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School-Wide PBS: The Link Between Action Planning and Outcomes

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School-Wide PBS: The Link Between Action Planning and Outcomes

by

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A dissertation submitted in partial fulfillment
of the requirements for the degree of
Doctor of Philosophy
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Training, Implementation

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DEDICATION

I dedicate this dissertation to my husband, Andy and to my two sons, Diego and Emilio. Andy you have been the one there to support and push me to achieve this goal. You have been my rock during this process, which has not been the best of times or easiest for us. Diego, I know you are watching down on me from heaven and I hope I am making you proud. Emilio, I know you are too young to understand but I have pushed myself hard to get this done so I could be focused on you and not having this hang over my head. I hope one day you understand and are proud of me, as well.

Finally, I would like to dedicate this dissertation to the word perseverance. Without this word in my vocabulary, this dissertation would not have been completed. Thank you for inspiring me to complete my degree.

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ABSTRACT

Most school based initiatives are not implemented long-term and do not reach sustainability (McDermott, 2000; Mirel, 1994; Rice & Malen, 2003). Schools are implementing School-Wide Positive Behavior Support (SWPBS) as an initiative to target social emotional development and behavior. Schools that have implemented SWPBS have experienced decreases in rate of Office Discipline Referrals (ODR), In-School Suspension (ISS) and Out-of-School Suspension (OSS) (e.g. Bohanon et al., 2006; Childs et al., 2009; Lassen et al., 2006). Research has also shown that schools that implement with a higher degree of fidelity have better outcomes (Childs et al., 2009; Florida's Positive Behavior Support Project, 2009). However, it is not known what mediating factor(s) assist with schools with implementation of Tier 1 PBS at a higher degree of fidelity.

This study examined action plans that schools developed during their initial training of Tier 1 PBS, to determine if the action plans are one of the possible mediating factor(s). There are differences between the quality of action plans developed by schools implementing with a higher degree of fidelity compared to schools implementing with a lower degree of fidelity. Based on a path analysis, the action plans are not a mediating factor between fidelity of implementation and student outcomes (i.e. office discipline referrals, In-School Suspension, and Out-of-School Suspension).

CHAPTER 1: INTRODUCTION

Statement of the Problem

School-Wide Positive Behavior Support (SWPBS) at the Tier 1 level is comprised of ten critical elements: 1) teaming, 2) establishing faculty commitment or consensus building, 3) developing effective discipline procedures, 4) data based decision making, 5) identifying expectations and rules, 6) teaching a social emotional curriculum, 7) implementing a positive reinforcement system, 8) implementing a developed SWPBS plan, 9) classroom supports and 10) continuous progress monitoring and evaluation (Ervin, Schaughency, Matthews, Goodman & McGlinchey, 2007; George, Kincaid, Pollard-Sage, 2009; Lewis & Sugai, 1999, Lewis, Barrett, Sugai, & Horner, 2010). The literature confirms these critical elements of SWPBS (e.g. Ervin et al., 2007; George, Kincaid, Pollard-Sage, 2009; Lewis & Sugai, 1999). With SWPBS, schools experience positive student outcomes such as decreases in office discipline referrals (ODR), out-of-school suspensions (OSS), and in-school suspensions (ISS) (e.g. Childs, Kincaid, & George, 2009; Lassen, Steele & Sailor, 2006; Muscott, Mann & LeBrun, 2008). Most of the research, however, focuses on student outcomes without considering the fidelity of implementation (e.g. Eber, Lewis-Palmer, & Pacchiano, 2001; Scott, 2001). However, in Florida, schools with higher fidelity of implementation experienced better student outcomes as defined by greater reductions in ODRs, rates of OSS and rates of ISS (Childs et al., 2009; Cohen, Kincaid & Childs, 2007; Florida's Positive Behavior Support Project, 2009).

Currently, there are two main tools that schools use to measure fidelity of implementation; the two tools are the School-wide Evaluation Tool (SET) (Sugai, Lewis-Palmer, Todd & Horner., 2001) and the Benchmarks of Quality (BoQ) (Kincaid, Childs, George, 2010). However, the question of how schools move from receiving training on the critical elements to actual implementation of them unanswered. It has been found that most schools have difficulty sustaining implementation of systems change and school initiatives over time (McDermott, 2000; Mirel, 1994; Rice & Malen, 2003); yet, one study found that on average, only 20% of schools were able to sustain implementation (Mann, 1978). As a result of this, more implementation research is needed on programs or initiatives such as School-Wide Positive Behavior Support. A potential mechanism to improve implementation of PBS with fidelity and student outcomes is the use of action plans by schools (e.g. to help guide the school to address all of the critical elements). In this study, a systematic investigation of potential effectiveness of action planning was conducted.

Theoretical/Conceptual Framework

The conceptual framework that guided this study was systems change. There are several different frameworks that are used in examining systems change. The first one is based on Fixsen, Naoom, Blasé, Friedman and Wallace's (2005) synthesis of the literature on implementation research with the stages being: 1) Exploration & Adoption, 2) Program Installation, 3) Initial Implementation, 4) Full Operation, 5) Innovation, and 6) Sustainability. Another model taken from the social action process breaks down the process into 5 stages: 1) Stimulation of Interest, 2) Initiation, 3) Legitimation, 4) Decision to Act, and 5) Action (Oetting, Donnermeyer, Plested, & Edwards, 1995). The

organizational change literature suggests using a four stage model of: 1) Creating Readiness, 2) Initial Implementation 3) Institutionalization, and 4) Ongoing Evaluation (Taylor, Nelson & Adelman, 1999). The last model for systems change explored was Strategic Planning. Strategic Planning has three phases: initiation, implementation and institutionalization/incorporation (e.g. Berman & McLaughlin, 1974a; Berman & McLaughlin, 1975b; Bryson, 1995; O'Brien, 1991 in Rutherford, 2009)

One approach to systems change is the process of developing a team to identify the needs, then developing goals and an action plan to address the identified needs (Bryson, 1995; Curtis & Stollar, 1996; Graczyk, Domitrovich, Small & Zins, 2006; Grimes, Kurns, Tilly, 2006; Horsley & Kaser, 1999; Joseph & Reigeluth, 2005). Part of this process is committing to make any necessary changes to the organization's policies, procedures, and forms as needed and then providing training to staff on the revised versions. A true systems change process can take up to 3-5 years (Curtis, Cohen & Castillo, 2009; Hall & Hord, 2001; Jenlink, Reigeluth, Carr, Nelson, n.d.). However, despite the fact that it can take a school 3-5 years to completely change the school culture, schools can experience some positive outcomes (i.e. reductions in ODRs, OSS and ISS) in their first year of implementation (e.g. Muscott et al., 2008; Childs et al., 2009; Florida PBS Project, 2009). This study helped to identify if the action plan completed during training had a relationship to those schools that experience positive outcomes in their first year of implementation. Specifically, this study looked at both student outcomes via rates of ODRs, OSS and ISS and the impact, if any action plans have on the fidelity of implementation of the critical elements based on the BoQ scores and student outcomes.

For the purposes of this study, the author has combined several of the frameworks and systems change approaches discussed above to guide this research (Figure A1 in Appendix A). This framework consists of two main areas of readiness and implementation. Readiness is organized by: 1) explore and adopt, and 2) program installation. Exploring and adoption consists of a needs assessment, development of a vision and mission, identifying the guiding principles and their match to the school, beginning the process of consensus building, and starting the process of action planning. Program installation is made up of identifying and providing needed human and financial resources, making any necessary organizational restructuring, training faculty and staff, and continuing action planning.

The area of implementation consists of three components: 1) initial installation, 2) full implementation, and 3) sustainability. Initial installation consists of establishing some guiding principles or critical elements, continuing to train faculty and staff, continuing consensus building, continuing action planning and evaluating outcomes. Full implementation happens when all of the guiding principles are in place while consensus building, action planning and evaluation continue. In the last stage of sustainability, which occurs when all the guiding principles are ingrained in the culture of the school, the school is able to adapt based on the changing context of the school with continuation of action planning and evaluation. This study focused on the action planning that occurred during the exploration and adaptation, and the program installation phases by examining the action plans developed during the SWPBS training. Systems change literature also suggests that for schools to be able to successfully implement an initiative with fidelity, they need to maintain an action plan to assist them with this change process

(Bryson, 1995; Curtis & Stollar, 1996; Himbeault-Taylor & Matney, 2007). The second part of this study focused on the evaluation (i.e. student outcomes and fidelity of implementation) following the school's initial installation (i.e. first year of implementation). The areas of systems change that were the focus of this study are bolded in Figure A1 in Appendix A.

As the process of systems change is not linear, action planning occurs at all stages and levels of systems change. Action planning is not meant to be static but instead an ongoing process. Therefore, action planning occurs in both the readiness and implementation phases. For the purposes of this study, only action planning that occurred during both the stages of explore and adopt, and program installation were examined. Additionally, evaluation should also be an ongoing process throughout the school's implementation of SWPBS. Since the purpose of the study was examining outcome data for schools after their first year of implementation, only evaluation during initial implementation were examined.

Positive Behavior Support (PBS) is a framework that uses the principles of systems change to focus on changing the culture of a school to decrease problem behavior and to increase positive behavior on school campuses. PBS is defined as:

“an application of a behaviorally-based systems approach to enhance the capacity of schools, families, and communities to design effective environments that improve the fit or link between research-validated practices and the environments in which teaching and learning occurs. Attention is focused on creating and sustaining primary (school-wide), secondary (classroom), and tertiary (individual) systems of support that improve lifestyle results (personal, health, social, family,

work, recreation) for all children and youth by making problem behavior less effective, efficient, and relevant, and desired behavior more functional” (OSEP Technical Assistance Center on Positive Behavioral Interventions and Supports, n.d.).

The focus of this study was on the schools’ implementation of Tier 1 PBS based on the action plan the school leadership team developed at training and to determine if there was a relationship between the quality of this Action Plan and the improvement in outcomes, if any, schools experienced following their first year of implementation. It also examined whether or not there is a relationship with action plans developed during training to the schools’ fidelity of implementation of the critical elements at the end of their first year of implementation.

Purpose

The purpose of this study was to determine if there was a relationship between the development of a school’s action plan and the outcomes experienced at the end of the school year (i.e. number of ODRs, days of OSS, days of ISS) and their fidelity of implementation of the critical elements of Tier 1 PBS. It is known that schools that implement Positive Behavior Support at Tier 1 can experience positive outcomes after the first year of implementation (Childs et al., 2009), but it is not known if the action plans schools develop during the training assist with the schools experiencing positive student outcomes and fidelity of implementation. This study helped to determine if the action planning process contributes to implementation fidelity and improved student outcomes.

Research Questions

Research Question #1

What characteristics of a school's action plan can be identified as indicators of SWPBS implementation fidelity?

- Hypotheses.** 1. The action plans should address all of the critical elements of PBS and each element should include a task analysis for each of the critical elements.
2. For each action item there should be a key person identified as being responsible for the action item and these responsibilities should be shared across multiple people.
3. Each action item should identify a specific deadline for the item to be completed.

Research Question #2

To what extent do the quality of a school's Action Plan (i.e. along a continuum of high quality to low quality) act as a mediating factor between the fidelity of implementation measured by the Benchmarks of Quality (BoQ) and student outcomes as defined by (a) number of office discipline referrals (ODR), (b) number of days of in school-suspension (ISS), (c) out-of-school suspensions (OSS)?

Hypotheses. 1. The degree of the quality of the action plan will be a factor in addition to fidelity of implementation influencing the degree to which schools experience a reduction of ODRs, rates of reductions in ISS and the rates of reductions in OSS.

Significance of the Study

Currently, there is research that shows schools that implement SWPBS can experience some positive outcomes as soon as their first year of implementation (Childs

et al., 2009) and the degree depends on the fidelity of implementation (Childs et al., 2009; Cohen et al., 2007; Florida's Positive Behavior Support Project, 2009). Systems change literature also suggests that for schools to be able to successfully implement an initiative with fidelity, they need to maintain an action plan to assist them with this change process (Bryson, 1995; Curtis & Stollar, 1996; Himbeault-Taylor & Matney, 2007). However, there is no literature to support the role of action planning in the process of schools developing their Tier 1 PBS system or demonstrating that an action plan assisted schools with experiencing success or fidelity of implementation. This study helped to determine if action planning is a necessary part of Tier 1 PBS training.

Operational Definitions of Terms

Action Planning: The product developed by a team to identify the strategies that will be used to address the elements of an initiative. It will include the strategies, who will be responsible for completing the tasks and the date the task will be established.

Evidence-Based Practices (EBP): Programs that have demonstrated through quantitative statistical analysis via randomized control trials that they have a positive impact on student outcomes for either academic achievement or for behavior.

Critical Elements: In an initiative or program, these are the different components that make up the initiative or program. All of these elements must be in place for the initiative to be considered implemented with fidelity.

Fidelity: The implementation of all the critical elements of an initiative or program in the manner in which they are intended or defined by the program.

In-School Suspension: A disciplinary measure used for students when they break a school rule. The student is placed in a different classroom than they normally attend

where they complete their assigned classwork and do not have any interaction with the remainder of the school population throughout the school day. Students are usually assigned to this room for a minimum of one day and up to multiple days.

Office Discipline Referral (ODR): A form that a faculty member completes and provides to the school's administration when a student breaks a school rule. This form documents the behavior, who observed the rule violation, the date, the time, and the location. The administrator then uses this form to document the punishment provided to the student and the form is sent home to the parent with a copy placed in the student's permanent file.

Out-of-School Suspension (OSS): A disciplinary measure used for students when they break a school rule. The student is sent home from school and not allowed to return for a minimum of one day up to multiple days.

Positive Behavior Support: "Positive behavior support is an application of a behaviorally-based systems approach to enhance the capacity of schools, families, and communities to design effective environments that improve the fit or link between research-validated practices and the environments in which teaching and learning occurs. Attention is focused on creating and sustaining primary (school-wide), secondary (classroom), and tertiary (individual) systems of support that improve lifestyle results (personal, health, social, family, work, recreation) for all children and youth by making problem behavior less effective, efficient, and relevant, and desired behavior more functional" (OSEP Technical Assistance Center on Positive Behavioral Interventions and Supports, n.d.).

School-Wide Positive Behavior Support: This is the first tier of support provided across all settings on a school campus. There are the ten critical elements, which are: 1) teaming, 2) establishing faculty commitment or consensus building, 3) developing effective discipline procedures, 4) data based decision making, 5) identifying expectations and rules, 6) teaching a social emotional curriculum, 7) implementing a positive reinforcement system, 8) implementing a developed SWPBS plan, 9) classroom supports and 10) continuous progress monitoring and evaluation (Ervin et al., 2007; George et al., 2009; Lewis & Sugai, 1999, Lewis et al., 2010). It is intended to impact 80% of the student population (Florida's Positive Behavior Support Project, 2010; George et al., 2009; Lewis & Sugai, 1999)

Systems Change: is the process of adopting a new initiative of program through sustainability of the initiative. A team to identify the needs, developing goals and an action plan to address the needs (Herman and Gribbons, 2005; Horsley & Kasper, 1999; Joseph & Reigeluth, 2005). Part of this process is committing to making any necessary changes to the organizations policies, procedures, and forms as needed and then providing training to staff on the new policies, procedures and forms.

Limitations

The results of this study can be generalized to schools that participate in a Tier 1 PBS training that addresses all ten of the critical elements and if they complete an Action Plan. These results will only be able to be generalized to schools after their first year of implementation of Tier 1 PBS. The potential sample size consisted of approximately 580 schools across levels (i.e. elementary, middle, high), types of schools (i.e. rural, urban, suburban), and school size (i.e. small, medium, large). All 580 schools were potential

participants for the study. There was the possibility of overrepresentation from the elementary schools for a variety of reasons. First, elementary schools tend to be smaller in size than middle and high schools. Second, multiple elementary schools “feed” into a single middle school and multiple middle schools “feed” into a single high school. Third, there will more likely be more schools classified as urban schools since urban settings tend to have more schools within a district compared to rural districts. For example, in Florida, Pinellas County has over 150 schools in the district compared to Monroe County which has 11 schools.

This study was a secondary analysis of an existent data set and is subject to the limitations of such an analysis (Gall, Gall & Borg, 1996; Glass & Hopkins, 1995; Orcher, 2005). Some such limitations were lack of control over the methods used for data collection, the types of data collected, lack of control over extraneous variables and the sample size. The researchers used data for a secondary analysis and had to trust that the data were accurate and were collected in the same manner across all samples. The curriculum used for the PBS training is scripted in that it tells the trainers when action planning should occur and for how long, however, there has to be trust that there was the same amount of emphasis and time given for the development of the action plans across the trainings. Another limitation is that there had to be trust that the schools are keeping accurate records of the rates of ODRs, ISS, and OSS; this also means that there had to be an assumption that the schools record this information in the same way across all schools.

Prior to this study, the data (i.e. action plans, Benchmarks of Quality, ODRs, etc.) had already been developed and/or collected. However, the action plans had never been reviewed for their quality. As there is no known rubric for scoring the action plans, one

was developed for this study to determine if the action plans were of low or high quality. It is not yet a validated tool. However, the rubric received feedback from experts in the field on its content validity prior to its usage (Gall et al., 1996; Glass & Hopkins, 1995; Orcher, 2005). Also, the tool was measured for reliability via test-retest and interrater; it met acceptable standards of reliability prior to its usage.

There were four possible mediating and moderating variables in this study. The mediating factors were: 1) school size (i.e. small, medium, small), 2) school type (i.e. elementary, middle, high, alternative/center), and 3) school setting (i.e. rural, suburban and urban). These three variables could have impacted the strength of the relationship on the student outcomes and the degree of fidelity of implementation. However, one research study found that there was no statistical significance between school type and their BoQ scores; this study also found that there was not a difference between level of implementation of PBS and student variables (i.e. ethnicity, free and reduced lunch status, percent of students with disabilities, and % student stability) or school variables (i.e. school size, teacher: student ratio, percent of classes taught by out of field teachers, and percent of teachers with advanced degrees) (Cohen, 2006). This study took these mediating factors into account. There is one moderating factor that would have an impact on the development of the action plan and the fidelity of implementation; schools who already had some of the critical elements of SWPBS in place prior to training may not address these areas of their action plan but could have a high score on the fidelity measure, the Benchmarks of Quality. Therefore, the action plans that were used were ones that were developed during the timeframe of May 2009- October 2010 as there was

a baseline measure of the BoQ that the school teams developed during their initial training on SWPBS.

CHAPTER 2: REVIEW OF THE LITERATURE

Every school year, schools around the nation take on brand new initiatives to improve student achievement, school safety and discipline, and/or morale on campus. Schools typically start implementing initiatives at the beginning of every school year with the hopes it will quickly have an impact on their campus (Latham, 1988); however, most of these initiatives are not sustained over time (Bauman, Stein, Ireys, 1991; Latham, 1988; Slavin, 2004). Only about 20% of school initiatives are sustained over time (Mann, 1978) and most maintain interest for the first 18 months and completely faded after 4 years (Latham, 1988). Once the interest begins to fall after the 18 month mark, the school tends to begin identifying the next new initiative to implement (Latham, 1988). In order to gain a better understanding of how to improve sustainability of school improvement initiatives, an examination of the systems change literature was conducted to identify how schools select a new initiative, the planning process used, how schools move through the different stage of systems change to sustain implementation, training and action planning may provide some guidance.

Within the school system, it is essential that the initiatives being implemented are ones that are evidence-based (Fixsen, Naoom, Blasé, Friedman, & Wallace, 2005; National Research Council, 2002). One such initiative that schools are electing to implement to address behavior and discipline is School-Wide Positive Behavior Support (SWPBS), which is considered an emerging practice. SWPBS is an emerging practice as most of the data supporting SWPBS are a pre and post comparison (Bradshaw, Mitchell

& Leaf, 2010). Schools across the United States have had positive outcomes as a result of SWPBS via reductions in Office Discipline Referrals (ODR), rates of In-School Suspension (ISS) and rates of Out-of-School Suspension (OSS) (Barrett et al., 2008; Bohanon, Fenning, Carney, Minnis et al., 2006; Childs et al., 2009; Metzler, Biglan, Rusby & Sprague, 2001). However, recently there have been studies using randomized control trials and sophisticated statistical analysis (e.g. general linear models, Cohen's d, t-tests, multivariate analysis); these studies have demonstrated the SWPBS does have a statistically significant impact on student outcomes, perception of school safety and/or fidelity of implementation (Bradshaw, Koth, Bevans, Ialongo, & Leaf, 2008a; Bradshaw, Reinke, Brown, Bevans, & Leaf, 2008b; Bradsahw, et al., 2010; Horner, Sugai, Smolkowski, Eber, Nakasato, Todd & Esperanza, 2009). SWPBS has identified ten essential elements (e.g. expectations and rules, teaching the expectations and rules, reinforcing appropriate behavior) that are necessary for schools to have in place in order to be considered implementing with fidelity (Ervin et al., 2007; George et al., 2009; Lewis & Sugai, 1999). This chapter will explore SWPBS within the framework of the systems change literature, looking at the critical elements necessary for implementation and the positive outcomes schools have experienced as a result of the implementation of SWPBS.

Process for Systems Change

Within the systems change literature, there are multiple ways for a school to approach identifying, selecting, planning for and implementing a new initiative. There are several theoretical frameworks a school can utilize to help them through this process. According to Fixsen et al. (2005) there are six stages of implementation: 1) exploration &

adoption, 2) program installation, 3) initial implementation, 4) full operation, 5) innovation, and 6) sustainability. Taylor et al. (1999) proposes a four phase model: 1) readiness, 2) initial implementation, 3) institutionalization, and 4) ongoing evaluation.

