig. (2-tailed)	.008	.000	
	N	134	134	134

\*\* . Correlation is significant at the 0.01 level (2-tailed).

a. SchoolType = Elementary School

Conversely, there was a small negative relationship between implementation fidelity and OSS [ $r = -.23$ ,  $n = 134$ ,  $p < .01$ ] at the elementary level. This finding was significant at the  $p < .01$  level with five percent of the variance shared by the two variables.

At the middle school level, there were moderate, negative relationships between fidelity and ODR [ $r = -.33$ ,  $n = 59$ ,  $p < .05$ ] and fidelity and OSS [ $r = -.49$ ,  $n = 59$ ,  $p < .01$ ] (Table 7). The findings between the BoQ and ODR were significant at the  $p < .05$  level with 11 percent of the variance shared by the two variables. The findings between the BoQ and OSS were significant at the  $p < .01$  level with 24 percent of the variance shared by the two variables.

Table 7: Pearson's Correlations between BOQ total score and ODR per 100 students and OSS days per 100 students for middle schools



Correlations <sup>a</sup>				
		Square Root reflected BoQ	Square Root ODR100	Square Root OSS100
Square Root reflected BoQ	Pearson's Correlation	1	.330*	.490**
	Sig. (2-tailed)		.011	.000
	N	59	59	59
Square Root ODR100	Pearson's Correlation	.330*	1	.474**
	Sig. (2-tailed)	.011		.000
	N	59	59	59
Square Root OSS100	Pearson's Correlation	.490**	.474**	1
	Sig. (2-tailed)	.000	.000	
	N	59	59	59

\*. Correlation is significant at the 0.05 level (2-tailed).

\*\*. Correlation is significant at the 0.01 level (2-tailed).

### Research Question 3

What is the relationship, if any, between fidelity of implementation of SWPBS as measured using the BoQ during the 2007-2008 school year and academic achievement as measured by FCAT reading (Figure 4-6) and mathematics subtest scores (Figure 4-7) in selected elementary and middle schools in Florida?

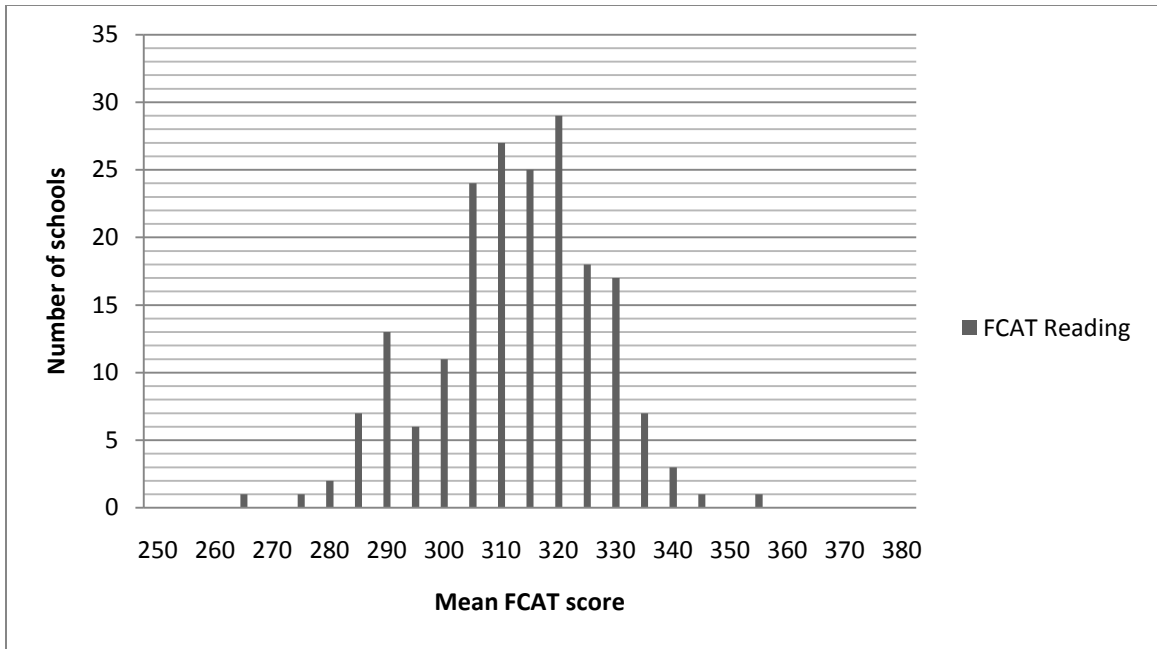


Figure 4-6: Frequency of mean FCAT Reading subtest scores.

Note: These scores were calculated for middle school using the average for grades three through five in elementary schools and six through eight in middle schools.

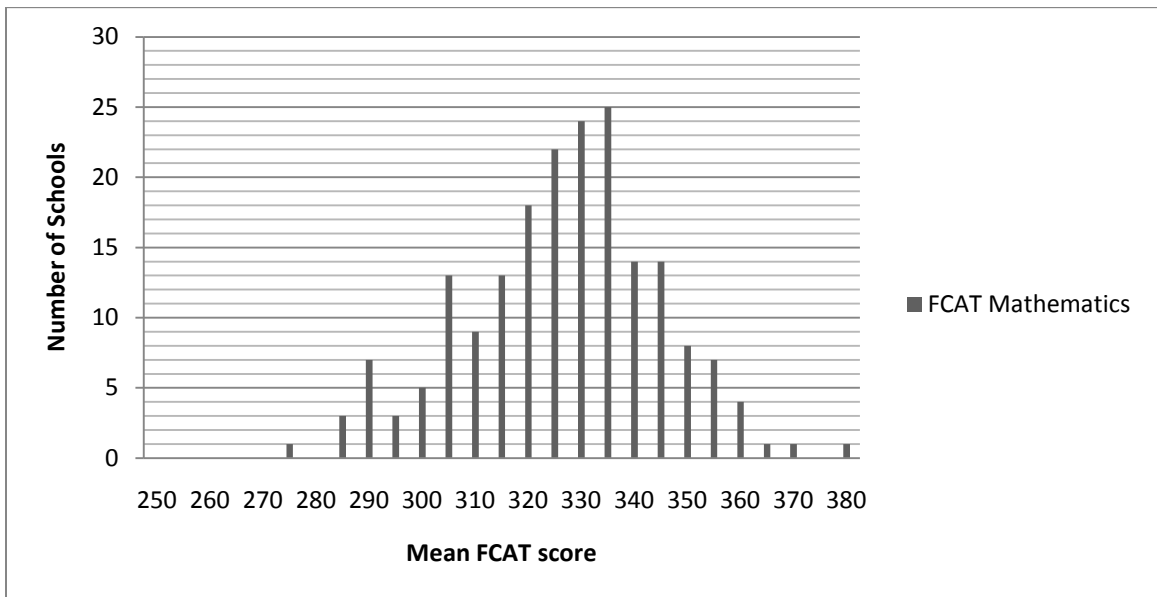


Figure 4-7: Frequency of mean FCAT Mathematics subtest scores.

Note: These scores were calculated using the mean score for grades three through five in elementary schools and grades six through eight for middle schools.

The relationship between implementation fidelity as measured by the BoQ and academic outcomes as measured by FCAT reading and FCAT mathematics subtest scores were investigated using Pearson’s product-moment correlations coefficient (Table 8). Preliminary analyses were performed to ensure no violation of the assumptions of normality, linearity, and homoscedasticity. BoQ scores were negatively skewed. These scores were reflected and then the square root was used to meet the assumption of normality. FCAT reading and FCAT math scores were reasonably normal and were not transformed.

Table 8: Pearson’s Correlations between BOQ total score and Mean FCAT Reading and mean FCAT Mathematics subtest scores for all schools

<b>Correlations</b>				
		Square Root reflected BoQ	Mean FCAT Reading	Mean FCAT Math
Square Root reflected BoQ	Pearson’s Correlation	1	-.095	-.039
	Sig. (2-tailed)		.189	.594
	N	193	193	193
Mean FCAT Reading	Pearson’s Correlation	-.095	1	.891**
	Sig. (2-tailed)	.189		.000
	N	193	193	193
Mean FCAT Math	Pearson’s Correlation	-.039	.891**	1
	Sig. (2-tailed)	.594	.000	

N	193	193	193
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\*\* . Correlation is significant at the 0.01 level (2-tailed).

The initial examination of the Pearson’s product-moment correlation indicated there was no statistically significant relationship between the fidelity of implementation and academic outcomes in this study.

The researcher then examined these relationships based on grade level. At the elementary level, there was no statistically significant relationship between implementation fidelity and academic outcomes (Table 9).