Additional models that can be used exist in the business literature. The first is called Technology Roadmapping (TRM), with three stages: 1) initiation, 2) development and 3) integration (Gerdri, Assakul & Vatananan, 2010). Second, strategic planning has three phases: 1) initiation, 2) implementation, and 3) institutionalization (e.g. Berman & McLaughlin, 1974 a; Berman & McLaughlin, 1974b; Bryson, 1995; Ferrara, 2000 in Rutherford, 2009; O'Brien, 1991 in Rutherford, 2009). Third, is Prosci's ADKAR model: 1) Awareness, 2) Desire, 3) Knowledge, 4) Ability, and 5) Reinforcement for change (Hiatt, 2006). The last business model is the eight step process for leading successful change: 1) identify urgency, 2) building guiding teams, 3) get the vision right, 4) communicate for buy-in, 5) enable action, 6) create short-term wins, 7) don't let up and 8) make it stick (Cohen, 2005). Therefore, there is no one single model that schools must use when they are in the process of adopting and implementing new initiatives on campus. Some schools may even elect to review multiple models and adopt one that combines elements from several of the models (i.e. Fixsen et al.'s six stages of implementation, 2005; Taylor et al.'s four phase model, 1999; and Prosci's ADKAR model). Therefore, it is recommended that when implementing a new initiative for a school, it is imperative to select a model and to follow through with it for successful implementation.

Some schools have been successful in implementing and sustaining initiatives on campus (e.g. Ervin et al., 2007; Grimes et al., 2006; Himbeault-Taylor & Matney, 2007;

McIntosh, Filter, Bennett, Ryan, Sugai, 2010; Rutherford, 2009; Slavin, 2004; Stollar, Poth, Curtis & Cohen, 2006). Even though there are several models schools can use to guide them through the systems change process, it is likely schools will not be able to reach the stages of full implementation and sustainability (Bauman et al., 1991; Slavin, 2004). Reviewing the studies on schools that are successful versus those whose efforts are not maintained will help to identify the core features that need to be place for an initiative to be sustained over time.

Implementing and Sustaining Initiatives

There are examples of schools, business or organizations who have successfully adopted, implemented and sustained implementation of initiatives over time and it is from these successful implementations where lessons can be learned to assist schools with future endeavors of implementing new evidence based practices (EBP). Through a four year qualitative study, one middle school successfully implemented Coalition of Essential Schools; the school saw their test scores rise to the top 20% for their demographics and improved staff morale. The school identified their success as a result of support from the school's and district's administration, the faculty's desire and willingness to change and because staff participated in the planning process (Rutherford, 2009). They achieved this success even though the school did not complete a needs assessment prior to adopting the initiative (Rutherford, 2009). As this was a single school that was part of a case study that did not follow a systems change model, it only provides weak evidence that systems change can take place at a school.

George, White, Schlaffer (2007) examined two schools (one elementary school and one day program for students with disabilities) for implementation of SWPBS via

case studies to identify what assisted with their successful implementation. The key factors in both schools were: 1) faculty buy-in on all aspects of the plan, 2) shared vision, 3) faculty understood the rationale for implementing SWPBS, 3) administration was committed, 4) resources were available (e.g. money and time), 5) restructuring of the organization (e.g. policies and procedures, time for training and collaboration), and 6) the School Psychologist provided support as their responsibilities were realigned to assist with implementation (George et al., 2007). The elementary school deemed their efforts successful as a result of decreases in office discipline referrals and after school detentions, as well as increased parent attendance at the school's open house (George et al., 2007). The day program attributed PBS to their initial reductions in use of seclusion and subsequently no longer needed the time-out rooms (George et al., 2007).

Over the past 11 years in Southwest Ohio, schools have voluntarily been implementing the Ohio Integrates Systems Model (OISM) that focused on both academics and behavior using Collaborative Strategic Planning (CSP) (Stollar et al., 2006). This model used a tiered structure similar to PBS and Response to Intervention (RtI). The essential elements that made up this initiative were: 1) data-based decision making, 2) scientifically-based academic and behavioral supports, 3) culturally responsive practices, and 4) administrative leadership (Stollar et al., 2006). The school then used the CSP process to problem-solve issues within the organizational factors of the school (i.e. broad overall goals for the year, such as 80% of students will be able to identify the main idea on a grade level passage) and also to problem-solve specific issues throughout the year (i.e. currently only 45% of 2nd graders and 65% of 3rd graders can identify the main idea). Both approaches utilized a problem solving process that consisted

of: 1) problem identification, 2) problem analysis, 3) goal setting, 4) plan development and implementation, and 5) evaluation (Stollar et al., 2006). Stollar et al. (2006) provided a detailed explanation of a process for implementing this model, however, they failed to provide an explanation of how it was determined that the schools who had been implementing the model over the last 11 years had sustained implementation and the student outcomes as a result of its implementation.

Success for All (SFA) has had a high rate of schools sustaining implementation (Slavin, 2004). According to Slavin (2004) 80% of the 1600 schools trained between 1987 and the time the article was written have maintained implementation, while achieving positive students outcomes (i.e. increased academic achievement and attendance, and reduction in grade retentions and the need for special education services) (Slavin & Maddin, 2001 in Slavin, 2004). It is reasoned the schools have maintained its implementation because SFA provides a flexible framework while allowing the schools to match the framework to the context of their schools. Additional reasons for its sustainability: 1) it is an evidence-based program, 2) prior to implementation it requires faculty buy-in at 80%, 3) a facilitator assists with the process, 4) resources are provided (materials, training, funding via Title I), 5) there is national and local support, and 6) continued research to support the process (Slavin, 2004).

Three studies examined how long it would take schools to reach fidelity of implementation. The first study took place at one elementary school in which it took them five years to move through the phases of readiness and initial implementation to have SWPBS institutionalized (Ervin et al., 2007). In the second study, one state trained 98 schools on SWPBS across 4 years and by year two of each school's implementation,

77% of the schools were at fidelity of implementation and they maintained this level of implementation following removal of training support at the state level (McIntosh et al., 2010). Some of the reasons for the schools' success were: 1) the inclusion in the State Performance Plan and alignment with other initiatives, 2) having a readiness process (e.g. district commitment, provision of financial and personnel resources by the districts, school-based administrative support and 80% faculty buy-in), and 3) coaching was provided (McIntosh et al., 2010). The authors raised the question of the state's ability to maintain this level of implementation with the current schools and with future training of additional schools (McIntosh et al., 2010).

In the third study, Doolittle (2006) found in a national sample of 285 schools, those schools identified as maintainers had 67% of the critical elements of PBS, by year two the maintainers were at 90% implementation of the critical elements, and those schools that remained as maintainers over the years stayed at 90% implementation of the critical elements. As for sustainability, 139 (48.77%) were maintaining implementation after three years but after 5 years only 43 (15.09%) were still maintaining implementation (Doolittle, 2006). In this study, the schools examined identified the key elements of SWPBS that predicted the sustainability for maintainers vs. non-maintainers. Differences were found regarding administrative support and communication at the statistically significant level using a multivariate analysis. There was a large effect size for the elements of teaching expectations and rules, and monitoring/decision-making; a medium-effect size was found for reinforcing students and management (Dolittle, 2006)

These three studies align with the belief that it takes time for change to occur until it is ingrained in the school's culture (Curtis & Stollar, 1996) taking from 3-5 years for

full implementation (Curtis et al., 2009; Hall & Hord, 2001) and 5-10 years for full sustainability (Curtis et al., 2009). Fixsen et al. (2005) suggest that it takes between 2-4 years to move from exploration and adoption to innovation with additional time for the system to become sustainable. However, the schools also fit within the time frame Latham (1988) suggests is the average length time (18-48 months) initiatives are implemented.

Baker, Gersten, Dimino, & Griffiths (2004) wanted to examine if teachers would sustain the use of Peer-Assisted Learning Strategies (PALS) after the conclusion of a research study. Through interviews, classroom observations and surveys of eight teachers, it was determined three of the teachers were high sustaining and five were moderately sustaining; the teachers' status was determined by their theoretical and procedural knowledge of the program as identified through the Levels of Use (LoU) interview. Two of the teachers were continuing to implement PALS at a refined/integrated level, three were at the routine level and two at the mechanical level. As for adherence to the intervention, the authors observed 96% adherence to the teacher components and 99% adherence to the student components, and the teachers continued to use the lessons at least two days a week (Baker et al., 2004).

The factors that assist with sustainability were: 1) professional development, 2) ongoing support (i.e. coaching, modeling, feedback during their first year of implementation), and 3) alignment with the state and district mandates (Baker et al., 2004). When interviewed about their continued use of PALS since the research project ended, four stated they would continue if the school continued the initiative and as long as they were still supplied materials. Four other teachers indicated they would definitely

continue even if the materials were not provided, as they could easily make them (Baker et al., 2004).

Limited Implementation of Initiatives

When organizations take on a brand new initiative a lot of time and energy is spent exploring and adopting the new initiative and with initial implementation. In spite of this most, initiatives do not maintain over time for a variety of reasons. In a study by Panzano & Roth (2006) there were 85 behavioral healthcare organizations that were exploring adopting evidence-based program were examined. However, only 51 or 60% made it through exploration to adopt the new program and had either begun initial implementation or were getting ready to start. The 51 organizations who adopted an EBP did so because there was a lower perceived risk (e.g. believed risks were manageable, matched the context of the setting, felt informed about the program). In addition to lower perceived risk factors that assisted with adoption were communication during the process, and having available resources (i.e. time, money, people) (Panzano & Roth, 2006). The study did not include how many of the organizations actually moved beyond initial implementation to reach sustainability.

Simply providing information via a workshop, training or conference does not translate into actual implementation or positive outcomes (Azocar, Cuffel, Goldman & McCarter, 2003; Fixsen et al., 2005). Three separate studies examined the impact of mailed materials to implement a new program. Two studies simply mailed information on the intervention to one group and had a control group (Azocar, Cuffel, Goldman & McCulloch, 2001) and in the third study one group receive mailed information, one group received mailed information along with an in-service training, and there was a control

group (Schofield, Edwards & Pearce, 1997). In all three of the studies there was no statistical significance in the experimental groups in comparison with the control groups, demonstrating that there needs to be more than simply providing information for individuals to adopt and implement a new initiative or program (Fixsen et al., 2005).

Using interviews, Rutherford (2009) studied one high school's attempt to adopt and implement a program called Authentic Teaching, Learning, Assessment for All Students (ATLAS) across four years. The program was never fully implemented, the faculty indicated that they did not see improvement and only had negative comments to report about the school's implementation of ATLAS. Rutherford (2009) indicated that prior to implementing ATLAS the school had not completed a needs assessment, minimal research has been conducted on ATLAS, the faculty did not have an understanding of the program, nor was commitment obtained from the faculty. Therefore, before implementing any new initiative, the school must be ready and complete the adoption process (Rutherford, 2009).

Core Features

Based on a review of the literature, there were features that helped to determine whether or not an initiative is sustained or not. First, the indicators that were associated with a failure to be sustained are explored. This was followed by an exploration of the indicators that were associated with an initiative successfully moving through the different stages from exploration to sustainability.

As previously mentioned, only about 20% of initiatives schools attempt to implement are sustained over time (Mann, 1978) and most of the time they only last 18-48 months (Latham, 1988). If there are reliable factors associated with failure to sustain,

this may assist schools in their efforts with school improvement. First, it has been found the school either does not have administrative support or the administrator who supported the initiative either leaves the campus or is burned out (Dietrich, Keyworth & States, 2007; Latham, 1988; Slavin, 2004). Other common mistakes are in the adoption and readiness process (Rutherford, 2009), when the school does not fully explore the initiative to ensure that it has been fully evaluated (Herman, 1999; Slavin & Fashola, 1998 in Slavin, 2004), does not ensure it matches the context of the school or has the flexibility to match (Arthur & Blitz, 2000; Bauman et al., 1991), and does not secure the school's ability to financially support needed resources (Dietrich et al., 2007; Slavin, 2004). As policies change at the school, district or state level, initiatives tend to fade away (Slavin, 2004). Other common errors are the expectation that the initiative will have the desired outcomes immediately without having an ongoing planning process (Curtis & Stollar, 1996; Fixsen et al., 2005; Latham, 1988) or only providing a brief overview explanation of the initiative to their faculty and staff in comparison to an in-depth training (Fixsen et al., 2005). If the school does not successfully complete the adoption readiness process, it truly impacts the ability of the school to move forward in the implementation stages (Berman & McLaughlin, 1974a; Rutherford, 2009).

When it comes to the implementation stages, there are also mistakes schools make. One of the biggest errors is not obtaining consensus or buy-in from faculty, and failing to maintain open communication with the faculty (Rutherford, 2009; Slavin, 2004) or providing sufficient training (Berman & McLaughlin, 1974a; Dietrich et al., 2007; Fixsen et al., 2005). At a school level, changing the system is as much about changing the behavior of the faculty as it is about the students, so if the faculty are unwilling to make

any changes this could also be a source of failure (Dietrich et al., 2007; Fixsen et al., 2005; Latham, 1988). Additionally, if there is not administrative support or strong leadership by the administrator the initiative should not be implemented (Dietrich et al., 2007; Latham, 1988; Slavin, 2004). If the school is not committed to planning (Curtis & Stollar, 1996) and changing the whole system, instead only wanting to implement some components of the program, failing to relate it to the overall structure of the school and other initiatives already in place will not be successful (Grime et al., 2006). Schools will also give up if the perception is that it requires a lot of effort to implement (i.e. difficult, too much change or takes longer than expect) and if there is no accountability (Detrich et al., 2007; Fixsen et al, 2005; Latham, 1988).

Just as there are key indicators that a new initiative will not be sustained, there are key features that are deemed necessary to increase the chances the initiative will be sustained. During the exploration and adoption phase, schools must complete a readiness process which includes: 1) completing a needs assessment and ensuring that the initiative will be a match to the school's context and needs; 2) the faculty are aware of the initiative, see need to change, and are willing to change; and 3) the risk of taking on a new initiative is low (Adelman & Taylor, 2003; Curtis & Stollar, 1996; Graczyk et al., 2006; Rosenhek, 2008; Rutherford, 2009; Hambright & Diamantes, 2004). There are some key factors that must begin during exploration and adoption and continue all the way through implementation until it is fully sustained. These factors are: 1) having ongoing faculty committed to implementation (i.e. at least 80%) (Berman & McLaughlin, 1974a; Curtis & Stollar, 1996; Herman, 1999; Sugai & Horner, 2006) and for the long-term (i.e. 3-5 years) (Bryson, 1995; Detrich et al. 2007; Rosenhek, 2008) , 2) having

faculty involved in the process and keeping communication open (Biglan, 2005; Curtis & Stollar, 1996, Graczyk et al., 2006; Gottfredson, Jones, & Gore, 2002; Grimes, Kurns, Tilly, 2006; Rosenhek, 2008), 3) having the support of school based administration and district administration (Berman & McLaughlin, 1974a; Berman & McLaughlin, 1974b; Detrich et al., 2007; Gottfredson et al., 2002; Grimes et al., 2006) and having these leaders modeling and participating in the process (Rosenhek, 2008), 4) be willing to make ongoing organizational changes (e.g. policies and procedures) (Grimes et al., 2006) 5) building in self-sustaining resources (i.e. funding, personnel, time) (Berman & McLaughlin, 1974a; Detrich et al., 2007; Grimes et al., 2006), 6) experiencing positive outcomes (e.g. student outcomes, staff outcomes, fidelity) (Detrich, Keyworth, & States, 2007; Grimes et al., 2006; Herman, 1999), 7) the essential elements for fidelity of implementation are identified but also have flexibility built-in (Bauman et al., 1991; Fixsen et al., 2005), 8) sufficient training occurs (Grimes et al., 2006), and 9) there is an ongoing action planning and evaluation using a problem solving process (Berman & McLaughlin, 1974a; Curtis & Stollar, 1996; Graczyk et al., 2006; Grimes et al., 2006; Rosenhek, 2008). Of these nine key factors that cross over the various stages of implementation, most are self-explanatory but the last two factors of faculty training and action planning have their own requirements to make them successful which need further explanation.

Training

Traditionally in schools, teachers attend trainings that are one day workshops/professional development, commonly referred to “train and hope”. However, these models are not effective in actually having the participants effectively implement

what was taught during the training (Bos, 1995; Englert & Tarrant, 1995; Hirsh, 2004; OSEP Center on Positive Behavioral Support, 2004 in Sugai & Horner, 2006; Shumm & Vaughn, 1995). Just like with systems change the transfer of the knowledge from training to implementation fails for similar reasons: 1) there is not a match between the training and the context and needs of the students, 2) the teacher does not see the need to change or feels that there are a risks associated with changing, and 3) the participants do not believe in the content being taught during the in-service (Doyle & Ponder, 1977; Englert & Tarrant, 1995)

The goal is to transfer the knowledge and skills gained at professional development into implementation in classrooms and schools following the training. Based on the Concerns-Based Adoption Model (Loucks-Horsley & Steigelbauer, 1991) there are seven stages that educators must progress through to successfully transfer and implement what was taught at the professional development. The seven stages are: a) Awareness, b) Informational Stage, c) Personal (i.e. what are benefits and costs, “what’s in it for me”), d) Management (i.e. trying to figure out logistics of implementation), e) Consequence (i.e. looking at possible student outcomes), f) Collaboration (i.e. sharing information with peers), and g) Refocusing (i.e. adapting the strategy to make it our own). Despite the fact that the majority of current trainings do not move teachers from the awareness to refocusing stage, there are ways to improve upon professional development to increase the likelihood of implementation following training.

Joyce & Showers (2002) found that teachers who received training that combined theory, demonstration, practice and coaching were 95% more likely to implement the strategy once back in their classrooms. Some of the studies Joyce & Showers (2002) cite

that demonstrated successful transfer information from training to implementation are: 1) Braukman, Kirigin, Ramp, Braukmann, Wilner, & Wolf (1983) 2) Dancer, Braukmann, Schumaker, Kirigin, Willner & Wolf (1978); 3) Kirigin, et al. (1975); and 4) Maloney, Phillips, Fixsen & Wolf (1975). The Eisenhower Professional Development Program recommends effective in-service training must have the following features: 1) considers the intensity and duration of the training; 2) is relevant and evidence-based; 3) includes hands-on-learning including modeling, demonstration and feedback; 4) is aligned with current policies and builds on previous knowledge; and 5) includes collective learning (i.e. participants share common experience via same school, grade level or content area) (Birman, Desimone, Porter & Garet, 2000). Based on a sample survey of 1000 types of different Eisenhower Professional Development Programs, 79% still follow the traditional format (Birman et al., 2000). This survey found that only 20% had collective learning, 51% focused on evidence-based content, less than 16% used active learning, and 35% built upon previous professional development (Birman et al., 2000).

When identifying professional development that should be offered, it should include a process that ensures the training is outcome driven, focuses on addressing the goals of the School Improvement Plan (SIP), and the participants can use the information in their daily jobs (Hirsh, 2004). Also, it must include involving key stakeholders in selecting quality, research based interventions that include progress monitoring of the intervention (Hirsh, 2004). The Eisenhower Professional Development Program recommends the use of teaming during training with the team developing an action plan (Bruce, 2007).

Action Planning

Action plans or strategic planning originally developed in the business field for a variety of reasons including boosting revenue, when venturing into developing a new product, to reach a long term vision, or to improve employee engagement (Bates & Dillard, 1991; Earl, Lampe, Buskin, 2006; Monica, 2004). As for action planning, just like systems change, there are a variety of theories (i.e. goal setting theory, cognitive theory, and action theory, social-learning, and self-regulation theory) (Frese, Krauss, Keith, Escher et al., 2007; Von Korff, Gruman, Schafer, Curry, & Wagner, 1997) for developing action plans and a variety of types of action plans (Earl et al., 2006). Action plans have transferred into education as a tool to assist in identifying and implementing new initiatives and to assist with the transfer of knowledge from professional development into implementation (Bruce, 2007). They assist in helping to turn ideas into actions; makes teams accountable; increases flexibility with planning, exploring and adopting interventions; and forces evaluation of the interventions (Frese et al., 2007). For example, Lippke, Ziegelmann, Schwarzer (2004) found patients who were released from orthopedic rehabilitation who developed action plans to increase their participation in exercising, were more likely to follow through due to having a high level of intent and having an action plan.

In the business world, action plans are used as a tool for assisting in developing goals and identifying steps to meet a long term vision (i.e. 5 years) (Bates & Dillard, 1991; Bryson, 1995; Monica, 2004); action plans address structural (i.e. capacity, facilities, technology, vertical integration) and infrastructural (i.e. quality, production

planning, employees, organizational) concerns (Hayes & Wheelwright, 1984). Businesses have had difficulty actually translating action plans into implementation because of their complexity (Tan & Platts, 2005). Specifically, issues arise during the action planning process because businesses do not have a formal action planning process, do not explore the reason for the problem before identifying solutions, do not explore and evaluate a multitude of alternatives, and usually select action items managers have had experience with and feel comfortable with (Tan & Platts, 2003).