Table 9: Pearson’s Correlations between BOQ total score and Mean FCAT Reading and mean FCAT Mathematics subtest scores for elementary schools

		Correlations <sup>a</sup>		
		Square Root reflected BoQ	Mean FCAT Reading	Mean FCAT Math
Square Root reflected BoQ	Pearson’s Correlation	1	.056	.075
	Sig. (2-tailed)		.520	.391
	N	134	134	134
Mean FCAT Reading	Pearson’s Correlation	.056	1	.914**
	Sig. (2-tailed)	.520		.000
	N	134	134	134
Mean FCAT Math	Pearson’s Correlation	.075	.914**	1
	Sig. (2-tailed)	.391	.000	
	N	134	134	134

\*\* . Correlation is significant at the 0.01 level (2-tailed).

a. SchoolType = Elementary School

At the middle school level, moderate, positive relationships existed between BoQ and FCAT Reading subtest scores [ $r=.25, n=59, p=.05$ ]. This finding was significant at the  $p<.05$  level with six percent of the variance shared by the two variables. The findings between the BoQ and FCAT Math subtest scores were not statistically significant [ $r=.20, n=59, p=.13$ ] (Table 10).

Table 10: Pearson's Correlations between BOQ total score and Mean FCAT Reading and mean FCAT Mathematics subtest scores for middle schools

Correlations <sup>a</sup>				
		Square Root reflected BoQ	Mean FCAT Reading	Mean FCAT Math
Square Root reflected BoQ	Pearson's Correlation	1	-.254*	-.201
	Sig. (2-tailed)		.049	.127
	N	59	59	59
MeanFCATReading	Pearson's Correlation	-.254	1	.947**
	Sig. (2-tailed)	.052		.000
	N	59	59	59
MeanFCATMath	Pearson's Correlation	-.201	.947**	1
	Sig. (2-tailed)	.127	.000	
	N	59	59	59

\*. Correlation is significant at the 0.05 level (2-tailed).

\*\* . Correlation is significant at the 0.01 level (2-tailed).

a. SchoolType = Middle School

The significance levels for these results should be treated cautiously as it may have been influenced by the small size of the sample (N=59) of middle schools.

#### Research Question 4

To what extent is there a statistically significant difference during the 2007-2008 school year in mathematics and reading FCAT scores among elementary and middle schools that scored in the top quartile of BoQ scores, those that were in the bottom quartile of BoQ scores, and those schools which did not implement SWPBS?

A one-way between-groups analysis of variance was conducted to explore the impact of implementation fidelity as measured by the BoQ on academic achievement as measured by Mean FCAT Reading and Mathematics subscale scores (Table 11).

Table 11: ANOVA between FCAT Reading and FCAT Mathematics subtest scores and BoQ total scores for elementary schools

		Sum of	df	Mean Square	F	Sig.
		Squares				
Mean FCAT Math	Between Groups	14802.096	2	7401.048	24.922	.000
	Within Groups	25835.948	87	296.965		
	Total	40638.044	89			
Mean FCAT Reading	Between Groups	705.830	2	352.915	1.071	.347
	Within Groups	28667.737	87	329.514		

		Sum of	df	Mean Square	F	Sig.
		Squares				
Mean FCAT Math	Between Groups	14802.096	2	7401.048	24.922	.000
	Within Groups	25835.948	87	296.965		
	Total	40638.044	89			
Mean FCAT Reading	Between Groups	705.830	2	352.915	1.071	.347
	Within Groups	28667.737	87	329.514		
	Total	29373.567	89			

Elementary schools were divided into groups based on the total BoQ score (Group 1: Lowest quartile; Group 2: Highest quartile; Group 3: No PBS training). There was no statistically significant difference in FCAT Reading subscale scores between the three groups [ $F(2,87)=1.07, p=.35$ ]. Conversely, there was a statistically significant difference at the  $p<.01$  level in FCAT Math subscale scores between the three groups [ $F(2,87)=24.92, p<.01$ ]. The effect size, calculated using eta squared, was .36 which indicated a large effect. Post-hoc comparisons using the Tukey HSD test indicated that the mean Reading score for Group 1 ( $M=332.46, SD=15.80$ ) and Group 2 ( $M=329.70, SD=16.96$ ) were significantly different from Group 3 ( $M=303.98, SD=18.81$ ). No significant difference between Group 1 and Group 2 was noted (Table 12). It is interesting to note that both Group 1 and Group 2 scored above the State of Florida mean ( $M=312$ ) which was calculated by adding the mean scores for grades three through five for all schools in the state.

Table 12: Tukey HSD comparison of FCAT Reading and FCAT Mathematics subtest scores by BoQ total score for elementary schools

Multiple Comparisons							
Tukey HSD							
Dependent Variable	(I) group	(J) group	Mean Difference			95% Confidence Interval	
			(I-J)	Std. Error	Sig.	Lower Bound	Upper Bound
Mean FCAT Math	Lowest quartile	Highest quartile	2.75556	4.44946	.810	-7.8541	13.3652
		No PBS Training	28.47778*	4.44946	.000	17.8681	39.0874
	Highest quartile	Lowest quartile	-2.75556	4.44946	.810	-13.3652	7.8541
		No PBS Training	25.72222*	4.44946	.000	15.1126	36.3319
	NoPBSTraining	Lowest quartile	-28.47778*	4.44946	.000	-39.0874	-17.8681
		Highest quartile	-25.72222*	4.44946	.000	-36.3319	-15.1126
Mean FCAT reading	Lowest quartile	Highest quartile	2.17778	4.68696	.888	-8.9982	13.3537
		No PBS Training	-4.54444	4.68696	.598	-15.7204	6.6315
	Highest quartile	Lowest quartile	-2.17778	4.68696	.888	-13.3537	8.9982
		No PBS Training	-6.72222	4.68696	.328	-17.8982	4.4537
	NoPBSTraining	Lowest quartile	4.54444	4.68696	.598	-6.6315	15.7204
		Highest quartile	6.72222	4.68696	.328	-4.4537	17.8982

\*. The mean difference is significant at the 0.05 level.



The mean FCAT scores are depicted in Figure 4-8.

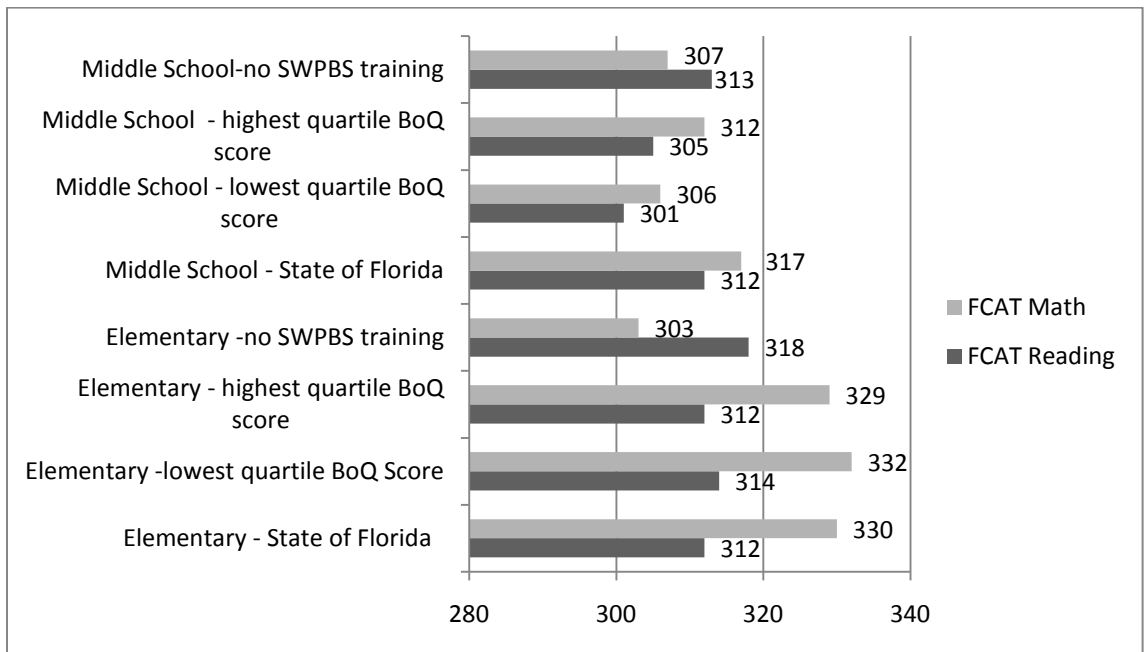


Figure 4-8: Mean FCAT Reading and Mathematics subtest scores

Note: The mean scores for elementary schools were calculated using grades three through five. The mean scores for middle schools were calculated using the average of the scores for grades six through eight.

A second set of one-way between-groups analysis of variance were conducted to explore the impact of implementation fidelity as measured by the BoQ for middle schools (Table 13).

Table 13: ANOVA of FCAT Reading and FCAT Mathematics subtest scores by BoQ total scores for middle schools

		Sum of Squares	df	Mean Square	F	Sig.
Mean FCAT Math	Between Groups	241.370	2	120.685	.340	.714
	Within Groups	13827.627	39	354.555		
	Total	14068.997	41			
Mean FCAT Reading	Between Groups	1002.561	2	501.280	1.312	.281
	Within Groups	14896.984	39	381.974		
	Total	15899.545	41			

Middle schools were divided into groups based on the total BoQ score (Group 4: Lowest quartile; Group 5: Highest quartile; Group 6: No PBS training). There was no statistically significant difference in FCAT Reading subscale scores between the three groups [ $F(2,39)=1.31, p=.28$ ]. In addition, no statistically significant difference was noted between groups for mean FCAT Math scores [ $F(2,39)=.34, p=.71$ ].

It is important to note that many factors should be considered when considering these results. One such consideration is sample size. Since a small sample was selected for this study results may be influenced by a small number of schools.

### Research Question 5

To what extent can FCAT reading and mathematics scores be significantly predicted by the fidelity of implementation of SWPBS as measured using the BoQ and by the number of years that the program has been implemented?

This question will be analyzed using a multiple regression for the dependent variable, mean FCAT Reading subtest scores, and the independent variables, BoQ total score and years of implementation. Next, a multiple regression was analyzed for the dependent variable, mean FCAT Math subtest scores, and the independent variables, BoQ total score and years of implementation. Assumptions for multiple regressions were also analyzed.

The first step of this examination for FCAT reading included a Pearson's correlation to check the assumptions for the regression (Table 14).

Table 14: Pearson's Correlations between BOQ total score and Mean FCAT Reading score for all schools

<b>Correlations</b>				
		FCAT Reading	Years Of Implementation	BoQ Total
Pearson's Correlation	FCAT Reading	1.000	-.068	.086
	Years Of Implementation	-.068	1.000	.215
	BoQ Total	.086	.215	1.000
Sig. (1-tailed)	FCAT Reading	.	.173	.116
	Years Of Implementation	.173	.	.001
	BoQ Total	.116	.001	.
N	FCAT Reading	193	193	193
	Years Of Implementation	193	193	193
	BoQ Total	193	193	193

Analysis revealed a very small relationship between the dependent variable, FCAT mean reading score and the independent variables, years of implementation ( $r=-.07$ ) and BoQ Total score ( $r=.09$ ) although these findings were not statistically significant. A tolerance value of .95 for each independent variable and a VIF value of 1.05 revealed that multicollinearity had not been violated. A review of the residual Scatterplot and the Normal Probability Plot suggested no major deviations in normality, linearity, or independence of residuals. Inspection of Mahalanobis distances and the Cook's distance revealed no problems with outliers.

The Model Summary (Table 15) revealed that BoQ and years of implementation explained 1.5 % of the variance in FCAT Reading Scores.

Table 15: Model summary for the FCAT Reading regression

Model Summary <sup>b</sup>				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.124 <sup>a</sup>	.015	.005	18.40040

a. Predictors: (Constant), BoQTotal, YearsOfImplementation

b. Dependent Variable: MSSReading

Note: This summary explains how much variance in the dependent variable, FCAT Reading subtest score, is explained by the model which includes BoQ total score and years of implementation. To assess the significance of this result an ANOVA was analyzed (Table 16).

Table 16: Multiple Regression procedure for predicting FCAT Reading subtest scores

ANOVA <sup>b</sup>						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1006.120	2	503.060	1.486	.229 <sup>a</sup>
	Residual	64329.177	190	338.575		
	Total	65335.298	192			

a. Predictors: (Constant), BoQTotal, YearsOfImplementation

b. Dependent Variable: MSSReading

Analysis of the standardized coefficients (Table 17) revealed that the beta value for the BoQ total score is higher (.11) than the beta value for years of implementation (-.09). Therefore, implementation fidelity is making a stronger contribution to explaining the dependent variable, FCAT Reading score.

However, neither of these variables is making a statistically significant unique contribution as revealed by significance values greater than .05.

Table 17: Coefficients to evaluate each of the independent variables for FCAT Reading

Coefficients <sup>a</sup>												
Model	Unstandardized		Standardized		95% Confidence			Correlations			Collinearity	
	Coefficients		Coefficients		Interval for B						Statistics	
	B	Std. Error	Beta	t	Sig.	Lower Bound	Upper Bound	Zero-order	Partial	Part	Tolerance	VIF
1 (Constant)	318.914	6.146		51.892	.000	306.792	331.037					
Years Of Implementation	-1.223	.989	-.091	-1.236	.218	-3.174	.728	-.068	-.089	-.089	.954	1.049
BoQTotal	.111	.077	.106	1.439	.152	-.041	.264	.086	.104	.104	.954	1.049

a. Dependent Variable:  
MSSReading

A regression analysis for the dependent variable, mean FCAT Mathematics subtest scores, and the independent variables, BoQ total score and years of implementation revealed similar results (Table 18)

Table 18: Pearson's Correlations between BoQ total score and Mean FCAT Mathematics subtest scores for all schools.

		Correlations		
		FCAT Math	Years Of Implementation	BoQ Total
Pearson's Correlation	FCAT Math	1.000	-.016	.039
	Years Of Implementation	-.016	1.000	.215
	BoQ Total	.039	.215	1.000
Sig. (1-tailed)	FCAT Math	.	.411	.294
	Years Of Implementation	.411	.	.001
	BoQ Total	.294	.001	.
N	FCAT Math	193	193	193
	Years Of Implementation	193	193	193
	BoQ Total	193	193	193

All assumptions were met. There was a weak relationship between the FCAT Math score and BoQ ( $r=.04$ ) and years of implementation ( $r=.02$ ). These statistics were not found to be statistically significant. A review of the residual scatterplot and the Normal Probability Plot suggest no major deviations in normality, linearity, or independence of residuals. Inspection of Mahalanobis distances and the Cook's distance reveal no problems with outliers.

BoQ and years of implementation explained less than 1% of the variance in FCAT Math Scores. BoQ ( $\beta=.05$ ) and years of implementation ( $\beta= -.03$ ) did not make a significant unique contribution to the prediction of the independent variable (Table 19).

Table 19: Multiple Regression procedure for predicting FCAT Mathematics subtest scores

ANOVA <sup>b</sup>						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	89.175	2	44.588	.209	.812 <sup>a</sup>
	Residual	40631.021	190	213.847		
	Total	40720.196	192			

a. Predictors: (Constant), BoQTotal, YearsOfImplementation

b. Dependent Variable: MSSMath

Analysis of the standardized coefficients (Table 20) revealed that the beta value for the BoQ total score is slightly higher (.05) than the beta value for years of implementation (.03). The researcher considered this difference to be negligible. Similar to the findings for FCAT Reading, the researcher noted that these variables were not making a statistically significant unique contribution to the FCAT Mathematics score.



Table 20: Coefficients to evaluate each of the independent variables for FCAT Mathematics

Coefficients <sup>a</sup>												
Model	Unstandardized Coefficients		Standardized Coefficients			95% Confidence Interval for B		Correlations			Collinearity Statistics	
	B	Std. Error	Beta	t	Sig.	Lower Bound	Upper Bound	Zero-order	Partial	Part	ce	VIF
	1 (Constant)	308.169	4.884		63.094	.000	298.534	317.803				
Years Of Implementation	-.276	.786	-.026	-.351	.726	-1.826	1.275	-.016	-.025	-.025	.954	1.049
BoQTotal	.037	.062	.045	.605	.546	-.084	.159	.039	.044	.044	.954	1.049

a. Dependent Variable: MSSMath

### Summary

This chapter presented analyses of data for this study. Chapter five contains interpretations and discussions of these findings. Conclusions and implications for future research will also be discussed.

## CHAPTER FIVE: DISCUSSION AND RECOMMENDATIONS

### Introduction

The research study answered five research questions regarding SWPBS. Information from this research add to the current knowledge base of School-wide Positive Behavior Support, facilitates further research, and allows practitioners and policymakers to make informed decisions regarding SWPBS. This Chapter includes a discussion of the findings of this study and recommendations.

### Purpose

The purpose of this study was to examine the extent to which SWPBS was implemented in elementary and middle schools in Florida during the 2007-2008 school year. Furthermore, the number of years that SWPBS has been implemented in each school as a factor in proper implementation was analyzed. This study also examined possible relationships between the fidelity of implementation of SWPBS as indicated by the total BoQ score to the Florida Comprehensive Achievement Test reading and mathematics subtests. The relationship between BoQ scores and students' behaviors within the school as measured by office disciplinary referrals and total days of out of school suspensions during the 2007 - 2008 school year in the state of Florida were also studied. Next, differences between schools that scored in the top quartile of total BoQ scores, the lowest quartile of total BoQ scores, and a control group were examined. The final purpose of this study was to determine if the fidelity of

implementation or the number of years that a school has implemented SWPBS can be used to predict future FCAT Reading or Mathematics scores. After analyzing possible relationships and differences, conclusions were made regarding the implementation of SWPBS.

### Discussion

Prior to discussing this study it seems pertinent to review the limitations of the study. The implementation fidelity data used for this study from the BoQ tool is based on self reported information from each school. As a self evaluation tool, some inconsistency could result. In addition, the level of fidelity at each grade level is assumed to be consistent with the level of implementation of the school as a whole since grade level data was not collected regarding implementation. Therefore, assumptions regarding the impact on specific grade levels or individual students could not be made. Data from different cohorts of students were analyzed in aggregate. This limits any conclusions regarding individual academic and behavioral functioning. Finally, due to the relatively small sample size for correlational statistics, conclusions are limited.