Despite the fact that implementing effective action plans are not as easy as it may seem, the literature provides suggestions to make the process feasible, as well as, recommendations for what needs to be part of an action plan. The action plan must address all of the critical features of the initiative (Epstein, 2005; Giangreco, Edelman, & Broer, 2003; Wood, 2006) or in business the steps to meet the long term vision (e.g. governance and compliance, communication and management, etc.) and then task analyze the steps (Steinbacher & Smith, 2009; Tompkins, 2007). If the critical elements have not already been identified, then this must be done prior to developing the action plan (Steinbacher & Smith, 2009). The goals should address the critical elements and then the strategies/interventions will be used to address the goals (Barnes, 1995; Dribidu, Jonch-Clasen, & Ipsen, 1996; Earl et al., 2006; Frese et al., 2007; Herman, 1990; Steinbacher & Smith, 2009; Van Korff et al., 1997; Wood, 2006). Simply identifying the tasks are not enough; each task must also include who is responsible for the goals, when it will be started and a date to review its completion (Barnes, 1995; Bryson, 1995; Gee, 2008; Herman, 1990; Turnbull & Turnbull, 1996; Wood, 2006). The action plan must also include how the strategies will be evaluated to measure the success of the plan

(Bryson, 1995; Herman, 1990; Tompkins, 2007; Wood, 2006). Therefore, an action plan should not be developed and then identified as complete, for it to be truly effective it really should be considered a flexible, ongoing, active process (Dribidu et al., 1996; Gee, 2008; Giangreco et al., 2003; Turnbull & Turnbull, 1996). One of the recommendations is that the deadlines on the action plan should be spaced across the stages of implementation (Rosenhek, 2008) and over time (Wood, 2006). Every year a brand new action plan should be developed for the next year (Bryson, 1995). The action plan should include a variety of ways to measure the outcomes (Earl et al., 2006; Gee, 2008; Steinbacher & Smith, 2009; Wood, 2006). Reporting outcomes to all stakeholders should be an ongoing process (Gee, 2008; Wood, 2006).

Simply developing an action plan does not ensure that it will be fully implemented with fidelity, be updated over time or that it will be evaluated; therefore, it is important to identify what are some key factors that are helpful in the implementation process of the developed action plan. Via interviews with individuals who developed action plans as part of career counseling the factors that helped them develop and implement their action plans were having a positive outlook and motivation to make change, having psychological and financial support, and having the skills and information to reconnect to the labor market (Borgen & Maglio, 2007). Bruce (2007) interviewed two teachers who implemented action plans developed during training and during follow-up coaching sessions; it was found that having supports and the desire to implement the strategies were what made them successful. They also stressed that having to develop more than one action plan in a short-time frame (i.e. 4 over 4 months) was too much (Bruce, 2007); hence, why it would be better to have one action plan that is continuously

updated. Smith (2009) indicate that the process should be simple, efficient and not too time consuming and having all stakeholders see how it aligns to the vision/mission. Additionally, the process should be flexible enough so the school can address the individual needs of their campus (Giangreco, Edelman, & Boer, 2003). When developing an action plan it should be a team process including key stakeholders (Earl, Lampe, Buksin, 2006; Herman, 1990; Steinbacher & Smith, 2009; Tompkins, 2007; Turnbull & Turnbull, 1996; Wood, 2006) meanwhile keeping all faculty members abreast of what is occurring to maintain consensus and prevent misunderstanding (Barnes, 1995).

With the ultimate goal of action planning resulting in positive outcomes, it is necessary to determine if having a high quality action plan results in better outcomes. Frese et al. (2007) interviewed 408 business owners in South Africa, Zimbabwe and Namibia about the process they used to develop their action plans and the items on their action plans, along with outcomes they experiences over the past year (i.e.growth, number of employees, value of equipment, and expert evaluation about their success via a hive manager). Based on the interviews action plans received points on the number of substeps used in their action plans. Using a structural equation model (SEM) it was found that business owners in South Africa who used a more elaborate planning process experienced more growth and were rated higher by expert evaluators; there with variable results in the other two countries (Frese et al., 2007). One of the limitations of this study was that the business owners were asked to describe their action plans and their planning process without actually viewing the action plans and points were only assigned based on the number of substeps described in the action plans.

In education, a case study of one elementary school's implementation of the Comprehensive School Reform (CSR) collected the action plans and end year evaluation from each action team, artifacts, end year surveys and interviews (two times a year with each action team, principal and facilitator) to determine the implementation of the initiative and outcomes related to the academic achievement (i.e. statewide assessment) and behavior of the students (i.e. out-of-school suspensions, OSS) (Epstein, 2005). These data were collected from baseline through the second year of implementation. Despite the action teams having a hard time developing their action plans for the first year of implementation, the school was able to implement all of its critical elements (e.g. activities for the 8 types of parent involvement, strategies for improving curriculum and classroom management, etc.) and utilized seven out of the eight types of parent and community involvement on campus. From baseline to the second year of implementation the school increased student achievement in reading, writing and math greater than the comparison school, and decreased the number of students who had OSS (Epstein, 2005). Limitations of linking the outcomes to the action plans were that the results were limited to one school, only one grade level for the academic achievement, and no statistical analysis was completed to determine if it was statistically significant.

In a larger study Giangreco et al. (2003) examined 46 schools development and implementation of action plans related to the development of paraeducators (e.g. orienting and training paraeducators, roles and responsibilities of paraeducators, supervision and evaluation of paraeducators services, etc.). In this study each school team completed the process independently using the workbook, *A Guide to Schoolwide Planning for Paraeducators Support* (Giangreco, Edelman, & Boer, 2000-2001). This

study looked at the perceptions of the participants about what worked and did not work about the process, the impact it had on the school and also looked at the artifacts of the action plans. The seven elements have 28 indicators to be implemented; the schools ranked their top 5 priorities but when the action plans were collected it was discovered that only four of the 5 priorities were consistently addressed. Some of the strengths identified by the participants were being provided an easy structure to focus on the issue and the flexibility of the process; meanwhile, the weaknesses were the time commitment, the amount of paperwork, the language used, and organizational concerns (i.e. time to meet, conflicts between team members) (Giangreco et al., 2003).

Only 33 schools provided the researchers with outcome data for both students and faculty. This qualitative data indicated that the process positively impacted the faculty by: 1) paraeducators having a better understanding of their job, 2) increasing morale, 3) increasing faculty awareness of the importance of paraeducators, 4) increasing retention of paraeducators, 5) improving instruction, and 6) improving home-school collaboration (Giangreco et al., 2003). For students the improvements were reported as: 1) increasing student achievement and life skills, 2) greater inclusion and increased peer interactions, 3) improving student behavior and school safety (Giangreco et al., 2003). With these 33 schools it was found that the reported outcomes were aligned with the indicators targeted on the action plan as well as the action items developed (Giangreco et al., 2003). However, one weakness of this study was that the fidelity of implementation of the seven elements and 28 indicators were not measured.

Summary and Limitations of Current Research

In the literature in regards to both systems change and action planning there is a lot of research explaining the theories behind them and some suggestions on how to complete the process. However, when it comes to research to validate these theories and suggestions the literature is limited; the studies are either single case studies, consist of small sample sizes, or there was limited statistical analysis of quantitative data mostly using descriptive statistics. There is a need for studies that employ a variety of quantitative methods using more advanced forms of statistical analysis above descriptive statistics (McIntosh, Horner & Sugai, 2009). Some examples of studies in the literature meeting the above concerns for systems theory are the Heartland Area Education Agency (HAEA) problem solving service delivery model for special education (Grimes et al., 2006), University of Michigan Division of Student Affairs (Himbeault-Taylor & Matney, 2007), and Ohio Integrates Systems Model (OISM) (Stollar et al, 2006).

When talking about action planning, education, healthcare and business have come to a consensus that there are necessary for change. The literature usually just describes the elements that should be included in action plans, and a process for developing them. Some examples present in the literature are: Waste Management System (Dribidu et al., 2006), SH & E Strategic Planning (Steinbacher & Smith, 2009), Business Resilience Team 4 step process (Tompkins, 2007), Person Center Planning (Turnbull & Turnbull, 1996), healthcare to improve self-care and collaborative management (Von Korff et al., 1997) and a university accreditation process (Wood, 2006). The items that the literature says are essential when developing action plans are more of a consensus instead of having studies that indicate which components are

statistically significant. Also, the research is limited that examines if there is a link between action plans to outcomes, and even more so if there is a link between high quality action plans to outcomes (Frese et al., 2007). Therefore, “researchers need to conduct additional studies to determine the impact of action plans on teacher development and individual accountability in school contexts...action plans are a promising follow-up support that warrants attention from researchers and others interested in in-service teacher development” (Bruce, 2007, 82).

There a variety of reasons as to why there has been limited research in this area. First, most of the research is usually grant funded and are usually only funded for 3-5 years and it may take longer for the whole systems change to occur than time allotted with the grant (McIntosh et al., 2009). Second, scientific based research traditionally has called for randomized controlled trails and when the research takes place in school districts and schools it is hard to conduct randomized trials (McIntosh et al., 2009). Third, since most of the literature is based on research that is being conducted in the schools, we need to question if the schools would maintain fidelity of implementation and maintain sustainability once the research project has ended (McIntosh et al., 2009).

School-Wide Positive Behavior Support

Evidence-Based Practices (EBP)

When schools adopt a new initiative it should have evidence to support its selection, the initiatives should be an evidence-based practices (EBP) or scientifically-based research. The No Child Left Behind Act of 2001 (HRI) requires schools to implement scientifically-based programs. An evidence-base practice has demonstrated through scientific research (i.e. randomized controlled trails, replication and

generalization of studies, links theory to research) there is a positive impact on student outcomes (Feuer, Towne, & Shavelson, 2002; Fixsen et al., 2005; Kutash, Duchnowski, Lynn, 2006; Merrell & Buchanan, 2006; National Research Council, 2002; Shavelson, Phillips, Towne, Feuer, 2003). Kutash et al. (2006) provide several different agencies or websites that identify for schools if a program has been determined to be an EBP, for example, SAMHSA's National Registry of Evidence-Based Programs and Practices (NREPP); the Collaborative for Academic, Social, and Emotional Learning (CASEL); U.S Department of Education (USDOE)'s Office of Educational Research and Improvement (OERI); Promising Practices Network (RAND); and the What Works Clearinghouse. When selecting an EBP it is important for the program to match the context of the school and the population it serves (Bauman et al., 1991; Graczyk et al., 2006; Schaugnecy & Ervin, 2006; Shapiro, 2006; Stollar et al., 2006). Once a program has been adopted the core components of the program need to be identified and then the school needs to adhere to the components with fidelity to maintain integrity (Arthur & Blitz, 2000; Bauman, et al., 1991; Fixsen et al., 2005; Graczyk et al., 2006).

SWPBS meets some of the criteria for an evidence-based practice, thus, making it an emerging practice. SWPBS has identified that there are ten critical elements at Tier 1: 1) teaming, 2) establishing faculty commitment or consensus building, 3) developing effective discipline procedures, 4) data based decision making, 5) identifying expectations and rules, 6) teaching a social emotional curriculum, 7) implementing a positive reinforcement system, 8) implementing a developed SWPBS plan, 9) classroom supports and 10) continuous progress monitoring and evaluation (Ervin et al., 2007; George et al. 2009; Lewis & Sugai, 1999, Lewis et al., 2010). SWPBS emerges from

applied behavior analysis which has years of evidence demonstrating that data-based decisions, teaching replacement behavior and providing reinforcements and consequences are effective in changing individual student behavior (Anderson & Freeman, 2000; Anderson & Kincaid, 2005; Carr, Dunlap, Horner, Koegel, Turnbull, Sailor, W. et al., 2002). There is evidence to support that these elements have a positive impact on student outcomes in classrooms and other settings on campus (e.g. Ayllon & Roberts 1974; Bear, Manning & Shiomi, 2006; Barton, 1981; Everett, Hayward, & Meyers, 1974; Phillips, Phillips, Fixsen, Wolf, 2004; Sugai & Horner, 2006). The report *Reducing Behavior Problems in the Elementary School Classroom* published by the Institute of Educational Science (IES) via the What Works Clearinghouse (Epstein, Atkins, Cullinan, Kutash & Weaver, 2008) supports several of the critical elements of SWPBS (i.e. teaching and reinforcing appropriate behavior, and adopting a school-wide proactive discipline program). SWPBS has demonstrated positive outcomes for students via both pre and post measures and some randomized control trials (e.g. Bradshaw et al., 2010; Childs et al., 2009; Horner et al., 2009; Lassen et al., 2006; Muscott et al., 2008). The remainder of this chapter will focus on defining the essential elements that are the cornerstone of the SWPBS process, and discuss research that demonstrates positive outcomes (i.e. fidelity of implementation and student outcomes) schools have experienced.

Critical Elements of SWPBS

Teaming. As suggested in the systems change literature (Fixsen, et al., 2005), the first step is for each school to develop a team of key stakeholders that will spearhead the initiative (Lewis & Sugai, 1999, Lewis et al., 2010; George et al., 2009; Florida's

Positive Behavior Support Project, 2010). This team should have broad representation of all facets of the school campus (i.e. grade levels, content areas, support and non-instructional staff, special education, electives/specials teachers) (Anderson & Kincaid, 2005; George et al., 2009; Lewis & Sugai, 1999) with each person taking on a specific role (i.e. team leaders, behavior expert, recorder (Florida's Positive Behavior Support Project, 2010; George et al., 2009). It is necessary for one of the team members to be an administrator (i.e. principal or assistant principal) (George et al., 2009; Florida's Positive Behavior Support Project, 2010; Lewis et al., 2010) and that the administrator is committed to the process as this individual has the ability to change policies and provide resources (Fixsen et al., 2005; Graczyk, et al., 2006; Lewis & Sugai, 1999). It is this team's responsibility to conduct the needs assessment of the school with the results used to guide them through the process and the development of their action plan; the teams first job is to develop a common vision or goal statement for the team to help guide the development of their action plan (George et al., 2009; Lewis & Sugai, 1999). This team will meet regularly, at least monthly, to action plan and implement the nine remaining critical elements (Florida's Positive Behavior Support Project, 2010; George et al., 2009; Lewis & Sugai, 1999; Lewis et al, 2010).

Establishing faculty commitment or consensus building. Prior to the school actually implementing any of the critical elements, it will be the team's responsibility to obtain faculty commitment to the SWPBS process (George et al., 2009; Lewis & Sugai, 1999; Lewis et al., 2010). The literature suggests that 80% of the faculty should be committed when adopting an initiative (George et al., 2009; Lewis et al., 2010; Slavin, 2004; Sugai & Horner, 2006). There is the need for buy-in to reduce resistance to change

and to ensure clear understanding on the initiative (Barnes, 1995; George et al., 2009). During this process faculty will need four types of support: 1) information, 2) skill development, 3) assistance when problems arise, and 4) empathy (Barnes, 1995). Faculty commitment will not be a one time event but will need to be an ongoing process as implementing SWPBS is a 3-5 year process (Sugai & Horner, 2006). Some suggestions for getting this buy-in include: 1) showing the need via the school's current discipline data, 2) providing an overview of SWPBS and its components, 3) showing data from comparison schools, 4) surveying the staff on the need, and 5) conducting a planning process (Anderson & Kincaid, 2005; Florida's Positive Behavior Support Project, 2010).

Developing effective discipline procedures. All schools have policies and procedures as it relates to disciplining students, most of which can be found in the districts student code of conduct (Lewis & Sugai, 1999). This component is more than just identifying the disciplinary measures that will be used when a student violates the student code of conduct. The first step is for the school to operationally define the problem behaviors for consistency on campus (Florida's Positive Behavior Support Project, 2010; George et al., 2009; Lewis & Sugai, 1999). The next step is to identify the behaviors that should be handled by the teacher in the classroom versus those that should be referred to the office to be handled by an administrator, the forms to be completed, and the referral process to be followed (Florida's Positive Behavior Support Project, 2010; George et al., 2009; Lewis & Sugai, 1999). Whether the consequences are being provided by the teacher or by the administrator there needs to be a hierarchy of preplanned consequences that match the severity of the behavior (Florida's Positive Behavior Support Project, 2010; George et al., 2009; Lewis & Sugai, 1999). As much as possible

the first step needs to be teaching or re-teaching of a replacement behavior; most consequence stop the behavior short-term and do not teach a replacement behavior (Bear 1998; Florida's Positive Behavior Support Project, 2010).

Data based decision making. From adoption to initial implementation through sustainability it is important for the SWPBS team to make decisions based on their school's data (Lewis et al., 2010). These data should be collected easily and efficiently (Stolla, et al., 2006). Therefore, when the team meets monthly they need to make decisions based on their data. Typically teams will primarily review their office discipline referrals (ODR) (Anderson & Kincaid, 2005) by analyzing ODRs by the average referrals per day per month, by behavior, by location, by time, by administrative decision and by individual student (Florida's Positive Behavior Support Project, 2010; George et al., 2009; Lewis & Sugai, 1999). Other pieces of data the team may use are suspension rates (OSS and ISS), attendance, direct observation and survey results (Anderson & Kincaid, 2005).

The data will help the team to identify the problem areas on campus and then to identify interventions to address these problems (George et al., 2009; Lewis & Sugai, 1999). The best way for the team to use data is to go through the problem solving process (Florida's Positive Behavior Support Project, 2010; Lewis et al., 2010; Stollar et al., 2006). A problem solving process assists the team in truly identifying the problem so that they can develop a hypothesis as to why the problem is occurring; typically schools skip the hypothesis step (Stollar et al, 2006). This step is important to ensure that the interventions the team develops match the hypothesis (Stollar et al., 2006). The team

should follow this process when developing their action plan (Lewis & Sugai, 1999; Stollar et al., 2006).

Identifying expectations and rules. Each team identifies for their school 3-5 positively stated broad statements that apply to every setting across campus (Anderson & Kincaid, 2005; Florida's Positive Behavior Support Project, 2010; Lewis & Sugai, 1999). The expectations apply to both the faculty and the students (Florida's Positive Behavior Support Project, 2010). Some examples of expectations are: be responsible, be safe, show self-control, and have respect for self and others.

Once the team has identified the expectations, the next step is to identify the specific settings on campus where problem behavior are occurring to develop rules (Anderson & Kincaid, 2005; George et al., 2009; Florida's Positive Behavior Support Project, 2010; Lewis & Sugai, 1999). The rules need to be aligned with the expectations; they are to be positively stated in observable and measureable terms so that they clarify the expectations (George et al., 2009; Florida's Positive Behavior Support Project, 2010; Lewis & Sugai, 1999). Just like the expectations rules need to be limited in number (3-5 per setting) (Metzler et al., 2001) and address the top problem behaviors occurring in the setting (Florida's Positive Behavior Support Project, 2010).

Teaching a social emotional curriculum. Based on social learning theory (Bear & Richards, 1981), students need to be taught, modeled and practice the expectations and rules (Elliot & Gresham, 1993; George et al., 2009). Students need to be provided a rationale, given both examples and non-examples, and the chance to practice them in all the contexts where they are to be displayed (Anderson & Kincaid, 2005; Elliot & Gresham, 1993; Florida's Positive Behavior Support Project, 2010; Lewis & Sugai,

1999). When students are practicing they need to be provided corrective feedback to enhance their social competency (Anderson & Kincaid, 2005; Elliot & Gresham, 1993; Lewis & Sugai, 1999). The teaching needs to be an ongoing process throughout the school year; one way of doing this is to embed the teaching of the expectations and rules into the curriculum (Elliott & Graham, 1993; Florida's Positive Behavior Support Project, 2010; George et al., 2009; Lewis & Sugai, 1999).

Implementing a positive reinforcement system. After the students have been taught the expectations and rules, it is necessary to reinforce the displaying of these behaviors to encourage the students to continue displaying them (Florida's Positive Behavior Support Project, 2010; George et al., 2009; Lewis et al., 2010). Most commonly this is done through a token economy (Anderson & Kincaid, 2005; Florida's Positive Behavior Support Project, 2010) as research has found them to be effective (e.g. Anderson & Freeman, 2000; Ayllon & Roberts, 1974; Everett, Hayward, Meyers, 1974). When a child receives the token it needs to be paired with a statement identifying the expectation and/or rule the student followed along with specific praise about how the student demonstrated the expectation and/or rule (Florida's Positive Behavior Support Project, 2010; Lewis & Sugai, 1999). Over time the tokens should be faded so that the student is only receiving the positive praise (Lewis & Sugai, 1999). Additionally, part of the reinforcement system should also include strategies for recognizing faculty and staff, which will also assist with obtaining and maintaining faculty buy-in (Florida's Positive Behavior Support Project, 2010; George et al, 2009).

Implementing a developed SWPBS plan. Just like other initiatives schools adopt and implement on campus, SWPBS requires the team to build capacity for

sustainability (Lewis et al, 2010; Shapiro, 2006). In order to accomplish this, the team must develop a structured plan to put into all components of PBS into place (Lewis & Sugai, 1999). It is recommended that the team develop a year long plan that incorporates the following items: training faculty and staff, training students, training family members, monthly meetings, and a reinforcement schedule for staff and students (Florida's Positive Behavior Support Project, 2010; Lewis et al., 2010).

Classroom supports. Inside the classroom it is important for teachers to infuse PBS into their classroom management systems (Lewis et al., 2010). There are two types of supports to focus on with classroom systems: 1) general classroom supports that all teachers should have in place and 2) a process to consult with teachers who need further assistance with classroom management. First, all classroom teachers should on an ongoing basis teach students expectations, rules and procedures, then students should be reinforced when they demonstrate the expectation and follow the rules (Florida's Positive Behavior Support Project, 2010; Simonsen, Fairbanks, Briesch, Myers & Sugai, 2008). The classroom should be engaging (e.g. response cards, guided notes) (Florida's Positive Behavior Support Project, 2010; Simonsen et al., 2008) and the physical setting should be maximized (e.g. organization of room, amount of teacher directed instruction) (Simonsen et al., 2008). Finally, teachers should use a range of interventions to handle students when they misbehave in the classroom (e.g. planned ignoring combined with teaching appropriate behavior, reinforcement of an alternative behavior, modify curriculum and/or environment) (Florida's Positive Behavior Support Project, 2010; Simonsen et al., 2008). The team will also need to identify a process to support teachers who already have the above classroom management process in place and are still experiencing difficulties with

classroom management; one recommendation is a consultation process that follows a problem-solving process (Florida's Positive Behavior Support Project, 2010).