Research question one asked: to what extent is SWPBS implemented with fidelity as measured using the BoQ in selected elementary and middle schools in Florida during the 2007-2008 school year? Is there any difference in fidelity scores between schools that have implemented SWPBS for one year, two years, or three or more years? The hypothesis created to test this research question was: the majority of schools that have implemented SWPBS in Florida have

implemented the necessary components to achieve desirable outcomes as demonstrated by a BoQ score of 70 or higher. This study suggests that schools that have implemented SWPBS for three or more years have higher fidelity scores than schools who have implemented the program for one or two years. This question was answered using a sample which included 145 elementary and 60 middle schools that actively utilized SWPBS during the 2007-2008 school year and had completed the BoQ survey. The results indicated that the majority (71.7%) of elementary and middle schools in Florida did in fact implement SWPBS with fidelity as indicated by a total BoQ score of greater than 70. Further investigation suggested that a greater percentage of elementary schools in this study implemented the framework with fidelity than middle schools. To answer the second part of this question, a one-way between groups ANOVA was conducted to examine the impact of years of implementation on implementation fidelity. The results indicated that there was statistically significant difference at the  $p < .05$  level in scores between the schools that had implemented SWPBS for one year ( $M=72.96, SD=13.77$ ) and schools that had implemented SWPBS for three or more years ( $M=80.01, SD=18.19$ ). These findings indicate that schools are able to successfully adopt SPWBS with fidelity in the first year of implementation and sustain or increase the use of these practices over time.

Research question two asked: what is the relationship, if any, between fidelity of implementation of SWPBS as measured using the BoQ during the 2007-2008 school year and student problem behaviors as measured by office discipline referrals and the number of days for out of school suspensions in

selected elementary and middle schools in Florida? The hypothesis created to test this research question was: a negative relationship will be observed between the total BoQ score and student problem behavior as measured by office discipline referrals and the number of days for out of school suspensions. This question was answered using a sample which included 134 elementary and 59 middle schools that actively utilized SWPBS during the 2007-2008 school year, had completed the BoQ survey, and had reported ODR and OSS data. The relationship between implementation fidelity as measured by the BoQ total score and ODR per 100 students was investigated using a Pearson's product-moment correlation coefficient. A Pearson's correlation was also used to examine the relationship between implementation fidelity and OSS days per 100 students. Both statistics indicated that a statistically significant relationship existed between implementation fidelity and these measures of behavioral outcomes. For office discipline referrals the significance was at the  $p < .05$  level. The significance level for out of school suspension days was at the  $p < .01$  level. In each case higher levels of fidelity were associated with lower levels of undesirable behaviors.

Research question three asked: what is the relationship, if any, between fidelity of implementation of SWPBS as measured using the BoQ during the 2007-2008 school year and academic achievement as measured by FCAT Reading and Mathematics subtest scores in selected elementary and middle schools in Florida? The hypothesis created to test this research question was: a positive relationship will be observed between the total BoQ score and FCAT reading and mathematics subtest scores. The third question was answered using

a sample which included 134 elementary and 59 middle schools that actively utilized SWPBS during the 2007-2008 school year, had completed the BoQ survey, had reported ODR and OSS data and had valid FCAT Reading and Mathematics subtest scores. The scores for elementary schools were calculated using the mean FCAT Reading and Mathematics subtest scores for grades three through five at each school. The scores for middle schools were calculated using the mean FCAT Reading and Mathematics scores for grades six through eight. Pearson's product-moment correlation coefficients were utilized to examine the relationship between fidelity and FCAT reading and mathematics subtest scores. The results indicated that there was no statistically significant relationship between implementation fidelity and academic outcomes as measured by FCAT scores for the group as a whole. When broken down into elementary and middle schools, results indicated that there was a moderate positive relationship at the  $p < .05$  level between BoQ and FCAT reading subtest scores in middle schools. Due to the small sample size of middle schools ( $N=59$ ) these results should be viewed cautiously. However, these results do warrant further investigation.

Research question four asked: is there a statistically significant difference during the 2007-2008 school year in Mathematics and Reading FCAT scores among elementary and middle schools that scored in the top quartile of BoQ scores, those that were in the bottom quartile of BoQ scores, and those schools which did not implement SWPBS? The hypothesis created to test this research question was: There will be statistically significant differences in mathematics and reading FCAT scores among elementary and middle schools that scored in

the top quartile of BoQ scores, those that were in the bottom quartile of BoQ scores, and those schools which did not implement SWPBS during the 2007-2008 school year. The fourth question was answered using elementary and middle schools selected based on their total BoQ scores. The three groups of elementary schools were identified as Group 1, Group 2, and Group 3. Group 1 included 40 elementary schools that scored in the lowest quartile of total BoQ scores. Group 2 consisted of 40 schools in the highest quartile of total BoQ scores. A comparison group, Group 3, included 40 schools that had not participated in SWPBS training. The three middle school groups were identified as Group 4, Group 5, and Group 6 and consist of 14 middle schools each. Group 4 consisted of middle schools that scored in bottom quartile of BoQ scores, Group 5 consisted of middle schools in the top quartile of BoQ scores, and Group 6 included non-SWPBS middle schools. One-way between-groups ANOVAs were conducted to examine the impact of implementation fidelity as measured by the BoQ total score on academic achievement as measured by FCAT reading and mathematics subtest scores. At the elementary level, no statistically significant difference between FCAT Reading scores was noted. Conversely, the mean FCAT Mathematics subtest score for Group 1 ( $M=332.46, SD=15.80$ ) and Group 2 ( $M=329.70, SD=16.96$ ) were significantly higher at the  $p<.05$  level than Group 3 ( $M=303.98, SD=18.81$ ). The groups were then compared to the state mean FCAT Mathematics score ( $M=330$ ). It is relevant to note that both Group 1 and Group 2 were similar to the state mean while Group 3 was significantly lower. Here the limitation of the sample size ( $N=40$ ) should be considered when

evaluating these results as it may have influenced the results. No statistically significant differences were noted for the mean FCAT Reading and Mathematics subtests for the middle school cohorts. It is interesting that the academic outcomes for SWPBS schools were in line with or were greater than the outcomes for schools that did not participate in SWPBS training. Frequently, schools focus on one area for improvement such as writing, mathematics, reading, or improved behaviors. When this occurs, attention to other areas may lapse. The outcomes of this study may suggest that schools implementing SWPBS improve student behavior while sustaining or improving academic outcomes.

Research question five asked: To what extent can FCAT Reading and Mathematics scores be predicted by the fidelity of implementation of SWPBS as measured using the BoQ or by the number of years that the program has been implemented? The hypothesis created to test this research question was: FCAT Reading and Mathematics scores can be significantly predicted by the fidelity of implementation of SWPBS as measured using the BoQ or by the number of years that the program has been implemented. The fifth question was answered using a sample which included 132 elementary and 56 middle schools that actively utilized SWPBS during the 2007-2008 school year and have completed the BoQ survey. A Pearson's correlation and regression analysis was conducted to determine to what extent that FCAT Reading and Mathematics subtest scores could be predicted by the fidelity of implementation of SWPBS as measured using the BoQ or by the number of years that the program has been



implemented. The researcher found that neither of these factors are reliable indicators for predicting FCAT scores.

## CONCLUSIONS

Invariably, many factors influence the outcomes examined in this study. The influence of multiple factors should be considered when evaluating the outcomes of this study. These include other academic and behavioral programs that may have been in place, administrative and staff buy-in, and environmental factors. In addition, staff tolerance for different behaviors may influence behavioral outcomes. The results of this study suggest that SWPBS practices can be implemented with fidelity on a large scale and greater fidelity is associated with fewer instances of negative behaviors. The strength of the relationship between fidelity and the behavioral measures was low to moderate. One possible explanation is that schools may have over reported the level of implementation. The results also indicate that there may be a relationship between implementation fidelity and academic outcomes as indicated by the middle school outcomes. The findings from the evaluation data and results have important implications for policy, practice, and SWPBS program evaluation.

### Recommendations for Policy

This research has important implications for policy makers. The findings of this study suggest that implementation fidelity is mildly associated with reduced instances of ODRs and days for OSS. As a self reported tool the possibility exists that BoQ scores may have been over reported which could have the effect of

reducing the strength of the correlation between fidelity and behavioral outcomes. Policy makers should consider examining how closely schools are accurately reporting implementation fidelity. Identifying schools that are utilizing SWPBS appropriately with data to support the results will undoubtedly help school leaders utilize SWPBS effectively.

In some cases SWPBS has also been associated with improved academic outcomes. Since SWPBS focuses on improving student behavior, this may not be a causal relationship. However, by improving behavioral outcomes, SWPBS creates an opportunity for schools to improve student achievement by increasing the time available for planning and implementing engaging lessons for students. Policymakers should take note that this success is based on sound instructional practices and effective training on appropriate behavioral strategies. By appropriately utilizing the time available for instruction, behavioral and academic outcomes can be maximized.

This research has also suggested that the fidelity of SWPBS increases over time. Policy decisions should be made to support the continued implementation of SWPBS and examine if this trend leads to improved outcomes over time.

### Recommendations for Practice

While the findings of this study are subject to limitations, they offer guidance to practitioners. One of primary findings of this study is that a relationship exists between implementation fidelity and behavioral outcomes.

There is also some limited evidence that a relationship between implementation fidelity and academic outcomes may exist as well. Prior research has indicated that a total score of less than 80 on the SET or a total score of less than 70 on the BoQ indicate partial implementation of the critical components of SWPBS which may not be sufficient to achieve desirable outcomes. To implement SWPBS with fidelity, practitioners should strive to implement each of the major components of SWPBS. These components include establishing a planning team, defining school-wide behavioral expectations, training teachers, teaching behavioral expectations to students, developing procedures for acknowledging appropriate behaviors and discouraging inappropriate behavior, utilizing data to monitor behaviors, and evaluating the system (Sugai & Horner, 2002). As a school implements this framework, some of the factors that impede the implementation of SWPBS such as insufficient funding, lack of time, and lack of stakeholder buy-in should be addressed. By developing an awareness of the possible pitfalls to implementation and focusing on the research based strategies of SWPBS practitioners may experience some of the positive outcomes suggested by the findings of this research. School based leaders should also conduct classroom walkthroughs and have frequent discussions with stakeholders such as staff members, students, and parents to investigate implementation fidelity. In addition, school leaders should ensure that additional time is used appropriately to improve student instruction.

## Recommendations for SWPBS Program Evaluation

This research examined the relationship between implementation fidelity and behavioral and academic outcomes. To validate this research further research should be conducted in this area of investigation. In addition, emerging research has begun to examine qualitative data regarding improved quality of life outcomes for students. Future research should include longitudinal studies of behavioral, academic, and quality of life outcomes in relation to implementation fidelity. Research should be directed in this area in addition to examining factors that influence the adoption of evidence based practices, how to sustain SWPBS practices, and the integration of SWPBS with additional types of intervention efforts such as response-to-intervention (RtI). The findings of this study support previous research advocating SWPBS as a conceptually sound framework for improving student behaviors when implemented with fidelity. However, there is clearly more research to be done in the area of School-wide Positive Behavior Support.

APPENDIX A: SWPBS OUTCOME SUMMARY FORM

End-of-Year Report Item 2



## School-Wide Positive Behavior Support Outcome Data Summary

School \_\_\_\_\_ District \_\_\_\_\_

School Year \_\_\_\_\_ Date of Report \_\_\_\_\_

Six-digit DOE district/school number \_\_\_\_\_

Attendance Data ( <i>Current Year</i> )	
Total number of school days	
Average daily attendance (%)	

\*If using SWIS, you will also want to run an end of the year SWIS report for your team.

Behavioral Data (Current Year through the last day)	
Total number of office discipline referrals (major referrals)	
Total number of days of in-school suspensions	
Total number of days of out-of-school suspensions	

DIBELS <i>Only if collected by your school</i>			
DIBELS Oral Reading Fluency Score	Fall	Winter	Spring
% Low Risk			
(n=)			
% Some Risk			
(n=)			
% At Risk			
(n=)			

Are Progress Monitoring Tools in Use at Your School? <i>Circle Yes or No. If Yes, describe briefly.</i>	
Targeted Group Students Yes      No	Describe:
Individual Students Yes      No	Describe:

Outcome Data Summary 20072008 3/17/2008

## APPENDIX B: BENCHMARKS OF QUALITY SCORING FORM



**School-wide Benchmarks of Quality: SCORING FORM**

School Name: \_\_\_\_\_ District: \_\_\_\_\_

Coach's Name: \_\_\_\_\_ Date: \_\_\_\_\_

**STEP 1:** Coach uses the Scoring Guide to determine appropriate point value. Circle ONLY ONE response.

**STEP 2:** Indicate your team's most frequent response. Write the response in column 2.  
(in place ++, needs improvement +, or not in place -). If there is a tie, report the higher score.

**STEP 3:** Place a check next to any item where there is a discrepancy between your rating and the team's rating.  
Document the discrepancies on page 3.

Critical Elements	STEP 1					STEP 2 ++, +, or -	STEP 3 ✓
PBS Team	1. Team has broad representation			1	0		
	2. Team has administrative support	3	2	1	0		
	3. Team has regular meetings (at least monthly)		2	1	0		
	4. Team has established a clear mission/purpose			1	0		
Faculty Commitment	5. Faculty are aware of behavior problems across campus (regular data sharing)		2	1	0		
	6. Faculty involved in establishing and reviewing goals		2	1	0		
	7. Faculty feedback obtained throughout year		2	1	0		
Effective Procedures for Dealing with Discipline	8. Discipline process described in narrative format or depicted in graphic format		2	1	0		
	9. Process includes documentation procedures			1	0		
	10. Discipline referral form includes information useful in decision making		2	1	0		
	11. Behaviors defined	3	2	1	0		
	12. Major/minor behaviors are clearly identified/understood		2	1	0		
	13. Suggested array of appropriate responses to minor (non office-managed) problem behaviors			1	0		
Data Entry & Analysis Plan Established	14. Suggested array of appropriate responses to major (office-managed) problem behaviors			1	0		
	15. Data system to collect and analyze ODR data	3	2	1	0		
	16. Additional data collected (attendance, grades, faculty attendance, surveys)			1	0		
	17. Data entered weekly (minimum)			1	0		
Expectations & Rules Developed	18. Data analyzed monthly (minimum)		2	1	0		
	19. Data shared with team and faculty monthly (minimum)		2	1	0		
	20. 3-5 positively stated school-wide expectations posted around school	3	2	1	0		
	21. Expectations apply to both students and staff	3	2	1	0		
	22. Rules developed and posted for specific settings (where problems are prevalent)		2	1	0		
	23. Rules are linked to expectations			1	0		
	24. Staff feedback/involvement in expectations/rule development		2	1	0		



Critical Elements	STEP 1					STEP 2 ++, +, or _	STEP 3 ✓
Reward/ Recognition Program Established	25. A system of rewards has elements that are implemented consistently across campus	3	2	1			
	26. A variety of methods are used to reward students		2	1	0		
	27. Rewards are linked to expectations	3	2	1	0		
	28. Rewards are varied to maintain student interest		2	1	0		
	29. System includes opportunities for naturally occurring reinforcement			1	0		
	30. Ratios of reinforcement to corrections are high	3	2	1	0		
	31. Students are involved in identifying/developing incentives			1	0		
	32. The system includes incentives for staff/faculty		2	1	0		
Lesson Plans for Teaching Expectations/ Rules	33. A behavioral curriculum includes concept and skill level instruction		2	1	0		
	34. Lessons include examples and non-examples			1	0		
	35. Lessons use a variety of teaching strategies		2	1	0		
	36. Lessons are embedded into subject area curriculum		2	1	0		
	37. Faculty/staff and students are involved in development & delivery of lesson plans			1	0		
	38. Strategies to reinforce the lessons with families/community are developed and implemented			1	0		
Implemen- tation Plan	39. Develop, schedule and deliver plans to teach staff the discipline and data system		2	1	0		
	40. Develop, schedule and deliver plans to teach staff the lesson plans for teaching students		2	1	0		
	41. Develop, schedule and deliver plans for teaching students expectations/rules/rewards	3	2	1	0		
	42. Booster sessions for students and staff are planned, scheduled, and delivered		2	1	0		
	43. Schedule for rewards/incentives for the year is planned			1	0		
	44. Plans for orienting incoming staff and students are developed and implemented		2	1	0		
	45. Plans for involving families/community are developed & implemented			1	0		
Crisis Plan	46. Faculty/staff are taught how to respond to crisis situations			1	0		
	47. Responding to crisis situations is rehearsed			1	0		
	48. Procedures for crisis situations are readily accessible			1	0		
Evaluation	49. Students and staff are surveyed about PBS		2	1	0		
	50. Students and staff can identify expectations and rules		2	1	0		
	51. Staff use discipline system/documentation appropriately	3	2	1	0		
	52. Staff use reward system appropriately	3	2	1	0		
	53. Outcomes (behavior problems, attendance, morale) are documented and used to evaluate PBS plan	3	2	1	0		
<b>TOTAL</b>							



**Benchmarks of Quality TEAM SUMMARY**

School \_\_\_\_\_ Date \_\_\_\_\_ Total Benchmarks Score \_\_\_\_\_

**Areas of Discrepancy**

Item #	Team Response	Coach's Score	Scoring Guide Description

\*If a team discussion of an area of discrepancy reveals information that was previously unknown to the coach and would justify a different score on any item (based upon the Scoring Guide), adjust the benchmark item(s) and total scores.

**Areas of Strength**

Critical Element	Description of Areas of Strength

**Areas in Need of Development**

Critical Element	Description of Areas in Need of Development

## APPENDIX C: BENCHMARKS OF QUALITY SCORING GUIDE



## SCORING GUIDE: Completing the Benchmarks of Quality for School-wide Positive Behavior Support (SWPBS)

### When & Why

Benchmarks of Quality for School-wide Positive Behavior Support should be completed in the spring of each school year (Mar/Apr/May). The Benchmarks are used by teams to identify areas of success, areas for improvement, and by the PBS Project to identify model PBS schools.