Continuous progress monitoring and evaluation. Once the school starts the implementation of the critical elements, continuously monitoring of implementation needs to occur, which is typically the last step in the problem solving process (Florida's Positive Behavior Support Project, 2010; Lewis & Sugai, 1999; Stollar et al., 2006). Schools can identify if they are making progress on their campuses through student outcome data (e.g. ODR, ISS, OSS, attendance), school climate, social validity and fidelity of implementation (e.g. BoQ, SET) (Baer, Wolf & Risley, 1987; George et al., 2009; Lewis & Sugai, 1999; Metzler et al., 2001). The fidelity of implementation is one area that may often not be considered but should be because if there is not fidelity of implementation, then the school should not expect to see a positive impact on student outcomes (Epstein, 2005). Additionally, these data will be used to continue the team's development and revisions of their action plan (George et al., 1999; Lewis & Sugai, 1999).

Results of SW-PBS Implementation

Student Outcomes.

Office Discipline Referrals (ODR). There have been numerous studies (i.e. case studies, AB design, randomized control trials) and state reports demonstrating that PBS has had a positive impact on rates of ODRs, ISS and OSS. An urban high school after their first year of implementation had a 20% reduction of ODRs (Bohanon et al., 2006). In an urban middle school based on an ANOVA analysis the school had a statistically significant reduction at the $p < .01$ (Lassen et al., 2006). Metzler et al. (2001)

found in a middle school using an AB design that the school had an overall decrease of ODRs of 28% after the first year of implementation and an additional 18% after the second year. At this school students who were repeat offenders had a reduction of ODRs: 1) there was a 39% reduction for students who had received 10-19 ODRs the previous year and 2) 93% reduction for students who had 20-30 ODRs. In Iowa, complete data were available from baseline through two years of implementation for 24 schools for which there was a “seventy-five percent of these schools showed a 42% average rate of decrease in ODRs per day per 100 students” (Mass-Galloway, Panyan, Smith & Wessendorf, 2008, p.132). In New Hampshire the average reduction across 28 schools was 28% (Muscott et al., 2007).

Bradshaw et al. (2010) found the experimental schools had a decrease in the rate of ODRs and also for the percentage of students who had received an ODR; the results were not statistically significant most likely due to the fact that the ODR rates were low to begin with. There was not complete baseline data for the control schools to do a statistical analysis (Bradshaw et al., 2010). In Florida it was found the average reduction from baseline to year 1 of implementation was 33% which is statistically significant at the $p < 0.01$. (Childs et al., 2009). When these data were broken down by school type elementary schools have a 30% decrease, middle schools have a 34% decrease and high schools have a 30% decrease all per 100 students (Childs et al., 2009). Schools that had a higher fidelity of implementation experienced greater reductions in ODRs than low implementing schools: 1) after year one of implementation 54.2% fewer, 2) after year two of implementation 11.1% fewer, and 3) after year three 38.3% fewer (Childs et al., 2009).

In School Suspension (ISS). In New Hampshire, 28 schools saw an average decrease of 31% for ISS. In Florida, schools average a 16% decrease per 100 students, which is not statistically significant (Childs et al., 2009). When this is broken down by school type elementary schools have a 58% decrease, middle schools have a 8% decrease, and high schools have a 28% decrease per 100 students. When this study looked at the difference between schools implementing with high fidelity compared to low fidelity, after the first year high implementing schools have 31.6% fewer referrals, after the second year 41.6% fewer referrals, and after the third year 26.0% fewer referrals (Childs et al., 2009).

Out of School Suspension (OSS). In the study by Bradshaw et al. (2010) the experimental schools had a statistically significant reduction in their rates of OSS. New Hampshire schools saw an average of 19% decrease across 28 schools (Muscott et al., 2007). An urban middle school experienced a decrease every year across the three years of implementation studied; using an ANOVA at $p < .01$ the decreases were statistically significant (Lassen et al., 2006). In Florida, between baseline and year one of implementation there was an average increase of 2% per 100 students (Childs et al., 2009). When this data was broken down by school type elementary schools had a 24% decrease, middle schools had an 8% increase and high schools had a 4% decrease (Childs et al., 2009). When making a comparison between high and low implementing schools, the higher implementing schools had a 33.8% fewer referrals after year one of implementation, 21.1% fewer after year two of implementation, and 34.3% fewer after year three of implementation (Childs et al., 2009).

Fidelity of Implementation.

School-Wide Evaluation Tool (SET). There are two measures that are often used to measure fidelity of implementation of SWPBS (Lewis et al., 2010), which are the School-Wide Evaluation Tool (SET) (Sugai et al., 2001) and the Benchmarks of Quality (BoQ) (Kincaid et al., 2010). The SET requires an individual to go out to the school to interview the administration, faculty and students about their PBS process regarding 28 items across seven subscales (Horner et al., 2004). The SET takes approximately 1-2 hours to administer per a school (Horner et al., 2004). Each item is scored on a scale on a 0,1, or 2 points; each subscale can be scored based on a percentage with the goal of 80% on the subscale of teaching expectations and an overall total score of 80%, which indicates fidelity of implementation (Horner et al., 2004).

Using the SET, Bohanon et al. (2006) found in their case study of a high school after one year of inquiry, one year of baseline data collection, and after the first year of implementation the school was able to get an overall score of 80% on the SET, however, they did not reach the 80% mark on the teaching of the expectations. In Maryland, in their four regions the average post SET scores after implementation ranged from 76%-86% (Barrett et al., 2008). In Iowa, it was found in the first three cohorts of schools the SET scores were 80% after one to two years of implementation (Mass-Galloway et al., 2008). In a randomized control trial the treatment schools had a greater effect size over the control schools (Cohen's $d=1.78$) and there was a statistically significant increase for the treatment schools from baseline to post-implementation ($p<.001$) (Horner et al., 2009). In another randomized control trial 14 of the 21 elementary schools who received SWPBS training were able to reach overall 80% after the first year of implementation and all schools increased their scores on the SET during the next 3 consecutive years

(Bradshaw et al., 2008b). It was found that the subscales with the largest effect size were teaching behavioral expectations, management and defining behavioral expectations (Bradshaw et al., 2010).

Benchmarks of Quality (BoQ). The second tool commonly used to measure the fidelity of implementation of SWPBS is the Benchmarks of Quality (BoQ). Unlike the SET, the BoQ is a self-rating completed at the completion of the school year either by the coach for the school or by the entire team (Cohen et al., 2007). The BoQ has a total of 53 benchmarks that cover the 10 critical elements with a possible score of 107 points (Kincaid et al., 2010). The range of points for each benchmark are 0-3 points; the highest points that can be earned is for the critical element reward/recognition program established (16 points) and a low for the elements of PBS team and faculty commitment (6 points for each) (Kincaid et al., 2010). The BoQ measures the areas of faculty buy-in, lesson plans for teaching expectations and rules, evaluation and classroom systems that are not included on the SET (Cohen et al., 2007). The validation study indicated that a score of 70% or higher is considered fidelity of implementation (Cohen et al., 2007).

In the validation study of the BoQ Cohen et al. (2007) found that the mean score for the BoQ was 69%. This study also found that schools that scored greater than 70% of the BoQ had a lower rate of ODRs per 100 than schools who scored less than 70% from baseline to year 1 of implementation and baseline to year 2 of implementation. Further case studies found that during the 2004-2005 school year 54% of the schools scored 70% or higher with a mean score of 66% (n=79) but by the 2006-2007 (n= 219) school year 65% scored 70% or higher with a mean school of 75% (Childs et al., 2009; Florida's

Positive Behavior Support Project, 2009). By the 2008-2009 school year the mean score was 76% (n=365) (Florida's Positive Behavior Support Project, 2009).

Summary of SWPBS.

SWPBS has as of yet to be identified as an evidence-based practice, yet it meets some of the criteria to be an EBP thus why it may be considered an emerging practice. For a school to be considered implementing SWPBS, the school must be implementing the ten critical elements identified and every element should be present on the school's action plan. These are the elements that will be judged for fidelity either using the SET of the BoQ. It is important for SWPBS to be implemented with fidelity to ensure the integrity (Arthur & Blitz, 2000; Bauman, et al., 1991; Fixsen et al., 2005; Graczyk et al., 2006) which may impact the student outcomes a school is experiencing (Childs et al., 2009). The ultimate goal is see positive student outcomes because research has indicated that when students are excluded from schools via OSS there is an association with negative outcomes of dropping out of school, lower grades and academic achievement, and retention (McIntosh et al., 2010; Skiba & Peterson, 2003). Currently no research is available showing that OSS leads to improved behavior or overall school safety (Skiba & Peterson, 2003). Instead by reducing rates of ODR, OSS, and ISS instructional time can be regained allowing time for effective academic instruction (Lassen et al., 2006; McIntosh et al., 2010), which is the overall goal of education.

CHAPTER 3: METHOD

Research Design

In this study the quantitative methods of structural equation modeling (SEM) specifically a path analysis of manifest variables were used consisting of a unidirectional model (Hatcher, 1994). By using the SEM path analysis it guided the research to help determine if there is a relationship between the action plans and student outcomes. As research has already shown that schools with greater fidelity have better student outcomes (Childs et al., 2009; Cohen, Kincaid & Childs, 2007; Florida's Positive Behavior Support Project, 2009), the question remained if there were mediating variables that influence how schools reached fidelity. To study this, the school's action plans were scored using a rubric to determine the quality of their plans. The schools baseline data of fidelity of implementation via the Benchmarks of Quality, and student outcomes (ODR, ISS, and OSS) were used. As the study used data that were already collected by a grant funded project and was used as a secondary analysis of data extraneous variables were not necessarily controlled for and is one of the limitations of this study.

Population and Sample

Between the school years of 2001-2010, Florida's Positive Behavior Support Project conducted SWPBS trainings for approximately 1149 schools across 52 school districts. These school districts ranged from small and rural (e.g. Jackson County and Monroe County), to very large and urban (e.g. Miami-Dade County). Within these 52 school districts, schools varied from rural to suburban to urban with school sizes that

ranged from small to very large (e.g. over 4000 students). Also, schools represented the range of elementary, middle, high, alternative/center, and other (e.g. K-8, 6-12). There were 522 potential schools across the spectrum of the districts and the spectrum of schools within the state of Florida (e.g. small, rural elementary; large, suburban, high; small, urban, center). These potential schools were ones that completed their initial SWPBS training during the timeframe of May 2009-October 2010, submitted their action plans for their first year of implementation, and submitted both baseline and first year of outcome data.

For this study, schools were included if there was a completed action plan available for their first year of implementation; these action plans were completed during the schools' initial training of SWPBS. All schools were included in the study whether or not they had a complete set of data for student outcomes (e.g. total number of ODR, total number of days of OSS, total number of days of ISS) or if they had a completed BoQ for baseline data and first year of implementation. By including schools that did not have a complete set of data a larger sample size was available and allowed for exploration of a greater range of variability in the quality of action plans to determine any potential mediating and moderating variables. Consultation with measurement experts determined the best statistical analysis to be used in addition to descriptive statistics on the scores of the action plans. The potential sample size was approximately 522 schools.

Even though schools had been trained on SWPBS in the state of Florida since 2001, the Benchmarks of Quality was not developed as a tool to measure fidelity of implementation until 2005 (Kincaid et al., 2005) and not validated until 2007 (Cohen et al., 2007). It was not until schools were trained beginning in May 2009 that the schools

completed a baseline BoQ; therefore, this is why the study focused only on schools trained from May 2009-October 2010. There are times when the same school has had a team go through the initial training more than once due to various reasons that resulted in a lack of implementation following their first training. To prevent duplication, schools that had received training more than once were only included the first time they received training.

There could possibly be the concern of nesting or “violating the assumption of independence of error” (Kutash, Banks, Duchnowski & Lynn, 2007, p. 162) since some of the dependent variables were based on individual student data. The concern was that student outcomes could be related to a variety of factors, outside of or in addition to SWPBS, in classrooms and schools causing the student scores within either the classroom or school to be related (Kutash et al., 2007). In a study by Kutash et al. (2007) the researchers wanted to determine if this violation of “independence of error” is true for emotional/behavioral functioning measures as it is for academic functioning. The sample focused on students who have an emotional disturbance (ED) receiving school-based mental health services. The sample size consisted of 314 students across 24 schools in rural, urban and suburban communities within Midwestern, Northeastern, and Southeastern communities in the United States. The schools selected to participate were participating in one of two school reforms in special education, the School and Community Study or the Urban School and Community Study. The results of the study indicated that nesting should not be an issue for measures of psychosocial emotional functioning as it is for academic achievement (Kutash et al., 2007).

Variables

A path analysis was used in this study and there was one antecedent variable, the BoQ scores. According to Hatcher (1994) the antecedent variables are the independent variables. The consequent variables or the dependent variables (Hatcher, 1994) were the percent of change in the total number of days of OSS per student, the percent of change in the total number of days of ISS per student, and the percent of change was number of ODR referrals per student. All three of the dependent variables were pre and post measured after the first year of implementation using rate per student. See Figures B1-B3 in Appendix B for the path analysis that was used to guide this study. Based on the research reviewed the three measures of ODRs, days of ISS, and days of OSS are always reported as separate measures and are not typically combined to become one single measure (e.g. Bohanon et al., 2006; Childs et al., 2009; Mass-Galloway, 2008; Muscott et al., 2007). Due to this, the same SEM model was run three separate times one for each of the three different measures.

Instruments/Measures

The first instrument used was the action plan developed by the schools. Each action plan asked for the school to identify steps that need to be taken to address ten critical elements: 1) PBS team, 2) faculty commitment; 3) effective procedures for dealing with discipline; 4) data entry and analysis plan established; 5) expectations and rules developed; 6) reward/recognition program established; 7) lesson plans for teaching expectations/rules; 8) implementation plan; 9) crisis plan; and 10) evaluation. These are the critical elements that a school must implement to be considered as implementing with

fidelity (Lewis & Sugai, 1999). For each individual item, schools should have had a minimum of one action step to be taken. In addition to identifying the action steps, the school should also have identified who was going to be responsible for the item, when it would be started and when it would be completed.

The second measure that was used was an action plan scoring guide to determine the quality of the Action Plan. As there was not a current scoring rubric for the Action Plans one was developed for this study, thus, it was not a research validated tool. First, it was sent to be reviewed by experts with experience on developing scoring rubrics and experts in the field of PBS to determine its content validity. Once expert feedback had been received then a pilot study was conducted. A random sample of 20 action plans were collected that were developed prior to or after the time period of May 2009-October 2010. The rationale for using action plans prior to or after the period of time identified for the study was to ensure that the sample size of the study would not be compromised. The action plans collected as part of the pilot study allowed for final development of the scoring rubric after revisions were made from the expert feedback. Once the scoring rubric had been finalized, the action plans used for the piloting process were used for reliability measures (i.e. interrater and test-retest).

The third measure used was the total number of Office Discipline Referrals (ODR) per school for the first year of implementation. The measure of rate per student was utilized instead of a total number of ODRs for the entire student population. This allowed the study to account for differences in student populations across schools and between school years; this allowed for the study to ensure like units were compared. For example, it is not uncommon for a school to increase its student population by several

hundred students from year to year as communities within the school attendance area have grown or when a school attendance zone has changed. There could also be a significant decrease in student populations because of changes in zoning. This also allowed for inclusion of schools with populations of less than 100 students which is typical of alternative or specialized center schools, and sometimes charter schools. This study looked at the percent of change between the baseline and first year of implementation.

The fourth and fifth measures used were the total number of incidents of Out-of-School Suspension (OSS) and In-School-Suspension (ISS) for the school for the first year of implementation. As previously mentioned, the unit of measure was rate per student instead of for the total student population. Again, this accounted for differences in student populations between the schools and from school year to year within the same school. This study looked at the percent of change between the baseline and first year of implementation.

The sixth measure used was the Benchmarks of Quality (BoQ) to measure the fidelity of implementation. This tool has ten sections of: 1) PBS team, 2) Faculty Commitment, 3) Effective Procedures for Dealing with Discipline, 4) Data Entry & Analysis Plan Established, 5) Expectations & Rules Developed, 6) Reward/Recognition Program Established, 7) Lesson Plans for Teaching Expectations & Rules, 8) Implementation Plan, 9) Classroom Systems, and 10) Evaluation. These ten elements match the ten elements on the action plan. The sections ranged from a low of three questions to a high of eight questions. The questions ranged from a possible 0 points to 3 points; the total number of points for each section range from 0-16. Overall, a school can

score up to 107 points on the Benchmarks of Quality. The schools trained during the 2009 used an earlier version of the BoQ which also included piloting the classroom element; it also had an additional 4 items that were not on the 2010 version. So that like schools could be compared between the baseline and first year of implementation for the schools trained in 2009 and to the schools trained in 2010, the older versions were transferred onto the 2010 so all BoQ scores were out of 107 possible points. If a school scored 70% or higher on the Benchmarks of Quality they were considered to be implementing with fidelity (Cohen et al., 2007). Consultation with measurement experts determined that for the BoQ it would be better to use difference in total points from baseline to first year of implementation to best describe change over time. The tool itself had an internal consistency of .96, test-retest reliability of .94 and a concurrent validity of .51 (Cohen et al., 2007). The other option for measuring fidelity is the SET (Sugai et al., 2001). Even though the SET is also a validated tool, the benefit of using the BoQ is that it is more sensitive to change than the SET and also includes all ten of the critical elements, whereas the SET does not.

Data Collection Procedures

The action plans were completed by the schools during the school years of 2009-2010. The PBS project staff were asked to review their files to locate any completed Action Plans they may have that were developed May 2009- October 2010. For any schools that went through the training but action plans were not available, the districts were asked if they had any copies of the action plans they would be willing to provide for this study.

All of the student outcome data and fidelity of implementation data were already available through the FLPBS project which were collected annually. During the first few years, data were collected by the project via hard copies and entered into the project's database, with the last few years being entered by the school's coach into the online database system, PBSES (PBS Evaluation System).

Research Questions

1. What characteristics of a school's action plan can be identified as indicators of SWPBS implementation fidelity?

In order to answer this question, a review of the literature was conducted to identify the necessary components for quality action plans. Based on this information, a scoring guide was developed. This scoring guide helped to determine the characteristics of what makes a good quality action plan. A total score was provided for each action plan using a continuous variable to measure the quality of the action plan. As there was not a current scoring guide, one was developed for this study. Once it was developed, it was reviewed by experts in the field of PBS and/or scoring rubrics to determine its content validity. When the scoring guide had been determined to have content validity, it was measured for reliability via inter-rater reliability and test-retest reliability. This scoring guide helped to provide a tool that is currently missing in the field.

2. To what extent do the quality of a school's Action Plan (i.e. along a continuum of high quality to low quality) act as a mediating factor between the fidelity of implementation measured by the Benchmarks of Quality (BoQ) and student outcomes as defined by (a) number of office discipline referrals

(ODR), (b) number of days of in school-suspension (ISS), (c) out-of-school suspensions (OSS)?

In this study the quantitative methods of structural equation modeling (SEM) specifically a path analysis of manifest variables was used consisting of a unidirectional model. This determined if there was a correlational relationship between the action plans as a mediating variable between the level of fidelity of implementation and student outcomes. This study was guided by an exploratory path analysis (Figures B1-B3) that had been developed based on the research literature. If the data indicated that this was a plausible model explaining how action plans have an impact on the link between the Benchmarks of Quality and student outcomes, then a path coefficient was determined to identify the strength of the effect on the dependent variables.

CHAPTER IV RESULTS

Findings

This chapter presents the results investigating the two research questions put forth in Chapter 3. It will address the first question by providing a thorough examination of the development of a scoring rubric to assist in the identification of quality action plans developed by schools as part of the implementation of a systems change initiative. This section will not only describe the process used for its development but will also include the descriptive statistics obtained from the sample for this study. Additionally, the second question will be answered by identifying whether or not the exploratory path derived from the literature is a good fit by reviewing the fit indices and providing the results of the path analysis.

Question 1: What characteristics of a school's action plan can be identified as indicators of SWPBS implementation fidelity?

Establishment of the Sample

During the time frame of May 2009-October 2010, there were approximately 580 schools that received training on Tier 1 School-Wide Positive Behavior Support (SW-PBS) through Florida's Positive Behavior Support Project. Of the 580 schools, 54 (9.3%) schools were being re-trained (going through the training for a second time). Of the 54 schools retrained, three schools went through both their initial training and their retraining during the time period of the study, May 2009-October 2010. For these schools, their data were only included in relation to their initial training. There were

seven schools that completed training immediately prior to the opening of their schools, so that their first year of implementation coincided with the first year the school was open. As a result, no data were available for their baseline year and these schools were excluded from the study.

At the training, every school begins the development of an action plan to assist with implementation following the training. Even though there were approximately 522 schools trained during this timeframe that met inclusion criteria for the study, there were only 156 (29.9 %) action plans spread across 22 different school districts that were collected by the project. An additional 20 plans were collected but could not be included in the study because they were either from a school that was being retrained or the action plan was not the one originally completed at the training.

Table 1 provides a comparison of demographic data regarding the schools in the sample population (i.e. those that submitted an action plan) in relation to the schools in the total population (all schools that attended training during May 2009 - October 2010). The demographic data included the size of the school district (i.e. small, medium or large), the school type (i.e. elementary, middle, high, other, alternative/specialized center), and student population (0-500, 501-1000, 10001-1500, 1501-2500, 2501+). The table includes both the raw number and the percentage for both the sample and the total population. The largest discrepancy between the sample and the total population of schools was the percent of schools in small districts. Specifically, there were 27.3% of schools in small districts in the sample population versus 39.1% in the total population of schools.