### Procedures for Completing

#### Step 1 - Coaches Scoring

The Coach will use his or her best judgment based on personal experience with the school and the descriptions and exemplars in the *Benchmarks of Quality Scoring Guide* to score each of the 53 items on the *Benchmarks of Quality Scoring Form* (p.1 & 2). Do not leave any items blank.

#### Step 2 - Team Member Rating

The coach will give the *Benchmarks of Quality Team Member Rating Form* to each SWPBS Team member to be completed independently and returned to the coach upon completion. Members should be instructed to rate each of the 53 items according to whether the component is “In Place”, “Needs Improvement”, or “Not In Place”. Some of the items relate to product and process development, others to action items; in order to be rated as “In Place,” the item must be developed and implemented (where applicable). Coaches will collect and tally responses and record on the *Benchmarks of Quality Scoring Form* the team’s most frequent response using ++ for “In Place,” + for “Needs Improvement,” and – for “Not In Place.”

#### Step 3 – Team Report

The coach will then complete the *Team Summary* on p. 3 of the *Benchmarks of Quality Scoring Form* recording areas of discrepancy, strength and weakness.

*Discrepancies* - If there were any items for which the team’s most frequent rating varied from the coaches’ rating based upon the Scoring Guide, the descriptions and exemplars from the guide should be shared with the team. This can happen at a team meeting or informally. If upon sharing areas of discrepancy, the coach realizes that there is new information that according to the *Scoring Guide* that would result in a different score, the item and the adjusted final score should be recorded on the *Scoring Form*.

#### Step 4 - Reporting Back to Team

After completing the remainder of the *Benchmarks of Quality: Scoring Form*, the coach will report back to the team using the *Team Report* page of the *Benchmarks of Quality: Scoring Form*. If needed, address items of discrepancy and adjust the score. The coach will then lead the team through a discussion of the identified areas of strength (high ratings) and weakness (low ratings). This information should be conveyed as “constructive feedback” to assist with action planning.

#### Step 5 – Reporting

The coach will enter the final scores from the *Scoring Form* on PBSES, the web-based evaluation reporting system through the PBS Project’s website <http://flpbs.fmhi.usf.edu>. The school log-in and password are included on the direction for completing End-Year Evaluation which is distributed by the district coordinator.

## BENCHMARKS OF QUALITY SCORING GUIDE

Benchmark	3 points	2 points	1 point	0 points
1. Team has broad representation			Includes all of the following: SAC team member, Administrator (i.e., principal, asst. principal or dean), reg. ed. teacher, spec. ed. teacher, member with behavior expertise, and a coach/district-level representation.	Some groups are not represented on the team.
2. Team has administrative support	Administrator(s) attended training, play an active role in the PBS process, actively communicate their commitment, support the decisions of the PBS Team, and attend all team meetings.	Administrator(s) support the process, take as active a role as the rest of the team, and/or attend most meetings	Administrator(s) support the process but don't take as active a role as the rest of the team, and/or attends only a few meetings.	Administrator(s) do not actively support the PBS process.
3. Team has regular meetings (at least monthly)		Team meets monthly (min. of 9 one-hour meetings each school year).	Team meetings are not consistent (5-8) monthly meetings each school year.	Team seldom meets (fewer than five monthly meetings during the school year).
4. Team has established a clear mission/purpose			Team has a written purpose/mission statement for the PBS team (commonly completed on the cover sheet of the action plan).	No mission statement/purpose written for the team.
5. Faculty are aware of behavior problems across campus (regular data sharing)		Data regarding school-wide behavior are shared with faculty monthly (min. of 8 times per year).	Data regarding school-wide behavior are occasionally shared with faculty (3-7 times per year).	Data are not regularly shared with faculty. Faculty may be given an update 0-2 times per year
6. Faculty involved in establishing and reviewing goals		Most faculty participate in establishing PBS goals (i.e. surveys, "dream", "PATH") on at least an annual basis.	Some of the faculty participates in establishing PBS goals (i.e. surveys, "dream", "PATH") on at least an annual basis.	Faculty does not participate in establishing PBS goals.

Benchmark	3 points	2 points	1 point	0 points
7. Faculty feedback obtained throughout year		Faculty is given opportunities to provide feedback, to offer suggestions, and to make choices in every step of the PBS process (via staff surveys, voting process, suggestion box, etc.) Nothing is implemented without the majority of faculty approval.	Faculty are given some opportunities to provide feedback, to offer suggestions, and to make some choices during the PBS process. However, the team also makes decisions without input from staff.	Faculty are rarely given the opportunity to participate in the PBS process (fewer than 2 times per school year).
8. Discipline process described in narrative format or depicted in graphic format		Team <b>has</b> established clear, written procedures that lay out the process for handling both major and minor discipline incidents. <b>(Includes crisis situations)</b>	Team <b>has</b> established clear, written procedures that lay out the process for handling both major and minor discipline incidents. <b>(Does not include crisis situations.)</b>	Team <b>has not</b> established clear, written procedures for discipline incidents and/or there is no differentiation between major and minor incidents.
9. Process includes documentation procedures			There is a documentation procedure to track both major and minor behavior incidents (i.e., form, database entry, file in room, etc.).	There is <b>not a</b> documentation procedure to track both major and minor behavior incidents (i.e., form, database entry, file in room, etc.).
10. Discipline referral form includes information useful in decision making		Information on the referral form includes ALL of the required fields: Student's name, date, time of incident, grade level, referring staff, location of incident, gender, problem behavior, possible motivation, others involved, and administrative decision.	The referral form includes all of the required fields, but also includes unnecessary information that is not used to make decisions and may cause confusion.	The referral form lacks one or more of the required fields or does not exist.
11. Behaviors defined	Written documentation exists that includes clear definitions of all behaviors listed.	All of the behaviors are defined but some of the definitions are unclear.	Not all behaviors are defined or some definitions are unclear.	No written documentation of definitions exists.

Benchmark	3 points	2 points	1 point	0 points
12. Major/minor behaviors are clearly identified/understood		Most staff are clear about which behaviors are staff managed and which are sent to the office. (i.e. appropriate use of office referrals) Those behaviors are clearly defined, differentiated and documented.	Some staff are unclear about which behaviors are staff managed and which are sent to the office (i.e. appropriate) use of office referrals) or no documentation exists.	Specific major/minor behaviors are not clearly defined, differentiated or documented.
13. Suggested array of appropriate responses to minor (non office-managed) problem behaviors			There is evidence that most staff are aware of and use an array of appropriate responses to minor behavior problems.	There is evidence that few staff are aware of or use an array of appropriate responses to minor behavior problems.
14. Suggested array of appropriate responses to major (office-managed) problem behaviors			There is evidence that all administrative staff are aware of and use an array of predetermined appropriate responses to major behavior problems.	There is evidence that some administrative staff are not aware of, or do not follow, an array of predetermined appropriate responses to major behavior problems.
15. Data system to collect and analyze ODR data	The database can quickly output data in graph format and allows the team access to ALL of the following information: average referrals per day per month, by location, by problem behavior, by time of day, by student, and compare between years.	ALL of the information can be obtained from the database (average referrals per day per month, by location, by problem behavior, by time of day, by student, and compare between years), though it may not be in graph format, may require more staff time to pull the information, or require staff time to make sense of the data.	Only partial information can be obtained (lacking either the number of referrals per day per month, location, problem behavior, time of day, student, and compare patterns between years.)	The data system is not able to provide any of the necessary information the team needs to make school-wide decisions.

Benchmark	3 points	2 points	1 point	0 points
16. Additional data collected (attendance, grades, faculty attendance, surveys)			The team collects and considers data other than discipline data to help determine progress and successes (i.e. attendance, grades, faculty attendance, school surveys, etc.)	The team does <b>not</b> collect or consider data other than discipline data to help determine progress and successes (i.e. attendance, grades, faculty attendance, school surveys, etc.).
17. Data entered weekly (minimum)			Data are typically entered at least <b>weekly</b> .	Data are not entered at least weekly (minimum).
18. Data analyzed monthly (minimum)		Data are printed, analyzed, and put into graph format or other easy to understand format by a member of the team <b>monthly</b> (minimum)	Data are printed, analyzed, and put into graph format or other easy to understand format by a team member <b>less than once a month</b> .	Data are <b>not analyzed</b> .
19. Data shared with team and faculty monthly (minimum)		Data are shared with the PBS team and faculty <b>at least once a month</b> .	Data are shared with the PBS team and faculty <b>less than one time a month</b> .	Data are not reviewed each month by the PBS team and shared with faculty.
20. 3-5 positively stated school-wide expectations posted around school	3-5 positively stated school-wide expectations are visibly posted around the school. Areas posted include the classroom and a minimum of 3 other school settings (i.e., cafeteria, hallway, front office, etc).	3-5 positively stated expectations are visibly posted in most important areas (i.e. classroom, cafeteria, hallway), but one area may be missed.	3-5 positively stated expectations are not clearly visible in common areas.	Expectations are not posted or team has either too few or too many expectations.
21. Expectations apply to both students and staff	PBS team <b>has communicated</b> that expectations apply to all students <b>and</b> all staff.	PBS team has expectations that apply to all students <b>AND</b> all staff but haven't specifically communicated that they apply to staff as well as students.	Expectations refer only to student behavior.	There are no expectations.
22. Rules developed and posted for specific settings (where problems are prevalent)		Rules are posted <b>in all</b> of the most problematic areas in the school.	Rules are posted <b>in some, but not all</b> of the most problematic areas of the school.	Rules are <b>not</b> posted in any of the most problematic areas of the school.