Table 1

Total Population vs. Sample Population of Schools with an Action Plan

Districts	% Sample (N=22)	% Trained (N=46)
Large (100+)	13.6% (3)	8.7% (4)
Medium (21-99)	59.1% (13)	52.2% (24)
Small (>20)	27.3% (6)	39.1% (18)
School Type	% Sample (N=156)	% Trained (N=522)
Elementary	66.5% (103)	56.9% (297)
Middle	11.6% (18)	16.3% (85)
High	11.6% (19)	15.7% (82)
Other (K-8, K-12, 6-12, Early Childhood)	3.2% (5)	5.6% (29)
Alternative/Specialized Center	8.4% (13)	5.6% (29)
Student Population	% Sample (N=156)	% Trained (N=522)
0-500	19.4% (30)	22.8% (119)
501-1000	62.6% (97)	54.4 % (284)
1001-1500	9.0% (15)	12.3% (64)
1501-2500	9.0% (14)	9.3% (49)
2501+	0% (0)	1.1% (6)

Florida’s PBS Project requests baseline data for student population, the total number of office discipline referrals, days of In-School Suspension (ISS), and days of Out-of-School Suspension (OSS) from every school that attends the SWPBS training. Additionally, the Benchmarks of Quality (BoQ) (Kincaid, Childs, & George, 2010), a fidelity measure, is completed during the training (to identify a baseline measure of implementation) and every year thereafter. For this portion of the study, the BoQ measures are used to assist with the identification of schools that are implementing with a higher degree of fidelity compared to those with a lower degree of fidelity. Out of the potential sample of 522 schools, 449 (86.0%) schools completed and submitted their baseline BoQ. For their first year of implementation, there were 461 (88.3%) schools with BoQ scores. Out of the sample size of 156 schools, 148 (94.9%) schools completed the BoQ for their first year of implementation.

Development of the Action Plan Scoring Rubric

Research articles from the fields of business and educational systems change were reviewed to identify the critical items for action plans. According to the literature, there are nine key features that should be included on well-developed action plans regardless of the field in which the plan will be utilized (i.e. school-based or business based). First, the action plan should include a long-term vision or goal to ensure that the action plan is developed to assist in meeting the goal (Bates & Dillard, 1991; Bryson, 1995; Monica, 2004). Second, the action plan should be developed by a team of key stakeholders with broad representation of the organization (i.e. school) and who are involved with the implementation of the initiative (Anderson & Kincaid, 2005; Earl, Lampe, Buksin, 2006; George et al., 2009; Herman, 1990; Lewis & Sugai, 1999; Steinbacher & Smith, 2009; Tompkins, 2007; Turnbull & Turnbull, 1996; Wood, 2006). Third, each team member should assume a role or responsibility on the team (i.e. team leaders, behavior expert, recorder, etc) (Florida's Positive Behavior Support Project, 2010; George et al., 2009).

Turning towards more content-focused characteristics, the fourth key feature action plans should address is the inclusion of all of the critical elements that define an initiative (Epstein, 2005; Giangreco, Edelman, & Broer, 2003; Steinbacher & Smith, 2009; Wood, 2006). Fifth, these critical elements need to be task-analyzed into action steps that need to be completed in order to ensure the element is implemented (Barnes, 1995; Dribidu, Jonch-Clasen, & Ipsen, 1996; Earl et al., 2006; Frese et al., 2007; Herman, 1990; Steinbacher & Smith, 2009; Tompkins, 2007; Van Korff et al., 1997; Wood, 2006). Sixth, for each action plan item there must be a person who takes responsibility for the item. Seventh, there needs to be dates associated with the completion of the task (Barnes, 1995; Bryson, 1995; Gee, 2008; Herman, 1990; Turnbull & Turnbull, 1996; Wood,

2006). Eighth, dates should be spaced across the stages of implementation over time (Rosenhek, 2008; Wood, 2006). And finally, the ninth key feature of action plans is a plan for evaluating the completed action steps (Bryson, 1995; Herman, 1990; Tompkins, 2007; Wood, 2006).

The results of the review of the research literature were used to guide the development of a scoring rubric that could be used with any school-based initiative. Seven of the nine suggested items were included on the rubric. The two items that were not included were: 1) dates across implementation stages and time and 2) evaluation measures for completed action steps. These two items were not included as it was determined that they would not be found in action plans that were developed for *initial* implementation of an initiative, such as those utilized for this study. Additionally, many school-based initiatives include an evaluation component, and so evaluation would be assessed by indicators four and five in this study's rubric (e.g., all critical elements of the initiative are addressed and task-analyzed).

After its initial development, the action plan scoring rubric was given to four individuals who have had experience in either school-based systems change, Positive Behavior Support, development of action plans and/or development of scoring rubrics. This initial feedback was solicited for readability and to determine if there were obvious errors prior to submission to content experts for validity. Based on the feedback received, minor revisions were made to the scoring rubric. The research literature specifies that action plans must address the critical elements, persons responsible and identify dates of completion (i.e. indicators #5, #6, #8, and #9). However, the research literature does not indicate how to measure these items. As a result, two of the individuals suggested that the

sample population's action plans be utilized in developing the criteria for each point value for these indicators. Therefore, each of the sample population action plans were reviewed to identify the percent of the critical elements addressed (indicator #5), the percent of critical elements indicated already in place (indicator #6 which was removed), the percent of tasks for which each team member was responsible (indicator #9) and the percent of completion dates identified (indicator #10). For each of these indicators the mean, standard deviation and half standard deviations were identified. Based on the results, it was determined that half a standard deviation would be a more appropriate measure to use rather than one full standard deviation to describe variance from the mean. The mean was used for the percents in items #5 and #9 for a score of one point, half a standard deviation above the mean was used for two points, and half a standard deviation below the mean was used for no points. For item #8 the mean was still used for one point, but half a standard deviation below was used for two points and one standard deviation above the mean was used for no points.

As a result of this analysis it was determined from the sample used that the item originally numbered 6 did not have data to support its inclusion in the scoring guide. The item was meant to address the implementation of all critical elements of the specific initiative. The rationale was that if a school already had some of the elements of the initiative in place it should be reflected on the action plan. The indicator stated, "The action plan addressed all the critical elements". For a score of 2, the action plan would have had to demonstrate "For critical elements not addressed, there is indication that they are already in place". For the score of a 1, the school would have to demonstrate that "for critical elements not addressed, there is some indication that they are already in place. At

least X% or greater have indication that the element is already in place.” Only four schools (2.5%) indicated that they did not include an element because it was currently in place on the action plan whereas 35 schools (22%) addressed all ten of the critical elements on their action plans. There were 121 action plans (76%) that had no indication of why a critical element was not addressed. Therefore, the indicator was removed from the scoring rubric since data did not support the inclusion of this indicator on the action plan scoring rubric.

Table 2 provides a summary of the descriptive statistics (i.e. mean, median, mode and standard deviation) for indicators five, nine and ten. The rows provide the descriptive statistics for the indicators #5, #9, and #10 listed in the columns. As previously indicated the original item number six has been removed for the final scoring guide. Appendix C contains a table that displays the specific indicators per sample population.

Table 2

Data-Based Item Analysis for Action Plan Items Five, Nine, and Ten

ID Number	5	9	10
Mean	65.51	29.89	61.36
Median	70	42.2	79.85
Mode	100	50	100
Standard deviation	28.28	23.97	39.62
1/2 standard deviation	14.14	11.98	19.81

Content Validity. While these data were being analyzed, the action plan scoring rubric that included an explanation of the percentages for items five, nine, and ten was provided to two experts for assessing content validity. The first expert was selected based upon her experience in the development of scoring rubrics. She made two suggestions.

The second expert was selected based upon her years of experience of training and providing technical assistance to schools with the implementation of Positive Behavior Support. She made four suggestions.

The first suggestion included the need to clarify the wording on item number one to ensure there was a clear distinction between the 1 and 0 point values. This change was made. Both experts wanted to ensure the literature supports development of item number three; the literature lacks empirical data to support number three but the theory supports the item. The second expert also questioned whether the literature made a distinction in teaming size between elementary and secondary schools. The research did not indicate a difference. The third suggestion included adding a linkage of item number four to the school's School Improvement Plan (SIP). There was no research indicating this was a critical component for successful implementation across any of the implementation stages (i.e. readiness, implementations) of an initiative or for the development of an action plan. However, the literature did indicate that the selection of professional development should support the School Improvement Plan (Hirsh, 2004). The last comment made by the seconded reviewer related to item number five. The reviewer was concerned that a school might not be able to receive high points if at the time of the action plan development they had only received partial training of the initiative (i.e. the training was categorized by multiple sessions and only covered a few elements during each training). The literature was very explicit that for any initiative the critical elements needed to be identified upfront and all of the elements need to be implemented (Epstein, 2005; Giangreco, Edelman, & Broer, 2003; Steinbacher & Smith, 2009; Wood, 2006). Neither expert suggested the addition or deletion of any indicators.

Piloting the Scoring Rubric. Based upon the recommendations from the content experts, two of the individuals who gave feedback on the first draft agreed to pilot test the scoring rubric. Both reviewers had a background in school-based systems change, Positive Behavior Support, development of action plans and development of scoring rubrics. Twenty action plans that had been submitted but did not fit the time frame requirements of the current study were used for both piloting the scoring rubric and determining reliability. The rationale for using action plans prior to or after the period of time identified for the study was to ensure that the sample size of the study would not be compromised. Both reviewers were given the directions to use the scoring rubric with the action plans provided noting any difficulties they had using the scoring rubric and identification of any changes needed to the rubric after using it with the sample action plans.

Based on the feedback provided from the pilot, a few changes were made to the scoring rubric. First, a cover sheet with directions was added that 1) identifies the critical elements of the initiative as a reference to assist with scoring item #5, 2) provides a rationale for the need for the scoring rubric, and 3) provides the scorer some flexibility with items number #7 and #8 to allow for full points if only one or two action steps are missing such as an assigned person or a completion date. There was some minor rewording to item #8 and the addition of the phrase “cannot be determined” to items # 1, #2, #3, and #5. One scorer’s was concerned that for item #9 smaller schools may be penalized due to the fact that there may not be more supports available to them. However, as the percentages were based on the data submitted this item remained as it was originally written. The final scoring guide consisted of 9 indicators with a point value

range of 0-2 on each indicator for an overall possible point value of 18. A final copy of the action plan scoring rubric can be found in Appendix D.

Inter-rater Reliability. The same action plans that were utilized for the pilot testing were then used to determine inter-rater agreement. One of the individuals who piloted the scoring rubric also assisted with determining the inter-rater agreement. This individual scored 19 out of the 20 action plans provided. Inter-rater reliability was calculated based on the number of agreements for each indicator divided by the total number of indicators (i.e. $8/9 = 88.89\%$). The inter-rater reliability ranged from 66.67% to 100% with an overall average of 88.89%. In Table 3, the rows indicate the identification number of the action plan and the column provides the inter-rater reliability measure.

Table 3

Inter-rater Reliability Scores

Action Plan	Reliability (%)
1	88.89
2	100
3	88.89
4	77.78
5	77.78
6	100
7	100
8	100
9	88.89
10	77.78
11	88.89
12	100
13	77.78
14	77.78
15	100
16	100
17	66.67
18	77.78
19	100
20	*
Average	88.89

* Only completed 19 of the action plans

Test Re-test Reliability. Two weeks later the researcher re-scored the same action plans used for the inter-rater reliability to conduct test re-test reliability; test re-test was conducted to ensure consistency of scores over time. These reliability scores ranged from 66.67% to 100% with an overall average of 91.1%. Table 4 provides a breakdown for the reliability scores for the 20 action plans and includes the overall average. The column provides the percent of the scores and the rows provide the identification number of the action plan.

Table 4

Test Re-Test Reliability Scores

Action Plan	Reliability (%)
1	100
2	88.89
3	88.89
4	88.89
5	88.89
6	88.89
7	88.89
8	100
9	88.89
10	77.78
11	88.89
12	100
13	100
14	100
15	100
16	77.78
17	100
18	88.89
19	66.7
20	100
Mean	91.11

Descriptive Statistics of the Action Plan Scoring Rubric.

Benchmarks of Quality. For the schools that submitted action plans, there were BoQ scores for both baseline and year one implementation for 123 (78.8%) schools. The range of scores for the baseline year was between 3 – 83, and for the first year of implementation was between 11 - 107. The overall average score for the baseline BoQ was 32.1 (*SD* = 17.1) and for the first year of implementation was 73.3 (*SD* = 25.3). Overall, there were 113 schools that had an increase on their scores between their baseline and first year of implementation, 9 schools with a decrease, and one school’s score remained constant. Overall, there was an average of a 41 point increase (*SD* = 30)

across the 122 schools. Schools with a score of 70 or higher are considered to have a higher degree of fidelity of implementation (Cohen et al., 2007). There were two schools (1.6%) that were already above the 70% level on their baseline BoQ. At the end of the first year of implementation, there were 68 (44%) schools with a score of 70% or higher on the BoQ.

Figure 1 provides a visual depiction of the BoQ scores for both baseline and year 1 implementation, demonstrating that the BoQ scores generally increased from baseline to year 1 implementation. Only schools that had data for both years are included on the scatter plot. A complete breakdown of the BoQ scores for baseline, year 1 of implementation and point change can be found in Table E1 in Appendix E.

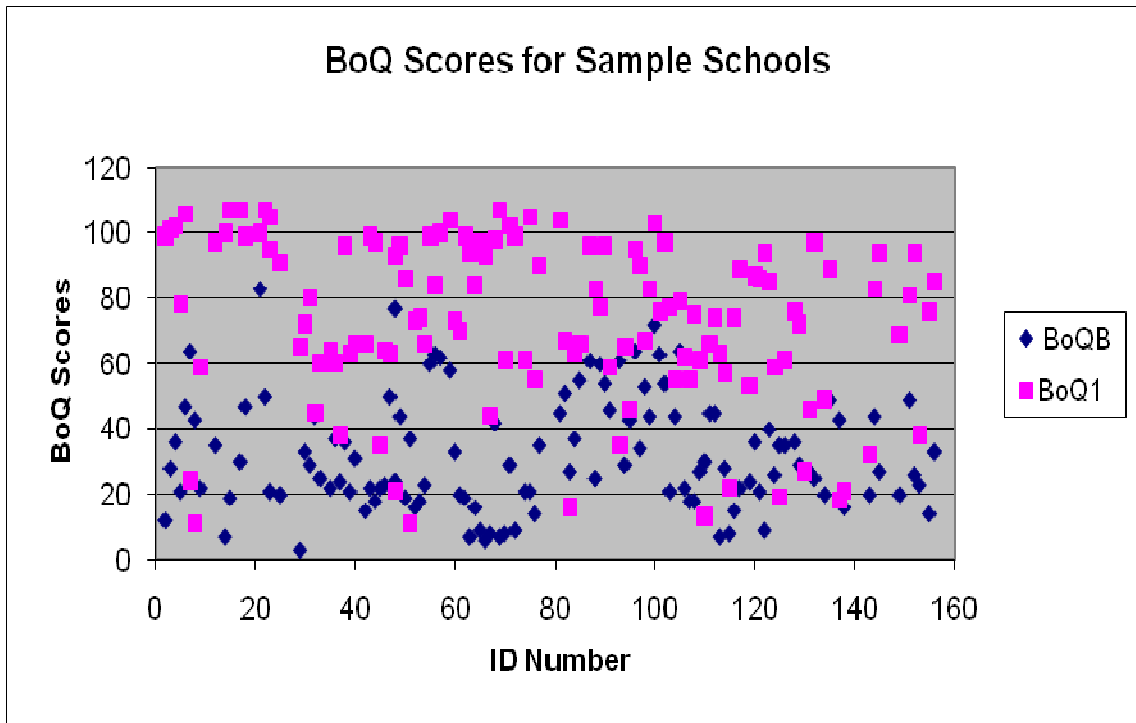


Figure 1 Scatter plot of BoQ Scores for Baseline and Year 1 Implementation. This scatter plot shows the BoQ scores for all available schools for their baseline year and for their first year of implementation.

Action Plan Scoring Rubric. Across the 156 schools, the lowest score on the action plan scoring rubric was two points (i.e. 11% of the total possible points); the highest score was 17 points (i.e. 94% of the total possible points). Figure 2 depicts the distribution of the scores for the Action Plan Scoring Rubric and breaks the scores down by degree of implementation level (i.e. higher degree of implementation fidelity [BoQ 70+] versus lower degree of implementation fidelity[BoQ 69 and lower]). The average rubric score across the schools was 8 points (44%, $SD = 3.4$). Table 5 provides a breakdown of the scores (i.e. mean and standard deviation) for each of the individual indicators and also the total score across all 156 schools. The columns in the table represent each indicator and the rows provide the descriptive statistics. A complete breakdown of the point values per each indicator for each school, and the total values for each school can be found in Table F1 in Appendix F.

There were four indicators whose average was below one (#1, #2, #3, and #4) and five indicators whose average were above one (#5, #7, #8, #9, and #10). The highest scoring indicators were seven and eight, both with an average of 1.3. Indicator seven addresses the need for each action step to be broken down into multiple tasks; indicator eight addresses the need for each action step item to be assigned to a person for its completion. The lowest scoring item was indicator four with an average of 0.4; this indicator addressed the need for the teams to have a mission statement or goal that is observable and measureable.

Table 5

Summary of Descriptive Statistics for Action Plan Scores

	1	2	3	4	5	7	8	9	10	total
Mean	0.65	0.64	0.63	0.44	1.08	1.35	1.35	1.13	1.03	8.28
Standard Deviation	0.81	0.89	0.73	0.65	0.89	0.76	0.71	0.71	0.89	3.40

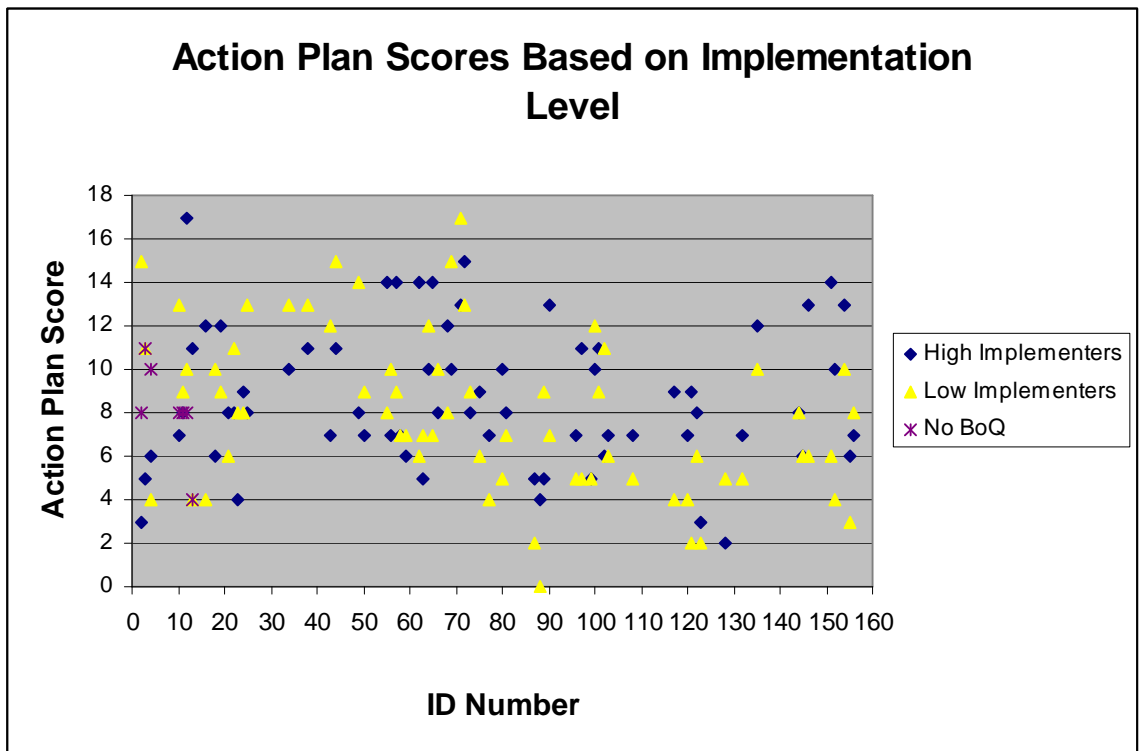


Figure 2 Scatter plot for Action Plan Scores. This scatter plot shows the range of scores on the action plan scoring rubric across all the schools in the sample population. It also highlights the schools by degree of fidelity of implementation (i.e. high degree of implementation vs. lower degree of implementation)

Descriptive Statistics for Action Plan Scoring Rubric Comparing High Implementers and Low Implementers. Across the 156 schools, there were 68 schools (44%) that were considered higher-implementing with SWPBS (their scores were 70% or higher on the BoQ at the end of their first year of implementation [Cohen et al., 2007]). There were 81

schools (52%) that scored between of 0%-69% after their first year of implementation and are identified as lower-implementing SWPBS schools. There were seven schools (4%) that could not be identified as either a low or high implementer of SWPBS due to the fact that they did not submit a BoQ at the end of their first year of implementation.

Descriptive Statistics for Action Plan Scoring Rubric for High Implementers. For the 81 higher-implementing SWPBS schools, the lowest rubric score was two points (i.e. 11% of the total possible points) and the highest rubric score was 17 points (i.e. 94% of the total possible points). Across these schools the average score was 8.7 points ($SD = 3.3$; i.e. 48% of the total possible points). Table 6 provides a breakdown of the scores (i.e. mean, standard deviation) for each of the individual indicators and also for the overall total score. The columns in the table represent each indicator and the rows provide the descriptive statistics.

There were four indicators whose average was below one (#1, #2, #3, and #4) and five indicators whose average were above one (#5, #7, #8, #9, and #10). The highest scoring indicators were seven (which had an average of 1.4 points) and eight (which had an average of 1.5 points). The lowest scoring indicator was four with an average of 0.5. The range of the average scores for the indicators was 0.5-1.5.

Descriptive Statistics for Action Plan Scoring Rubric for Low Implementers. For the 68 lower-implementing SWPBS schools, the lowest score on the action planning rubric was two points (i.e. 11% of the total possible points) and the highest score was 17 points (i.e. 94% of the total possible points). Across these schools the average score was 7.9 points (43.9% of the total possible points; $SD = 3.5$). Table 6 provides a breakdown of the scores (i.e. mean, standard deviation) for each of the individual indicators and also

for the overall total score. There were six indicators whose average was below one (#1, #2, #3, #4, #5 and #10) and three indicators whose average were above one (# 7, #8 and #9). The average point value for indicator seven was 1.25, for indicator eight was 1.08, and for indicator nine was 1.05. The lowest scoring item was indicator four with an average of 0.3. The range of the average scores for the indicator was 0.3-1.3.

Comparison of Descriptive Statistics for Action Plan Scoring Rubric between High and Low Implementers. There were some similarities and differences on the scores between the schools implementing with a higher degree of fidelity and those with a lower degree of fidelity. The overall range of the total scores was 2-17 across both sets of schools. However, the range of the average scores across the indicators differed between the two sets of schools. For schools with a lower fidelity of implementation of Tier 1 PBS, point values higher than one were obtained for indicators #7, #8, and #9 (i.e. 1.25, 1.08 and 1.05). For schools with a higher fidelity of implementation of Tier 1 PBS, point values higher than one were obtained for indicators #7, #8, and #9 (1.38, 1.47, and 1.13 respectively). For schools with a lower fidelity of implementation of Tier 1 PBS, point values lower than one were obtained for indicators #1, #2, #3, and #4 (i.e. 0.45, 0.4, 0.45 and 0.3 respectively). For the school with a higher fidelity of implementation of Tier 1 PBS, point values lower than one were obtained for indicators #1 #2, #3, and #4 (i.e. 0.68, 0.62, 0.71 and 0.47). There is a point value lower than one for indicators #5 and #10 (i.e. 0.85 and 0.58) for the lower fidelity of implementation of Tier 1 PBS. There is a point value greater than one for indicators #5 and #10 (1.09 and 1.19) for schools with a higher degree of fidelity of Tier 1 PBS implementation. There was a 0.9 point difference between the mean total scores of these two sets of schools ($SD = 0.2$).

A t-test was conducted using the SAS software version 9.1.3. Using a p value of .05, the difference between lower-implementing SWPBS schools and higher-implementing SWPBS schools was not statistically significant ($t = 1.59, p = 0.11$). So in spite of what appeared to be a distinction between groups based on the visual and descriptive analyses, the statistical test did not rise to the level necessary to determine significance. For these two groups, a $t = 1.96$ value is necessary for there to be statistical significance (Glass & Hopkins, 1996).

Table 6

Summary of Descriptive Statistics for Action Plan Scores by Implementation Level

High Implementers	1	2	3	4	5	7	8	9	10	Total
Average	0.68	0.62	0.71	0.47	1.09	1.38	1.47	1.13	1.19	8.74
SD	0.84	0.86	0.77	0.70	0.88	0.73	0.70	0.69	0.92	3.25
Low Implementers										
Average	0.45	0.4	0.45	0.3	0.85	1.25	1.08	1.05	0.58	7.85
SD	0.79	0.89	0.69	0.60	0.89	0.76	0.71	0.71	0.86	3.48

Summary

In order to answer the question of what characteristics of a school's action plan could be identified as indicators of Tier 1 PBS implementation fidelity, a rubric was developed to evaluate schools' action plans. Since no validated scoring rubric currently existed, the literature was reviewed to determine an action plan's necessary components, which were then used as indicators in the scoring rubric. Once the tool was developed, it went through a process of pilot testing along with content validity, inter-rater reliability and test re-test reliability. Once these parameters were established, the rubric was used to score the sample's action plans (156 schools). Descriptive statistics were identified for

the entire sample size, as well, as comparing these statistics between the groups of schools implementing with higher fidelity to those with a lower degree of fidelity. There were some similarities and differences between these two sets of schools. A t-test was conducted to determine if the differences between the means scores for the schools implementing Tier 1 PBS with lower fidelity and schools implementing Tier 1 PBS with higher fidelity were statistically significant. No statistically significant differences were found.

Questions 2: What extent does the quality of a school's Action Plan (i.e. along a continuum of high quality to low quality) act as a mediating factor between the fidelity of implementation measured by the Benchmarks of Quality (BoQ) and student outcomes as defined by (a) number of office discipline referrals (ODR), (b) number of days of in school-suspension (ISS), (c) out-of-school suspensions (OSS)?

Establishment of the Sample

Out of the potential 522 schools, 372 schools (71.3% of the sample) submitted their baseline data for ODRs, 362 schools (69.3% of the sample) submitted baseline data for ISS days, 373 schools (71.3% of the sample) submitted baseline data for OSS days, and 449 schools (86.0% of the sample) submitted baseline data for BoQ scores. The project also requests from the schools on a yearly basis, the same outcome data again for longitudinal comparison. There were 443 schools (84.9%) that submitted their first year of implementation data for ODR, 439 schools (84.1%) for ISS days, 440 schools (84.3%) for OSS days, and 461 schools (88.3%) for BoQ for their first year of implementation. There were a total of 278 schools (53.3%) that had completed all data (i.e. ODR, ISS, OSS, and BoQ) for both their baseline and first year of implementation.

The rates of submission of ODR, days of ISS, days of OSS, and BoQ for the schools that submitted action plans was also compiled. Out of the potential 156 schools 118 schools (75.6%) submitted their baseline data for ODR, 112 schools (71.8%) for ISS, 117 schools (75%) for OSS and 129 schools (82.7%) for BoQ. For the sample population, the first year of implementation data were turned in for 149 schools (95.5 %) for ODR, 148 schools (94.9%) for ISS, 149 schools (95.5%) for OSS and 148 schools (94.9%) for BoQ. There were a total of 90 schools (57.7%) that had completed all data (i.e. ODR, ISS, OSS, and BoQ) for both their baseline and first year of implementation.

Because less than 100% of the sample submitted a complete set of baseline/year 1 data, other avenues were explored to see if the information could be collected. The first avenue explored was the Florida Department of Education's (FLDOE) website, specifically looking at the School Indicators Report (<http://www.fl DOE.org/eias/eiaspubs/0809fsir.asp>). Florida's Department of Education changed the template required by schools to develop their School Improvement Plans for the 2010-2011 school year to include discipline data, specifically the number of OSS and ISS days. For any school still missing these data, the school website and/or district website was searched to locate the School Improvement Plan (SIP). After reviewing the FLDOE data, SIP data and the data schools submitted to the FLPBS project, it became apparent that there were large discrepancies between these data sources. As a result only data submitted to the FLPBS project was used for consistency between the schools.

Table 7 provides a descriptive comparison between the schools in the sample population and the total population in relation to the outcome data submitted (i.e. ODR, ISS, OSS, and BoQ). The table provides the total number and percentages of each

population for each of the four measures for both baseline and year 1 implementation. It also indicates the schools that turned in data for all four measures for both years. The return rates of the data were higher in all measures and across all years for the sample population with the exception of the baseline measure of the BoQ. The smallest difference between the two populations was baseline year for the percent of schools that completed all four measures. The sample population return rate was 62.8% and the total population's return rate was 60.9%. The largest difference between populations was for OSS for year 1 implementation; the total population's return rates were 84.3% while the sample population's was 95.5%.

Table 7

Schools with Baseline Data & Year 1 Implementation Data

ODR		
Baseline % Trained (N=522)	Year 1 % Trained (N=522)	Baseline & Year 1 % Trained (N=522)
71.3% (372)	84.9% (443)	63.6% (332)
Baseline % Sample (N=156)	Year 1 % Sample (N=156)	Baseline & Year 1 % Sample (N=156)
75.6% (118)	95.5% (149)	70.5% (110)
ISS		
Baseline % Trained (N=522)	Year 1 % Trained (N=522)	Baseline & Year 1 % Trained (N=522)
69.3% (362)	84.1% (439)	62.1% (324)
Baseline % Sample (N=156)	Year 1 % Sample (N=156)	Baseline & Year 1 % Sample (N=156)
71.8% (112)	94.9% (148)	71.8% (112)
OSS		
Baseline % Trained (N=522)	Year 1 % Trained (N=522)	Baseline & Year 1 % Trained (N=522)
71.5% (373)	84.3% (440)	63.2% (330)
Baseline % Sample (N=156)	Year 1 % Sample (N=156)	Baseline & Year 1 % Sample (N=156)
75% (117)	95.5% (149)	71.8% (112)
BoQ		
Baseline % Trained (N=522)	Year 1 % Trained (N=522)	Baseline & Year 1 % Trained (N=522)
86.0% (449)	88.3% (461)	76.1% (397)
Baseline % Sample (N=156)	Year 1 % Sample (N=156)	Baseline & Year 1 % Sample (N=156)
82.7% (129)	94.9% (148)	78.8% (123)
ALL (ODR, ISS, OSS, BoQ)		
Baseline % Trained (N=522)	Year 1 % Trained (N=522)	Baseline & Year 1 % Trained (N=522)
60.9% (318)	83.0% (433)	53.3% (278)
Baseline % Sample (N=156)	Year 1 % Sample (N=156)	Baseline & Year 1 % Sample (N=156)
62.8% (98)	91.0% (142)	57.7% (90)

In order to make accurate comparisons across schools, the rate per student was calculated. Originally, the raw data provided for the three measures of ODR, ISS and

OSS were used in the measures of total number or rates per 100 students. Since some of the sample schools are alternative or center schools that may not have a student population of 100 students, the measure of rate per student was utilized instead. This rate was calculated by dividing the total numbers of ODR, ISS, and OSS by each school's student enrollment to determine rate per student.

Sample Schools' Rates of ODR per Student. The ODR range of scores for the baseline year were between 0 - 32.3, and for the first year of implementation were between 0.02 - 54.1. The overall baseline rate of ODR per student was 1.3 ($SD = 3.7$) and for the first year of implementation was 1.4 ($SD = 5.4$). Overall there were 67 schools that had a decrease in rates of ODRs per student, whereas 43 schools had an increase between baseline and first year of implementation. Overall, there was an average of a 3.8% increase across rates of ODR per student across 110 schools ($SD = 67.3$). Figure 3 provides a visual depiction of the range of ODR rates per student for both the baseline and first year of implementation via a scatter plot. A breakdown of each individual school's rate of ODR per student for both baseline and year 1 implementation for 110 schools can be found in Table G1 in Appendix G. For a breakdown of the percent change rate of ODR per student between baseline and year 1 implementation for the 110 schools can also be found in Table G1 in Appendix G. The columns identify the rates of ODR per student and the rows identify the schools.

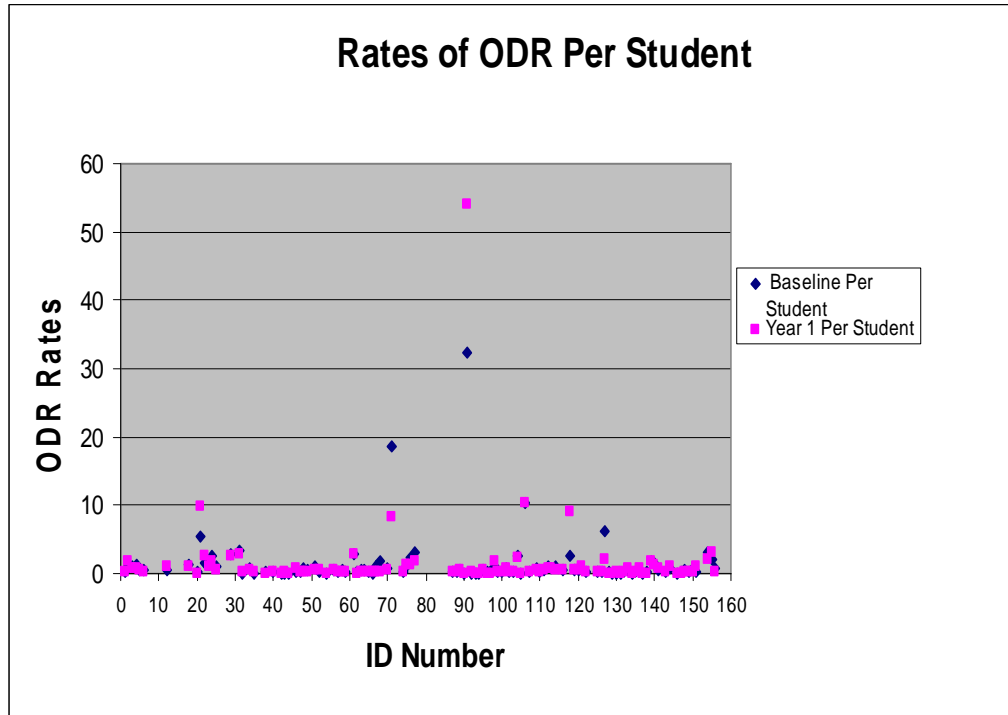


Figure 3. Rates of ODR per Student for Baseline and Year 1 Implementation for Sample Schools.

Sample Schools’ Rates of ISS per Student. There were 112 (71.6.3%) schools with rates of ISS per student for both baseline and year one implementation. The range of scores for the baseline year was between 0-32.3, and between 0 and 28.7 for the first year of implementation. The overall baseline rate of ISS per student was .56 ($SD = 2.9$) and for the first year of implementation was 0.7 ($SD = 4.3$). Overall, there were 52 schools with a decrease in rates of ISS per student between their baseline and first year of implementation, 42 schools that had an increase, 7 schools that did not use ISS for either school year, and 11 schools that did not use ISS their baseline year but used ISS during their first year of implementation. There was an average of an 86.7% increase in rates of ISS per student across implementation years ($SD = 433$). Figure 4 provides a visual depiction showing the range of the rates of ISS per student for the 112 schools for both

the baseline and year 1 implementation. A complete breakdown of the scores for baseline, year 1 of implementation, and percent change between the two years for rate of ISS per student is listed in the columns and the 112 schools are in the rows in Table G2 (Appendix G).

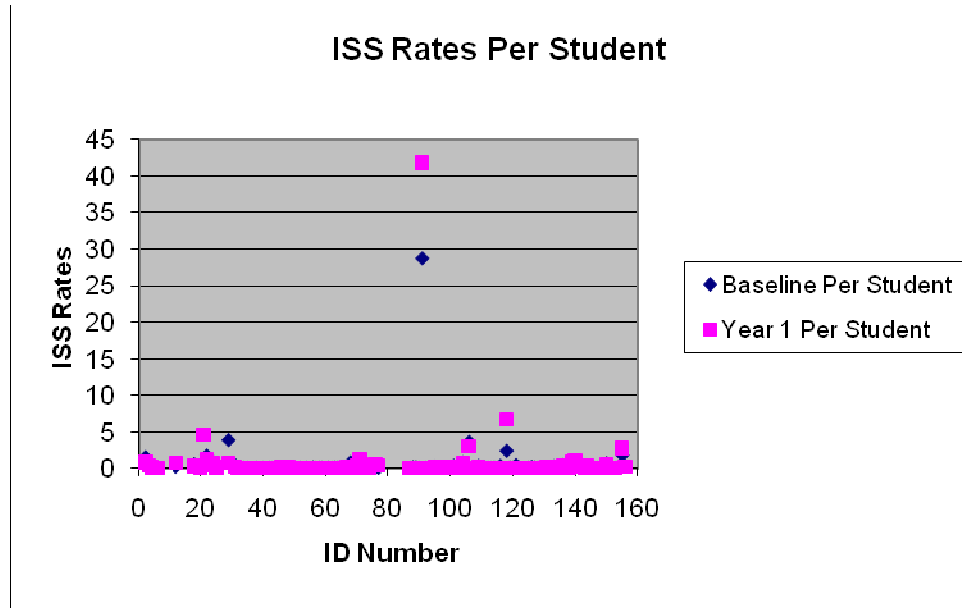


Figure 4. Rates of ISS per Student for Baseline and Year 1 Implementation for Sample Schools.

Sample Schools’ Rate of OSS per Student. There were 112 schools (71.8%) with rates of OSS per student for both baseline and year one implementation. The range of scores for baseline year was between 0 - 32.3, and for the first year of implementation was between 0 - 19.6. The overall baseline rate of OSS per student was 0.6 ($SD = 2.3$) and for the first year of implementation was 0.8 ($SD = 4$). Overall there were 40 schools that had a decrease in their rates of OSS per a student, 68 schools had an increase between the baseline and first year of implementation, and four schools that did not use OSS their baseline year but used OSS their first year of implementation. There was an

average of an 80.7% increase ($SD = 223.9$) in rates of OSS per student across implementation years. Figure 5 shows the range of OSS rates per student for all 112 schools that submitted baseline and year 1 outcome data. A complete breakdown by school for OSS rates per student for baseline, year 1 implementation, and percent change between the two years can be found in Table G3 in the Appendix G.

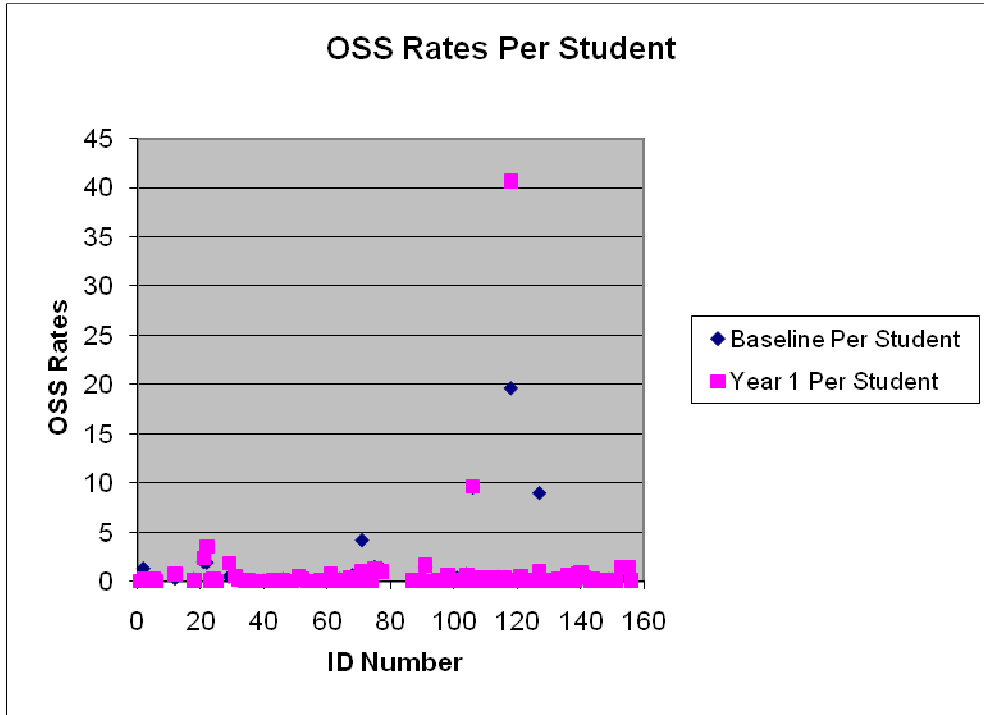


Figure 5. Rates of OSS per Student for Baseline and Year 1 Implementation for Sample Schools.

Model 1 Sample Size. Model 1 evaluated whether the action plan was a factor that influenced the variance between the BoQ scores and rates of ODR per student. In order for a school to be eligible for Model 1, three criteria had to be met. The criteria included: (1) existing baseline and year 1 scores for the BoQ, (2) existing baseline and year 1 rates of ODRs per student, and (3) submission of an action plan completed at the

initial training. Of the potential 156 schools in the sample, 93 schools (59.6%) met these criteria. Of the remaining schools, 16 schools did not have BoQ scores for one of the years, one school indicated there were no referrals baseline year, and 46 schools were missing ODR data for one of the years. In comparison to the total population, there were 278 schools (53.3%) that had complete ODR and BoQ data for baseline and year 1 implementation.

Table 8

Schools with Baseline Data & Year 1 Implementation Data

ODR & BoQ	
% Trained (N=522)	
53.3 (278)	
% Sample (N=156) with Outliers	% Sample (N=156) without Outliers
59.6 (93)	59.6 (93)
ISS & BoQ	
Trained (N=522)	
53.07 (277)	
% Sample (N=156) with Outliers	% Sample (N=156) without Outliers
55.1 (86)	52.6 (82)
OSS & BoQ	
% Trained (N=522)	
53.4 (279)	
% Sample (N=156) with Outliers	% Sample (N=156) without Outliers
60.3 (94)	59.6 (93)

Prior to initiating this model, data were reviewed to determine outliers. The percent change ranged from an 83% decrease in rates of ODR per student to a 231% increase in rates of ODR per student, and resulted in a non-normal distribution. All change data for ODR rate was plotted to identify if there were any possible outliers; this scatter plot is shown in Figure 6. Appendix H (Figure H1) shares a scatter plot that shows

the percent of change in ODRs in relation to the action plan scores. Based on the review of the scatter plots, there were three potential outliers (#35, #46, and #151). To determine if they should be identified as outliers, the skewness and kurtosis values were obtained for this outcome measure both with and without these school's data. When the population included the three schools in question, the kurtosis was 3.0 and the skewness was 1.6. When the population removed these schools from the calculations, the kurtosis was 1.5 and the skewness was 1.2. Based on the guidelines provided by Kline (2005) that anything above 3.0 is extremely skewed and anything above 10.0 for kurtosis would indicate outliers, these data met the criteria of acceptable limits without removing the potential outliers. As these criteria were met, the potential outliers remained in the sample to preserve the sample size. Table 9 provides the comparison of the descriptive statistics for ODR rates per student both with and without the potential outlier values. The rows provide the descriptive statistics and the columns identify if the data for the total sample or the sample excluding the potential outliers.