Benchmark	3 points	2 points	1 point	0 points
23. Rules are linked to expectations			When taught or enforced, staff consistently link the rules with the school-wide expectations.	When taught or enforced, staff do not consistently link the rules with the school-wide expectations and/or rules are taught or enforced separately from expectations.
24. Staff feedback/involvement in expectations/rule development		Most staff were involved in providing feedback/input into the development of the school-wide expectations and rules (i.e., survey, feedback, initial brainstorming session, election process, etc.)	Some staff were involved in providing feedback/input into the development of the school-wide expectations and rules.	Staff were not involved in providing feedback/input into the development of the school-wide expectations and rules.
25. A system of rewards has elements that are implemented consistently across campus	The reward system guidelines and procedures are implemented consistently across campus. Almost all members of the school are participating appropriately.  at least 90% participation	The reward system guidelines and procedures are implemented consistently across campus. However, some staff choose not to participate or participation does not follow the established criteria.  at least 75% participation	The reward system guidelines and procedures are not implemented consistently because several staff choose not to participate or participation does not follow the established criteria.  at least 50% participation	There is no identifiable reward system or a large percentage of staff are not participating.  less than 50% participation
26. A variety of methods are used to reward students.		The school uses a variety of methods to reward students (e.g. cashing in tokens/points). There should be opportunities that include tangible items, praise/recognition and social activities/events. Students with few/many tokens/points have equal opportunities to cash them in for rewards. However, larger rewards are given to those earning more tokens/points.	The school uses a variety of methods to reward students, but students do not have access to a variety of rewards in a consistent and timely manner.	The school uses only one set methods to reward students (i.e., tangibles only) or there are no opportunities for children to cash in tokens or select their reward. Only students that meet the quotas actually get rewarded, students with fewer tokens cannot cash in tokens for a smaller reward.

Benchmark	3 points	2 points	1 point	0 points
27. Rewards are linked to expectations	Rewards are provided for behaviors that are identified in the rules/expectations and staff verbalize the appropriate behavior when giving rewards.	Rewards are provided for behaviors that are identified in the rules/expectations and staff sometimes verbalize appropriate behaviors when giving rewards.	Rewards are provided for behaviors that are identified in the rules/expectations but staff rarely verbalize appropriate behaviors when giving rewards.	Rewards are provided for behaviors that are not identified in the rules and expectations.
28. Rewards are varied to maintain student interest		The rewards are varied throughout year and reflect students' interests (e.g. consider the student age, culture, gender, and ability level to maintain student interest.)	The rewards are varied throughout the school year, but <b>may not</b> reflect students' interests.	The rewards are <b>not</b> varied throughout the school year and <b>do not</b> reflect student's interests.
29. System includes opportunities for naturally occurring reinforcement.			Students often get natural rewards such as praise and recognition for academic performance that are not part of the planned reward system.	Students rarely get natural rewards, such as praise and recognition for academic performance that are not part of the planned reward system.
30. Ratios of reinforcement to corrections are high	Ratios of teacher reinforcement of appropriate behavior to correction of inappropriate behavior are <b>high</b> (e.g., 4:1).	Ratios of teacher reinforcement of appropriate behavior to correction of inappropriate behavior are <b>moderate</b> (e.g., 2:1).	Ratios of teacher reinforcement of appropriate behavior to correction of inappropriate behavior are <b>about the same</b> (e.g., 1:1).	Ratios of teacher reinforcement of appropriate behavior to correction of inappropriate behavior are <b>low</b> (e.g., 1:4)
31. Students are involved in identifying/developing incentives			Students <b>are often</b> involved in identifying/developing incentives.	Students <b>are rarely</b> involved in identifying/developing incentives.
32. The system includes incentives for staff/faculty		The system includes incentives for staff/faculty and they are delivered consistently.	The system includes incentives for staff/faculty, but they are not delivered consistently.	The system <b>does not</b> include incentives for staff/faculty.
33. A behavioral curriculum includes concept and skill level instruction		Lesson plans are developed and used to teach rules and expectations	Lesson plans were developed and used to teach rules, but not developed for expectations or vice versa.	Lesson plans have not been developed or used to teach rules or expectations

34. Lessons include examples and non-examples			Lesson plans include both examples of appropriate behavior and examples of inappropriate behavior.	Lesson plans give no specific examples or non-examples or there are no lesson plans.
35. Lessons use a variety of teaching strategies		Lesson plans are taught using at least 3 different teaching strategies (i.e., modeling, role-playing, videotaping)	Lesson plans have been introduced using fewer than 3 teaching strategies.	Lesson plans have <b>not</b> been taught or do not exist.
36. Lessons are embedded into subject area curriculum		Nearly all teachers embed behavior teaching into subject area curriculum on a daily basis.	About 50% of teachers embed behavior teaching into subject area curriculum or embed behavior teaching fewer than 3 times per week	Less than 50% of all teachers embed behavior teaching into subject area curriculum or only occasionally remember to include behavior teaching in subject areas.
37. Faculty/staff and students are involved in development & delivery of lesson plans			Faculty, staff, and students are involved in the development and delivery of lesson plans to teach behavior expectations and rules for specific settings.	Faculty, staff, and students are <b>not</b> involved in the development and delivery of lesson plans to teach behavior expectations and rules for specific settings.
38. Strategies to reinforce the lessons with families/community are developed and implemented			The PBS Plan <b>includes</b> strategies to reinforce lessons with families and the community (i.e., after-school programs teach expectations, newsletters with tips for meeting expectations at home)	The PBS plan <b>does not include</b> strategies to be used by families and the community.

39. Develop, schedule, and deliver plans to teach staff the discipline and data system		The team scheduled time to present and train faculty and staff on the discipline procedures and data system <b>including</b> checks for accuracy of information or comprehension. <b>Training included all components:</b> referral process (flowchart), definitions of problem behaviors, explanation of major vs. minor forms, and how the data will be used to guide the team in decision making.	The team scheduled time to present and train faculty and staff on the discipline procedures and data system, <b>but there were no checks</b> for accuracy of information or comprehension. <b>OR training did not include all components</b> (i.e., referral process (flowchart), definitions of problem behaviors, explanation of major vs. minor forms, and how the data will be used to guide the team in decision making.)	Staff was either not trained or was given the information without formal introduction and explanation.
40. Develop, schedule, and deliver plans to teach staff the lesson plans for teaching students		The team scheduled time to present and train faculty and staff on lesson plans to teach students expectations and rules <b>including</b> checks for accuracy of information or comprehension. <b>Training included all components:</b> plans to introduce the expectations and rules to all students, explanation of how and when to use formal lesson plans, and how to embed behavior teaching into daily curriculum.	The team scheduled time to present and train faculty and staff on lesson plans to teach students expectations and rules <b>but there were no checks</b> for accuracy of information or comprehension. <b>OR Training did not include all components:</b> plans to introduce the expectations and rules to all students, explanation of how and when to use formal lesson plans, and how to embed behavior teaching into daily curriculum.	Staff was either not trained or was given the information without formal introduction and explanation.
41. Develop, schedule and deliver plans for teaching students expectations, rules, & rewards	Students are introduced/taught <b>all</b> of the following: school expectations, rules for specific setting, and the reward system guidelines.	Students are introduced/taught <b>two (2)</b> of the following: school expectations, rules for specific setting, and the reward system guidelines.	Students are introduced/taught <b>only one (1)</b> of the following: school expectations, rules for specific setting, and the reward system guidelines.	Students are not introduced/taught <b>any</b> of the following: school expectations, rules for specific setting, and the reward system guidelines.

42. Booster sessions for students and staff are planned, scheduled, and implemented		Booster sessions are planned and delivered to reteach staff/students at least once in the year and additionally at times when the data suggest problems by an increase in discipline referrals per day per month or a high number of referrals in a specified area. Expectations and rules are reviewed with students regularly (at least 1x per week).	Booster sessions are not utilized fully. For example: booster sessions are held for students but not staff; booster sessions are held for staff, but not students; booster sessions are not held, but rules & expectations are reviewed at least weekly with students.	Booster sessions for students and staff are <b>not</b> scheduled/planned. Expectations and rules are reviewed with students once a month or less.
43. Schedule for rewards/incentives for the year is planned			There is a clear plan for the type and frequency of rewards/incentives to be delivered throughout the year.	There is <b>no</b> plan for the type and frequency of rewards/incentives to be delivered throughout the year.
44. Plans for orienting incoming staff and students are developed and implemented		Team has planned for and carries out the introduction of School-wide PBS and training of new staff and students throughout the school year.	Team has planned for the introduction of School-wide PBS and training of either new students or new staff, but does not include plans for training both. OR the team has plans but has not implemented them.	Team has not planned for the introduction of School-wide PBS and training of new staff or students
45. Plans for involving families/community are developed and implemented			Team has planned for the introduction and on-going involvement of school-wide PBS to families/community (i.e., newsletter, brochure, PTA, open-house, team member, etc.)	Team has not introduced school-wide PBS to families/community.
46. Faculty/staff are taught how to respond to crisis situations			Faculty and staff are taught how to personally respond to crisis situations and <b>have</b> written information (i.e. manual) of the district crisis plan.	Faculty and staff are <b>not</b> taught how to personally respond to crisis situations and/or <b>have no</b> written information (i.e. manual) of the district crisis plan.