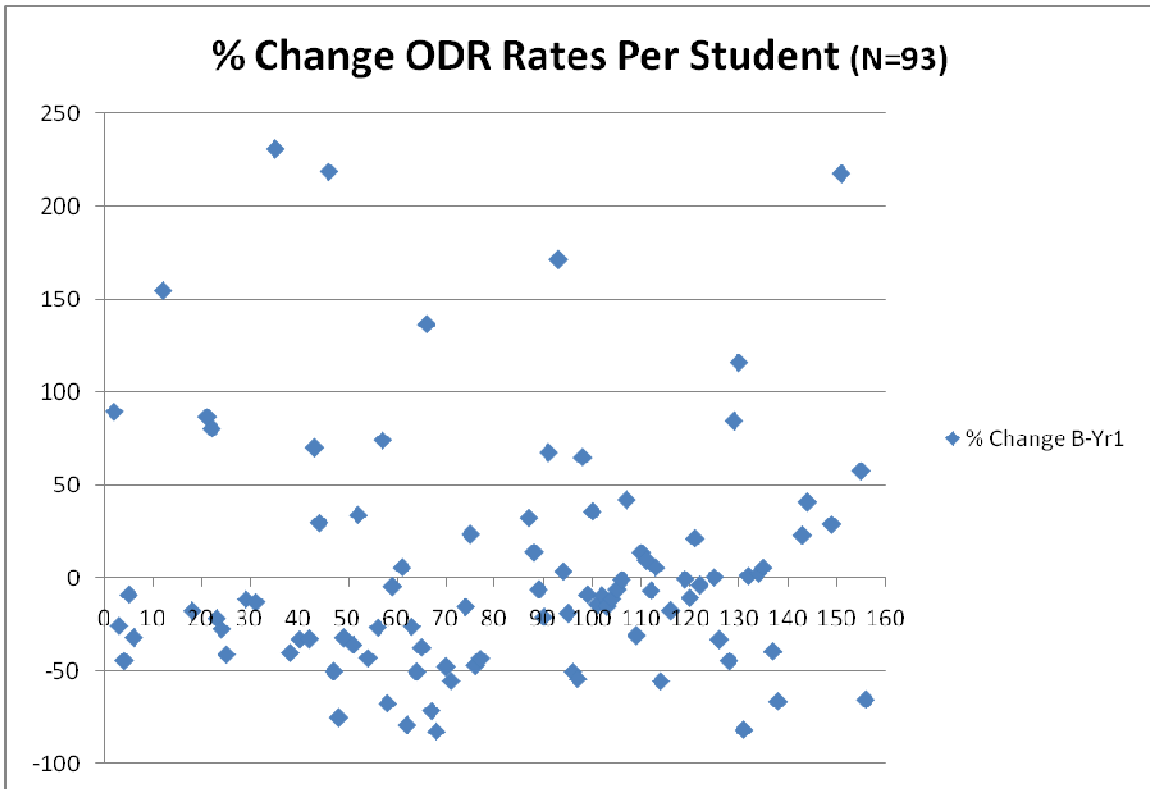


Figure 6. % Change of ODR Rate per Student for Baseline and Year 1 Implementation for Sample Schools. This scatterplot shows the distribution of % change in ODR rates per a student between the baseline year and year 1 of implementation.

Table 9

Statistics for Model 1 if Outliers Had Been Removed (#35, #46, #151)

With Outliers	
Average	4.09
Standard Deviation	64.92
Kurtosis	2.98
Skewness	1.63
Without Outliers	
Average	-3.19
Standard Dev	51.91
Kurtosis	1.54
Skewness	1.17

Model 2 Sample Size. In order for a school to be eligible for Model 2 (which looks at determining if the action plan is a factor in influencing the variance between the BoQ scores and rates of ISS per student), the school had to meet three criteria. The criteria included: (1) having a baseline and year 1 score for the BoQ, (2) having baseline and year 1 rates of ISS per student, and (3) submitting an action plan completed at the initial training. Of the potential 156 schools in the sample there were 86 schools (55.1%) that met these criteria. Of those schools that did *not* meet the necessary criteria, 15 did not have a BoQ scores for one of the years, 11 schools indicated there were no ISS days for their baseline year, and 44 schools were missing ISS data for one of the years. In comparison to the total population, there were 277 schools (53.1%) that had complete ISS and BoQ data for baseline and year 1 implementation.

Prior to initiating this model, data were reviewed to determine any outliers. The data are non-normal for the percent change between the rates of ISS per student between baseline and year one implementation. The range of percent change was between a 100% decrease in rates of ISS per student to an 1, 883% increase in rates of ISS per student. All data were plotted to detect if there were any possible outliers (see Figure 7). Appendix H (Figure H2) shows a visual depiction of the percent change in ISS days in relation to the action plan scores. Based on the review of the scatter plots, six potential outliers were identified (#12, #21, #105, #129, #131, and #143). To determine if these schools should be identified as outliers the skewness and kurtosis were examined both with and without these school's data. With all of the schools included, the kurtosis value was 24.67 and the skewness value was 7.8. Due to the fact that there were six potential outliers, the data were examined by removing the highest outlier first and then removing any additional

extreme values until the kurtosis and skewness were within reasonable limits. After the fourth school was removed, the skewness and kurtosis met the limits as set forth by Kline (2005). With the four outliers removed (#21, #129, #131, #143), the kurtosis value was 7.8 and the skewness value was 2.4. Three of the schools with outliers were elementary schools and the fourth school was an alternative education school site. As a result, this model was run with a final sample size of 82 schools. Table 10 provides the comparison of the descriptive statistics for ISS rates per student both with and without the potential outlier values. The rows provide the descriptive statistics and the columns identify if the data is for the total sample or the sample excluding the potential outliers.

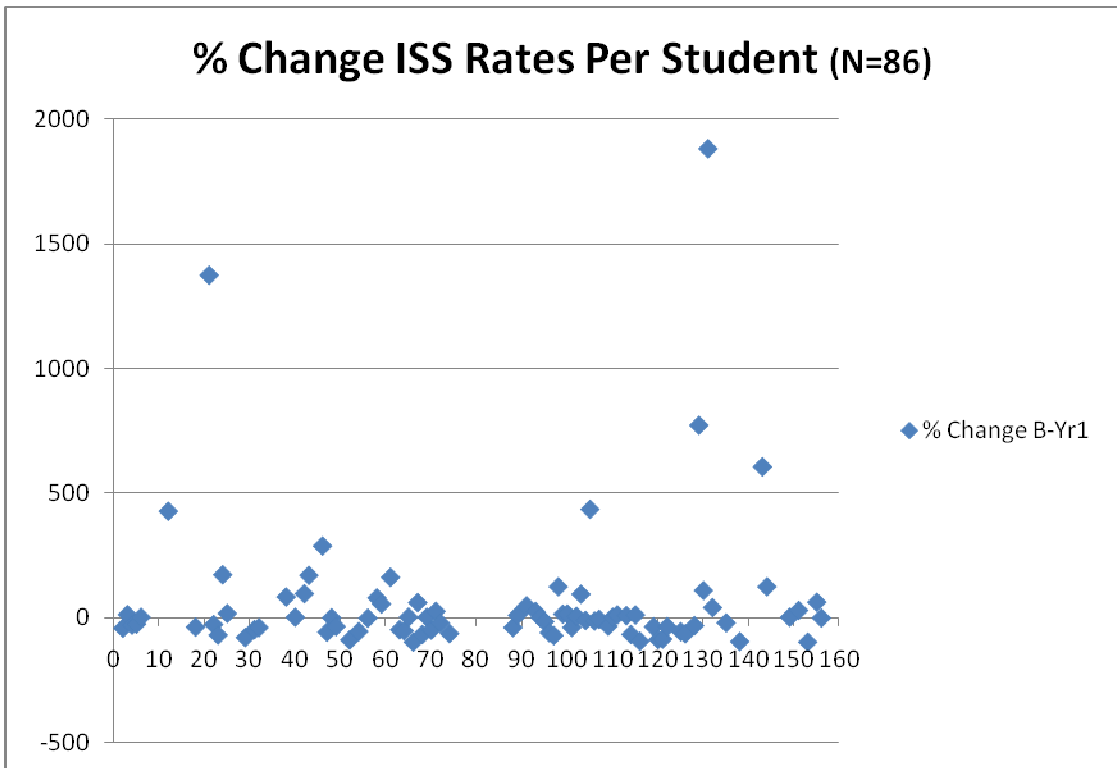


Figure 7. % Change of ISS per Student for Baseline and Year 1 Implementation for Sample Schools. This scatter plot shows the distribution of percent change in ISS rates per student between the baseline year and year 1 of implementation.

Table 10

Statistics for Model 2 with and without Outliers Removed (#21, #129, #131, #143)

With Outliers	
Average	61.22
Standard Deviation	285.42
Kurtosis	24.59
Skewness	4.65
Without Outliers	
Average	7.04
Standard Dev	97.65
Kurtosis	7.84
Skewness	2.45

Model 3 Sample Size. In order for a school to be eligible for Model 3 (which looks at determining if the action plan is a factor in influencing the variance between the BoQ scores and rates of OSS per student), the school had to meet three criteria. The criteria included: (1) having a baseline and year 1 score for the BoQ, (2) having baseline and year 1 rates of OSS per student, and (3) submitting an action plan completed at the initial training. Of the potential 156 schools in the sample, 94 schools (60.3%) met these criteria. Of those schools that did *not* meet the necessary criteria, 14 did not have BoQ scores for one of the years, four schools indicated there were no OSS days for their baseline year, and 44 schools were missing OSS data for one of the years. In comparison to the total population, there were 279 schools (53.4%) that had complete OSS and BoQ data for baseline and year 1 implementation.

Prior to initiating this model, the OSS change data between baseline and Year 1 implementation were reviewed to identify potential outliers. The distribution of OSS change data was found to be non-normal. The percent change of OSS days per student

ranged from a 95% decrease in rates of OSS per student to a 1,727% increase in rates of OSS per student. All data were plotted to identify possible outliers (see Figure 8).

Appendix H (Figure H3) lists a scatter plot of the percent of change in OSS in relation to the action plan scores. Based on the review of the scatter plots two potential outliers were identified (#105, #116). To determine eligibility as an outlier, the skewness and kurtosis were examined for this population with and without these school's data. With all data included the kurtosis value was 29.6 and the skewness value was 4.8. After removing the highest outlier the kurtosis and skewness were found to be within reasonable limits (kurtosis = 7.8, skewness = 2.5; Kline, 2005). The school that was removed from the sample was an elementary school. As a result, this model was examined with a final sample size of 93 schools. Table 11 provides the comparison of the descriptive statistics for OSS rates per student both with and without the potential outlier values. The rows provide the descriptive statistics and the columns identify if the data for the total sample are for the sample excluding the potential outliers.

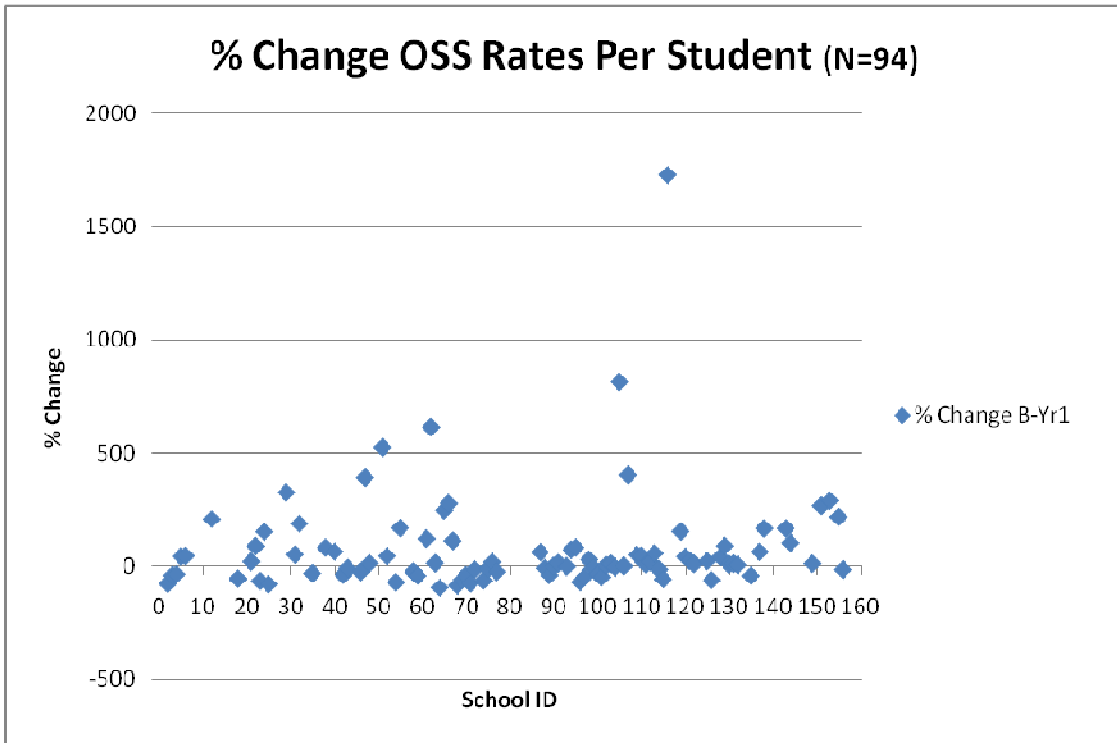


Figure 8. Percent change of OSS per Student for Baseline and Year 1 Implementation for Sample Schools. This scatter plot shows the distribution of percent change in OSS rates per a student between the baseline year and year 1 of implementation.

Table 11

Statistics for Model 3 with and without Outliers (#116)

With Outliers	
Average	78.85
Standard Deviation	228.96
Kurtosis	29.58
Skewness	4.72
Without Outliers	
Average	61.13
Standard Dev	152.16
Kurtosis	7.84
Skewness	2.49

Evaluation of Fit

The first step to determine if the model is a good fit is to review the fit indices. It is best practice to identify multiple fit indices to determine if the model is a good match. This should be done by identifying one fit index from each of the three fit indices categories (i.e. absolute index, parsimony index, and incremental index) as some fit indices may be biased towards sample size (Ferron, 2011; Kline, 2005; Raykov, Marcoulides, 2006). To evaluate the fit of the three models, the following fit indices were used: 1) Chi-Square and Chi-Square Degrees of Freedom (DF) and the Standardized Root Mean-Square Residual (SRMR) from the Absolute Index, 2) the Root Mean Square Error of Approximation (RMSEA) from the parsimony index, and 3) the Comparative Fit Index (CFI) from the incremental index. In order for the model to have a good fit the Chi-Square and the Chi-Square DF should be low and should not be statistically significant (Ferron, 2011; Kline, 2005; Hu & Bentler, 1998 in Ferron, 2011). Suggested values for the SRMR is less than .08 (Hu & Bentler, 1998 in Ferron, 2011), less than .05 for the RMSEA (Kline, 2005; Raykov & Marcoulides, 2006), and greater than .95 for the CFI (Hu & Bentler, 1998 in Ferron, 2011; Raykov & Marcoulides, 2006). The fit indices for this study were identified through the statistical software M Plus (Muthen & Muthen, 2011).

Model 1 Fit Indices. For the first model the Chi-Square value was 0.00 ($df = 0.00$). The SRMR value was 0.00, the RMSEA was 0.00 and the CFI was 0.00. Based on these results, the Chi-Square, Chi-Square *DF* SRMR, and RMEAS indices indicated that this model is not a good match due to it being a saturated model. When the model is saturated, it has “as many parameters as there are non-redundant elements in the sample

covariance matrix” (Raykov & Marcoulides, 2006). Table 12 provides the fit indices for all three models with the rows providing the fit indices and the columns are for the different models.

Table 12. Fit Indices for Models 1, 2, and 3

Model 1: ODR	
Chi-Square	0.00
Chi-Square DF	0.00
SRMSR	0.00
RMSEA	0.00
CFI	0.00
Model 2: ISS	
Chi-Square	0.00
Chi-Square DF	0.00
SRMSR	0.00
RMSEA	0.00
CFI	1.00
Model 3: OSS	
Chi-Square	0.00
Chi-Square DF	0.00
SRMSR	0.00
RMSEA	0.00
CFI	1.00

Model 2 Fit Indices. For the second model, the Chi-Square value was 0.00 ($df = 0.00$). The SRMR value was 0.00, the RMSEA was 0.00 and the CFI was 1.00. Based on these results, all fit indices indicated that this model was not a good match due to it being a saturated model (Kline, 2005; Raykov & Marcoulides, 2006). Figure 17 provides the fit indices for all three models.

Model 3 Fit Indices. For the third model, the Chi-Square was 0.00 ($df = 0.00$). The SRMR was 0.00, the RMSEA was 0.00 and the CFI was 1.00. Based on these results, all fit indices indicated that this model is not a good match due to it being a saturated model (Kline, 2005; Raykov & Marcoulides, 2006). Figure 17 provides the fit indices for all three models.

Path Analyses

Regardless of whether the models' fit indices suggest a good fit, once the path is determined the parameter estimates should be reported. The parameter estimates include the estimate, the standard error and the p-value (Kline, 2005; Raykov & Marcoulides, 2006). The R square value also needed to be reported for the two independent variables to explain the amount of variance accounted for by the dependent variable. Finally, the total effects for the path were identified for the mediating variable. For both the path analysis and the R square value, the p-values were identified to determine if the results are statistically significant. All results were reported identified using the standardized results. The path analysis statistics for this study were identified using the statistical software M Plus (Muthen & Muthen, 2011)

Model 1 Rates of ODR Per Student. The first model examined the path between the BoQ and the percent change in rates of ODR per student with the action plans acting as the mediator. The estimate between BoQ and the action plans was -0.04 ($SE = 0.9$, $p = 0.7$). The estimate between the action plans and rates of ODR per student were 0.10 ($SE = 0.9$, $p = 0.4$). The R-squared value for rate of ODR per student was 0.1 ($p = 0.6$) and for the action plan scores was 0.007 ($p = 0.7$). Table 13 provides a breakdown of the parameter estimates for all three models for all paths. Figure 2 in Appendix B provides the parameter estimates for Model 1. The correlations between the different variables ranged from a -0.03 between ODR and BoQ, and 0.09 between ODR and the action plans. All of these data also indicate that this model is not a good fit for action plans being a mediating factor.

Table 13
Parameter Estimates for Models 1, 2, and 3

Outcome Model 1 ODR	Estimate	S.E.	P
ODR →AP	0.10	0.9	0.4
AP→BoQ	-0.04	-0.4	0.7
ODR→BoQ	0.08	0.8	0.4
Outcome Model 2 ISS			
ISS →AP	0.2	2.2	0.03
AP→BoQ	0.09	0.8	0.4
ISS→BoQ	-0.03	-0.3	0.8
Outcome Model 3 OSS			
OSS →AP	0.2	1.7	0.1
AP→BoQ	0.1	1.2	0.2
OSS→BoQ	-0.2	-1.7	0.1

S.E.= Standard Error, P=P Value, ODR=Office Discipline Referrals, AP=Action Plan, BoQ=Benchmarks of Quality, ISS=In-School Suspension, OSS=Out-of-School Suspension

Model 2 Rates of ISS Per Student. The second model examined the path between the BoQ and the percent change in rates of ISS per student with the action plans acting as the mediator. The estimate between BoQ and the action plans was 0.09 ($SE = 0.8, p = 0.4$). The estimate between the action plans and rates of ISS per student were 0.2 ($SE = 2.2, p = 0.03$). The R-squared value for rate of ISS per student were 0.05 ($p = 0.3$) and for the action plan scores were 0.008 ($p = 0.7$). Table 13 provides a breakdown of the parameter estimates for all three models for all paths. The correlations between the different variables ranged from a -0.01 between ISS and BoQ and 0.227 between ISS and the action plans. All of these data also indicate that this model is not a good fit for action plans being a mediating factor.

Model 3 Rates of OSS Per Student. The third model examined the path between the BoQ and the percent change in rates of OSS per student with the action plans acting as mediator. The estimate between BoQ and the action plans was 0.1 ($SE = 1.2, p = 0.2$).

The estimate between the action plans and rates of OSS per student was 0.2 ($SE = 1.7$, $p = 0.1$). The R-squared value for rate of OSS per student was 0.05 ($p=0.3$) and for the action plan scores were 0.02 ($p = 0.6$). Table 13 provides a breakdown of the parameter estimates for all three models for all paths. The correlations between the different variables ranged from a -0.01 between OSS and BoQ, and 0.1 for both OSS and the action plans and BoQ and action plans.

Summary

This study utilized a confirmatory path analysis model to determine if the quality of a school's action plan is a mediating factor between the fidelity of implementation as measured by the BoQ and student outcomes as defined by rates of ODR, ISS and OSS per student. The fit indices indicated that this model was saturated, and therefore not a good fit. The correlations, parameter estimates and R squared values supported this finding, resulting in the conclusion that the relationship between action plan scores, implementation, and outcome measures was not statistically significant.

CHAPTER V DISCUSSION

Discussion

The previous chapter provided the results of the analysis to answer the research questions posed in Chapter 3. The purpose of this chapter is to provide a discussion of the essential findings presented in Chapter 4 and to describe limitations of the study. It will conclude with recommendations for future research and practice.