47. Responding to crisis situations is rehearsed			Faculty and staff are given opportunities during the school year to practice responding to crisis situations.	Faculty and staff do not practice responding to crisis situations.
48. Procedures for crisis situations are readily accessible			Faculty and staff have ready access to and know where to find procedures for dealing with crisis situations	Faculty and staff do not have ready access to or know where to find procedures for dealing with crisis situations
49. Students and staff are surveyed about PBS		Students and staff are surveyed at least annually (i.e. items on climate survey or specially developed PBS plan survey), and information is used to address the PBS plan.	Students and staff are surveyed at least annually (i.e. items on climate survey or specially developed PBS plan survey), but information is not used to address the PBS plan.	Students and staff are not surveyed.
50. Students and staff can identify expectations and rules		Almost all students and staff can identify the school-wide expectations and rules for specific settings. (can be identified through surveys, random interviews, etc...)  at least 90%	Many students and staff can identify the school-wide expectations and rules for specific settings.  at least 50%	Few of students and staff can identify the expectations and rules for specific settings OR Evaluations are not conducted  less than 50%
51. Staff use discipline system/documentation appropriately	Almost all staff know the procedures for responding to inappropriate behavior, use forms as intended and fill them out correctly. (can be identified by reviewing completed forms, staff surveys, etc...)  at least 90% know/use	Many of the staff know the procedures for responding to inappropriate behavior, use forms as intended and fill them out correctly.  at least 75% know/use	Some of the staff know the procedures for responding to inappropriate behavior, use forms as intended and fill them out correctly.  at least 50% know/use	Few staff know the procedures for responding to inappropriate behavior, use forms as intended and fill them out correctly OR Evaluations are not conducted.  less than 50% know/use

52. Staff use reward system appropriately	Almost all staff understand identified guidelines for the reward system and are using the reward system appropriately. (can be identified by reviewing reward token distribution, surveys, etc...)  at least 90% understand/use	Many of the staff understand identified guidelines for the reward system and are using the reward system appropriately.  at least 75% understand/use	Some of the staff understand identified guidelines for the reward system and are using the reward system appropriately.  at least 50% understand/use	Few staff understand and use identified guidelines for the reward system OR Evaluations are not conducted at least yearly or do not assess staff knowledge and use of the reward system.  less than 50% understand/use
53. Outcomes (behavior problems, attendance, morale) are documented and used to evaluate PBS plan.	There is a plan for collecting data to evaluate PBS outcomes, most data are collected as scheduled, and data are used to evaluate PBS plan.	There is a plan for collecting data to evaluate PBS outcomes, some of the scheduled data have been collected, and data are used to evaluate PBS plan.	There is a plan for collecting data to evaluate PBS outcomes, however nothing has been collected to date.	There is no plan for collecting data to evaluate PBS outcomes.
<b>PILOT Classroom System Items – these items are for research purposes only and will not be calculated in the overall BoQ score</b>				
Classroom rules are defined for each of the school-wide expectations and are posted in classrooms		Evident in most classrooms (>75% of classrooms)	Evident in many classrooms (50-75% of classrooms)	Evident in only a few classrooms (less than 50% of classrooms)
Classroom routines and procedures are explicitly identified for activities where problems often occur (e.g. entering class, asking questions, sharpening pencil, using restroom, dismissal)		Evident in most classrooms (>75% of classrooms)	Evident in many classrooms (50-75% of classrooms)	Evident in only a few classrooms (less than 50% of classrooms)
Expected behavior routines in classroom are taught		Evident in most classrooms (>75% of classrooms)	Evident in many classrooms (50-75% of classrooms)	Evident in only a few classrooms (less than 50% of classrooms)
Classroom teachers use immediate and specific praise		Evident in most classrooms (>75% of classrooms)	Evident in many classrooms (50-75% of classrooms)	Evident in only a few classrooms (less than 50% of classrooms)

Acknowledgement of students demonstrating adherence to classroom rules and routines occurs more frequently than acknowledgement of inappropriate behaviors		Evident in most classrooms (>75% of classrooms)	Evident in many classrooms (50-75% of classrooms)	Evident in only a few classrooms (less than 50% of classrooms)
Procedures exist for tracking classroom behavior problems		Evident in most classrooms (>75% of classrooms)	Evident in many classrooms (50-75% of classrooms)	Evident in only a few classrooms (less than 50% of classrooms)
Classrooms have a range of consequences/interventions for problem behavior that are documented and consistently delivered		Evident in most classrooms (>75% of classrooms)	Evident in many classrooms (50-75% of classrooms)	Evident in only a few classrooms (less than 50% of classrooms)



## APPENDIX D: PERMISSION TO USE DATA



October 9, 2008

Jason LaFrance  
194 London Drive  
Palm Coast, FL 32137

Dear Jason,

Florida's Positive Behavior Support: Response to Intervention for Behavior Project (FLPBS:RtIB) has been collecting behavioral and academic state-wide data on participating districts and schools within the state for several years. We currently have 50 active districts working with our Project (75% of the state) and over 500 schools have been trained in School-wide Positive Behavior Support (SWPBS) in Florida. As the number of district and school participation increases, the data received continues to expand.

Therefore, I am pleased that you are interested in researching a topic in the field of Positive Behavior Support for your dissertation. Please know that you are welcome to use our data for your dissertation research. None of the data sets contain individual student's names. Some of the data may contain district and/or school name and therefore, should remain confidential. Please keep us informed as to the development of your questions, the analysis performed, and the outcomes that you realize. And finally, please credit/cite the FLPBS:RtIB Project if any publication results from this research based upon our data sets.

If you have any questions, please feel free to contact me. Otherwise, Karen Childs, the Project's Coordinator of Research & Evaluation will be your main contact (813-974-7358). Good luck on this phase of your doctoral endeavor and we enthusiastically look forward to your results and successful defense!

Best wishes,

A handwritten signature in black ink, appearing to read "Heather P. George", is written over the typed name.

Heather Peshak George, Ph.D.  
Assistant Research Professor, Co-Principal Investigator & Co-Director  
*Florida's Positive Behavior Support: Response to Intervention for Behavior (FLPBS:RTIB) Project*  
University of South Florida  
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## APPENDIX E: IRB APPROVAL



University of Central Florida Institutional Review Board  
Office of Research & Commercialization  
12201 Research Parkway, Suite 501  
Orlando, Florida 32826-3246  
Telephone: 407-823-2901, 407-882-2012 or 407-882-2276  
[www.research.ucf.edu/compliance/irb.html](http://www.research.ucf.edu/compliance/irb.html)

### Notice of Exempt Review Status

From: UCF Institutional Review Board  
FWA00000351, Exp. 10/8/11, IRB00001138

To: Jason LaFrance

Date: December 03, 2008

IRB Number: SBE-08-05956

Study Title: Examination of the fidelity of School-wide Positive Behavior Support implementation and its relationship to academic and behavioral outcomes in Florida.

Dear Researcher:

Your research protocol was reviewed by the IRB Vice-chair on 12/3/2008. Per federal regulations, 45 CFR 46.101, your study has been determined to be **minimal risk for human subjects and exempt** from 45 CFR 46 federal regulations and further IRB review or renewal unless you later wish to add the use of identifiers or change the protocol procedures in a way that might increase risk to participants. Before making any changes to your study, call the IRB office to discuss the changes. **A change which incorporates the use of identifiers may mean the study is no longer exempt, thus requiring the submission of a new application to change the classification to expedited if the risk is still minimal.** Please submit the Termination/Final Report form when the study has been completed. All forms may be completed and submitted online at <https://iris.research.ucf.edu>.

The category for which exempt status has been determined for this protocol is as follows:

4. Research involving the collection or study of existing data, documents, records, pathological specimens or diagnostic specimens, if these sources are publicly available or if the information is recorded by the investigator in such a manner that subjects cannot be identified, directly or through identifiers linked to the subjects. ("*Existing*" means already collected and/or stored before your study starts, not that collection will occur as part of routine care.)

All data, which may include signed consent form documents, must be retained in a locked file cabinet for a minimum of three years (six if HIPAA applies) past the completion of this research. Any links to the identification of participants should be maintained on a password-protected computer if electronic information is used. Additional requirements may be imposed by your funding agency, your department, or other entities. Access to data is limited to authorized individuals listed as key study personnel.

On behalf of Tracy Dietz, Ph.D., UCF IRB Chair, this letter is signed by:

Signature applied by Janice Turchin on 12/03/2008 12:44:27 PM EST

IRB Coordinator

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