Question 1: What characteristics of a school's action plan can be identified as indicators of SWPBS implementation fidelity?

Sample Size

Overall only 30% of the total population had action plans eligible for this study. This response rate is quite low; however, when comparing it to studies using a survey methodology there are similar response rates and at times it was even higher for the sample population in the study. For example, in a study by Sheehan (2001) the mean response rate for an email survey was 24%. In a study by Szelenyi, Bryant & Lidholm (2005) the questionnaire response rate without incentives was 23% and with incentives was 32%. Other studies related to survey responses have similar response rates of 20%-30% (Cobanoglu, Warde, & Moreo, 2001; Kaplowitz, Hadlock, & Levine, 2004). When comparing the completion rates of the Benchmarks of Quality (BoQ) for the sample population to the total population, the sample population had a higher completion rate for schools completing baseline and year 1 implementation data.

As this study was a secondary analysis of data, there was the possibility that the distribution of the sample size would not be representative of the total population. The demographics (i.e. school district size, school type, and student population) were similar between the total and sample populations. The largest discrepancy was that the total population had greater representation from smaller school districts.

Action Plan Scoring Guide.

Development of the Action Plan Scoring Rubric. The current literature base in both education and business revolves around a theory of systems change that suggests the need for action planning (e.g. Bruce, 2007; Earl et al., 2006; Frese, Krauss, Keith, Escher et al., 2007; Von Korff, Gruman, Schafer, Curry, & Wagner, 1997). However, there is very limited empirical research indentifying the necessary components that need to be included on an action plan in order for it to be of high quality (Bruce, 2007; Frese et al., 2007). As a result, this study developed and piloted the use of an action plan scoring rubric to evaluate the quality of action plans developed during a training of Tier 1 Positive Behavior Support. The action plan scoring rubric was utilized to determine if there are differences in action plans between schools that implement SWPBS with a higher degree of fidelity compared to those that implement SWPBS with a lower degree of fidelity. The action plan scoring rubric initially had 10 questions addressing eight essential components (i.e. teaming, meeting, mission statement/team goal, critical elements, action steps, persons responsible and dates completed). As previously mentioned, the literature base provides the theory of what components should be on an action plan but does not identify criteria to determine the quality of the action plan (e.g. Epstein, 2005; Giangreco, Edelman, & Broer, 2003; Steinbacher & Smith, 2009; Tan &

Platts, 2005; Wood, 2006). Specifically, the literature is missing evidence that identifies the necessary percent of critical elements that must be addressed, the percent of items that need to be assigned to a team member, the percent of tasks each team member should be accountable for completion, and the percent of tasks should have an identified completion date. To address this gap in the literature, plans from the 156 sample schools were used to identify the criteria for the point values of indicators #5, #6, #9, and #10. Based on review of the sample population's action plans, it became evident that when a school does not address action steps for one of the critical elements there was no indication of whether it is due to the school already having the element in place or if it was simply a failure of the school to address the element. As there were no data to support the inclusion of indicator #6 addressing "critical elements already in place" this item was removed, thus leaving the scoring rubric with only nine indicators. The literature is very specific in indicating that for a school based initiative to take hold and move to sustainability, all critical elements must be in place (Epstein, 2005; Giangreco, Edelman, & Broer, 2003; Steinbacher & Smith, 2009; Wood, 2006). Therefore, there should be another means for identifying if the reason an element is not addressed in the action plan is that it already is in place. By using the sample action plans to help develop the criteria for some of the indicators (i.e. #5, #9, an #10), the study attempted to provide data to support what theory suggests needs to be on an action plan.

The purpose of this study was to develop a tool that could be used to identify the quality of an action plan used to guide the implementation of a school-based initiative, specifically Tier 1 PBS. As a result, an action plan scoring rubric was developed and pilot

tested with the sample population in the study. In order to ensure validity and reliability, several measures were applied to the data.

Two experts reviewed the action plan scoring rubric for content validity. The first expert was asked to review the rubric and provide feedback based on her knowledge of rubrics from the standpoint of it being a rubric that could be used to score action plans developed to support any school-based initiative. This expert only suggested changes in some of the wording of the indicators. As there were no recommendations for additional indicators or removal of any indicators, it was a positive indication that the action plan scoring rubric may be applicable in its use of scoring action plans developed for school-based initiatives. This was important since one of the purposes in developing the action planning scoring rubric was to fill the gap in the literature by having a measure that could be used for any school-based initiative (Bruce, 2007).

The second expert's background is in SWPBS, systems change and evaluation. This expert's feedback was more specific to changes to the indicators which were important in making sure that the scoring rubric could be used with schools implementing SWPBS. Some of the expert's suggestions were related to making sure the data supported the point values for the indicators; all indicators were developed based on the literature on systems change and/or action planning. There were two suggestions provided but not incorporated into the rubric. The first suggestion was adding information that linked the action plan to the School Improvement Plan (SIP); however, there was no mention in the systems change literature about sustainability of school-based initiatives being linked to the SIP. Even more surprising, there is actually very little research to support a linkage between SIPs and improved student outcomes-only some correlational data that links

SIPs to improved student outcomes in reading and math but not across all grade levels (Fernandez, 2011). Most SIPs only include an overall assessment of aggregated achievement data, and very few include data related to school safety, climate or behavior (Van Barneveld, Stienstra, & Stewart, 2006), which is where SWPBS typically would be addressed on a SIP.

The second expert also expressed concern that if a school team received training on the critical elements over time instead of being trained on all elements at once, then the school would not be able to earn all possible points for indicator number 5. There is much support in the literature reinforcing the need to have all elements of a school based initiative in place (Epstein, 2005; Giangreco, Edelman, & Broer, 2003; Steinbacher & Smith, 2009; Wood, 2006). However, as systems change literature indicates that it takes three to five years for true change and sustainability to occur (Curtis, Cohen & Castillo, 2009; Hall & Hord, 2001; Jenlink, Reigeluth, Carr, & Nelson, n.d.) it may be beneficial for schools to receive training on some of the elements and work on their implementation before moving onto addressing other critical elements. Given this paradox, the issue is whether or not to be flexible in scoring indicator #5: should schools be scored based upon all the critical elements or only on the elements in which they had been trained. As previously mentioned, the research literature is specific that, all of the elements of an initiative need to be addressed on a school's action plan. For this reason, the recommendation is to score the school's action plan on all of the elements, even if they have not yet received training on elements. As the schools receive training on the additional elements, a re-assessment of the action plan should reflect growth in the number (or percentage) of critical elements that are addressed.

Once content validity was established, the next steps were to assess reliability. Both inter-rater reliability and test re-test reliability were measured with action plans from a sample of 20 action plans not included in the study. These action plans were from schools that did not meet the criteria for inclusion in the study because they were not from the school's initial year of implementation. The inter-rater reliability averages were 89%; the test/re-test reliability averages were 91%. Based on these results there was confidence the tool had reliability and could be used to score the qualifying action plans.

Action Plan Scoring Rubric for Entire Sample. As this was the first time the action planning scoring rubric was used, the results here indicate that overall there are some indicators that are present more often than others. Overall, when developing action plans, schools do the best job of breaking the critical elements down into smaller action planning steps (indicator #7) and making sure that someone is assigned to these tasks (indicator #8). For indicators #7 and #8, the average point value across the schools was 1.3 points out of a possible 2 points. If the point value of one is considered average, then the schools are doing slightly better than would be expected on these two indicators.

Indicator #5 measured the percent of critical elements addressed on the action plans. As the research literature indicates all elements of an initiative must be in place, it is an area of concern that for indicator #5, the average score across all schools was only slightly over one point (i.e. 1.1). For the majority of the schools, less than five critical elements of Tier 1 PBS were reflected on their action plans. The critical elements that were most commonly missing were the elements of evaluation and implementation planning. As we know, in order for a school initiative to produce improved student outcomes and to reach and maintain sustainability of the initiative over time, there needs

to be fidelity to the elements that define the initiative (Bauman et al., 1991; Epstein, 2005; Fixsen et al., 2005; Horner et al., 2009). There needs to be further research to determine why schools are not addressing all elements of Tier 1 PBS.

The first four indicators addressed organizational issues as they were related to the development of the team, meeting times and identifying a goal or mission statement and for all of these areas the average point values were less than one point (i.e. 0.65, 0.64, 0.63 and 0.44). There may be several reasons as to why these point values were low, including that several schools either failed to complete the cover sheet of the action plan which reflected this information or did not submit the cover sheet at all. Some of the other findings surrounding the first four indicators were: 1) schools that listed a meeting time typically listed one meeting per month for only 30 – 45 minutes; 2) several schools did not assign team roles (i.e. team leader, data specialist, recorder, etc.) but instead listed the job title of the person at the school (i.e. guidance counselor, 3rd grade teacher, English teacher, etc.); and 3) schools that identified a goal or mission statement tended to state it was to implement SWPBS or some of the critical elements of SWPBS without linking to a desired outcome (i.e. 5% increase in attendance, 10% decrease in OSS rates, etc.). As these are more organizational issues rather than critical elements of an initiative, maybe the schools do not feel that they need to focus on these foundational pieces and feel that they are not necessary for implementation. However, without these organizational pieces in place it may be one of the reasons schools do not sustain initiatives over time (Mann, 1978), as most school based initiatives only last 18-48 months (Latham, 1988).

The overall average score for the 156 schools on the action plan scoring rubric was 8.3 points (i.e. 44% of the possible total points, $SD = 3.4$). The majority of the scores

on the action plans fell between the point values of 4.9 and 11.7. The highest score was 17 points and the lowest was 2 points with the mode being a point value of 7. Based on a bell curve distribution, one assumption would be that the average score should be about 50% (9 points) of the total possible point values. While this was not the case in the current study, a visual depiction of the scores in Figure 6 (the scatter plot for Action Plan Scores Across Implementation Levels) reveals that the scores were evenly spread out across the entire distribution, and there was not a clumping of scores on either end of the scoring range. Therefore, the tool showed it may be sensitive to different levels of quality in the action plan. Since this was the first time the tool was used and with a relatively small sample size, more research is needed to refine the action plan scoring rubric.

Action Plan Scoring Rubric for Implementation Levels. In addition to developing the action planning scoring rubric, the second purpose was to determine if the action planning scoring rubric could differentiate between action plans of a higher degree of quality versus a lower degree of quality. The BoQ is a means by which to measure the degree of fidelity of Tier 1 PBS implementation with a 70% or higher as an indicator of a higher degree of fidelity (Cohen et al., 2007). A comparison of the scores on the action plan scoring rubric was completed for those schools identified as having a higher degree of fidelity of implementation of Tier 1 PBS to those with a lower degree of fidelity of implementation of Tier 1 PBS. There were some distinct differences between the scores of the two groups. The first difference between the two groups was the average point value. There was a 0.8 point value difference between the schools. Schools implementing with a higher degree of fidelity averaged 8.7 total points compared to

schools implementing with a lower degree of fidelity averaged 7.9 total points. Based on one standard deviation, the majority of the scores for the schools implementing with a higher degree of fidelity fell between the point values of 5.4 and 12, while schools with a lower degree of fidelity fell between 4.3 and 11.4. The 0.8 point difference between the means of the schools with a higher degree of fidelity of implementation of Tier 1 PBS to those with a lower degree of fidelity of implementation of Tier 1 PBS on the action plan scoring rubric was not statistically significant.

Similarities and differences between these two groups of schools were noted when analyzing the means and standard deviations for each indicator. Some additional findings were that both groups had scores averaging below one point value for the first four indicators (e.g. 0.66, 0.62, 0.71, 0.47, 0.45, 0.4, 0.45 and 0.30). As stated before, this may be attributed to organizational issues (i.e. not completing the cover page of the action plan or not submitting the cover page of the action plan). For indicator #5 which addresses whether or not the schools have planned for all of the critical elements, schools with a higher degree of fidelity averaged 1.1 while those with a lower degree of fidelity averaged below one point at 0.9. Schools with a higher degree of fidelity addressed 6 out of 10 of the critical elements in for SWPBS on their action plan; the schools with a lower degree of fidelity addressed 5 or fewer of the critical elements of SWPBS. The last difference was that indicator #9 had the largest difference between the two groups as the average point value for schools with a higher degree of implementation was 1.2 points and the average point value for schools with a lower degree of implementation was 0.6 points. Indicator #9 was focused on ensuring that all action plan items have a completion date, which helps to hold the school accountable for completing the action step. This may

suggest that schools implementing with a lower degree of fidelity may not take the time to follow up with completion of action steps since no deadlines were established. Further research in this area may provide insight as to why schools fail to sustain implementation of an initiative.

Hypotheses. There were three hypotheses generated for the first question: What are the characteristics of a school's action plan that can be identified as indicators of SWPBS implementation fidelity? The first hypothesis: action plans should address all of the critical elements of PBS and each element should include a task analysis for each of the critical elements. The second hypothesis: for each action item there should be a key person identified as being responsible for the action item and these responsibilities should be shared across multiple people. The third hypothesis: each action item should identify a specific deadline for the item to be completed. The three hypotheses predicted what were to be the essential items that should be addressed on an action plan. Based on the action plans that were reviewed, there is some preliminary indication that the items identified in the hypotheses may be the necessary components to be included on action plans for schools implementing SWPBS with a higher degree of fidelity.

Questions 2: What extent does the quality of a school's Action Plan (i.e. along a continuum of high quality to low quality) act as a mediating factor between the fidelity of implementation measured by the Benchmarks of Quality (BoQ) and student outcomes as defined by (a) number of office discipline referrals (ODR), (b) number of days of in school-suspension (ISS), (c) out-of-school suspensions (OSS)?

Sample Size

When comparing the sample population for schools with complete BoQ, ODR, ISS, and OSS data to the total population, the schools in the sample population had a higher return rate than the total population. However, when the outliers were removed the sample sizes for BoQ and ISS was slightly lower than the total population. Since the overall sample size was only 30% of the total population and reduced further by having to eliminate schools with missing data, it helps to show that the sample size return rate was comparable to the return rate of the total population. However, when compared to the outcomes schools typically experience in the state of Florida, this sample did not have the same positive outcomes for change in ODR rates, ISS rates and OSS rates. For example, in Florida it was found the average reduction from baseline to year 1 of implementation for ODR was 33% (Childs et al., 2009) but these sample schools had an average of a 4% increase in ODR rates. Schools did not see a decrease in rates of OSS that are typically experienced in the state of Florida (Childs et al., 2009). Instead, these sample schools saw a 61% increase in ISS. However, some of the schools' rates of ISS were so low initially that when they had an increase, the percent change was quite dramatic. For example, school #43 had only one day of ISS in their baseline year and increased to three days of ISS during their first year of implementation. When schools had rates this low it

is hard to maintain these low rates or to see decreases in use of ISS or OSS, so a slight increase from one year to the next overinflates the percent of change. The schools in Florida have seen a slight increase (2%) in rates of OSS between baseline and year 1 of implementation, however, in these sample schools there was a 79% increase (Childs et al., 2009).

The distribution of rates of ODR, ISS and OSS were found to be non-normal. One example of this non-normality was the distribution of percent change of ISS per student, which ranged from a 100% decrease to an increase of 1,883%. With a skewness value of 2.98 and a kurtosis value of 7.63, one might expect to find several schools with change scores that would be considered outliers. However, based on using the acceptable limits of 10 for kurtosis and 3.0 for skewness (Kline, 2005) no outliers were identified for model 1, four outliers for model 2 and only one outlier for model 3. Finally, with the exception of an alternative/center school that had an outlier value in model two, most of the schools with outlier values were elementary schools.

Fit Indices.

Three models were developed to determine if the action plans were a mediating factor between fidelity of implementation and student outcomes. One model was developed for each type of student outcome (ODR, ISS, and OSS). The first step in determining if this exploratory path analysis was a good fit in explaining action plans as a mediating factor was to examine the fit indices for each model. Based on the fit indices, it was determined that the models were not a good fit due to all three models being saturated (Kline, 2005; Raykov & Marcoulides, 2006). The models were saturated due to the fact that the parameters in the covariance matrices were equal to the number of

variables in the model. Further research is needed to identify other exploratory models to help identify mediating factors between fidelity of implementation of SWPBS and student outcomes.

Path Analyses.

The exploratory models developed for the study were not a good fit based on the fit indices; typically the path analysis would not be reported if the model is not a good fit. However, due to the fact that the model was saturated, the path analysis and R square values were reviewed to further confirm whether or not the models were a good fit for identifying the action plans as a mediating factor (Kline, 2005; Raykov & Marcoulides, 2006). All of the parameter estimates and the R squared values were quite low, indicating that the action plans only accounted for a small portion of the variance between the fidelity of implementation scores (i.e. BoQ) and the student outcomes (i.e. ODR, ISS and OSS). The p values were reviewed to determine if they were statistically significant at the $p < .05$ level. Only one value was below the $p < .05$ level, which was the path from the action plans to the student outcomes for ISS. However, as the R square values for the action plans and the students outcomes were very low (i.e. 0.05 and 0.01), they were also not statically significant ($p = 0.28$ and $p = 0.69$). These data support the findings that the action plans were not a mediating variable between the fidelity of implementation and student outcomes for the three exploratory models. Further research is needed to be conducted to help identify the mediating variables between fidelity of implementation and student outcomes.

Hypotheses.

There was one hypothesis developed for this question: To what extent does the quality of a school's Action Plan (i.e. along a continuum of high quality to low quality) act as a mediating factor between the fidelity of implementation measured by the Benchmarks of Quality (BoQ) and student outcomes as defined by (a) number of office discipline referrals (ODR), (b) number of days of in school-suspension (ISS), (c) out-of-school suspensions (OSS)? The hypothesis stated that the degree of the quality of the action plan and the fidelity of implementation would be factors influencing the degree to which schools experience a reduction of ODRs, rates of reductions in ISS and the rates of reductions in OSS. The fit indices for the models and the path analysis data (i.e. parameter estimates and R square) did not support this hypothesis.

Limitations

There were several limitations related to this study. The first limitation was that the data utilized were of convenience as the study was a secondary analysis. Therefore, the study was limited to data that were available from the FLPBS Project, and only 30% of this data included action plans that met the criteria for inclusion in the study. Another limitation associated with the sample was that there cannot be complete confidence that the sample population is representative of the total population. There could be differences between action plans from SWPBS schools in Florida, and SWPBS schools from other states across the country. For example, differences could be found in the quality of the action plans, the rates of discipline issues, commitment to the initiative, and/or administrative and district support, which were not taken into account in this study.

A second limitation was that there had to be some assumptions made about the procedures used by the FLPBS Project in the collection of data and in the development of the action plans. First, there was the assumption that all schools received equivalent training on developing their action plans and were provided equal amounts of time during the training to complete their action plans. Some school districts require the action plans to be submitted in order for the participants to receive in-service points which may influence the emphasis placed on the development of the action plans. Also, these differences may be due to the fact that there were different trainers who provided the trainings or due to edits made in the curriculum during the timeframe of the study.

Second, there was the assumption that the schools understood that the cover sheet was considered part of the action plan. Some schools did not turn in this portion of their action plan. Third, there was the assumption that prior to attending the training, the schools had gone through a readiness process. Specifically, it had to be assumed that the schools had already conducted a needs assessment and had built consensus with their faculty prior to attending the Tier 1 PBS training (Berman & McLaughlin, 1974a; Fixsen et al., 2005; Rutherford, 2009).

There also had to be assumptions that the measures of ODR, ISS, OSS and BoQ were all collected the same way and were reported accurately by the schools. For example, it had to be assumed that there was consistency between schools regarding what behaviors are considered to warrant an office discipline referral, and that there was some consistency in the types of behaviors that resulted in ISS and OSS. In relation to these data, another problem was that there were schools with missing data. Even though the data were derived from one source, there is still some concern that the data were not

reported accurately from baseline to year 1. For example, school #129 only reported one day of ISS for their baseline year but then reported nine days for their first year of implementation (a 794 percent increase). Another example is school # 147 that reported one day of OSS for their baseline year but reported 42 days for their first year of implementation, resulting in a 3574 percent increase. A third example is presented in school 43, which went from one day of ISS in their baseline year to three days of ISS in the first year of implementation, which resulted in a 183% increase in rates of ISS. Given the extremely low baseline rates reported by some schools, it may have been that the percent change measure was oversensitive to change. A different measure of student outcomes may result in a different interpretation of the study's results.

Another limitation of the study was that the research literature did not already have a validated tool to measure the quality of action plans developed for school based initiatives. As a result, an action plan scoring rubric was developed for the study and it endured a rigorous process to establish content validity, inter rater reliability, and test re-test reliability. While initial indications are promising, much refinement of the rubric is needed.

Finally, it should be noted that in many field-based studies the quality of data collected by schools is typically low. It is clear that in the FLPBS project there are many instances of incomplete or even erroneous data reported by schools that have limited the integrity of the data used in this study. Future studies will need more resources to ensure the quality of the data base.

Considerations for Future Research and Practice

This was an initial study to answer two questions. The first question investigated the characteristics of a school's action plan that could be identified as indicators of SWPBS implementation fidelity. The second question, to what extent does the quality of a school's Action Plan (i.e. along a continuum of high quality to low quality) act as a mediating factor between the fidelity of implementation measured by the Benchmarks of Quality (BoQ) and student outcomes as defined by (a) number of office discipline referrals (ODR), (b) number of days of in school-suspension (ISS), (c) out-of-school suspensions (OSS)? There is additional research needed in this area to: 1) support that the action planning scoring rubric as a tool that can determine the quality of action plans and 2) identify other potential variables that may be mediators between fidelity of implementation of SWPBS and student outcomes (i.e. ODR, ISS, and OSS rates). One recommendation that applies to both questions in this study would be to replicate the study with a larger sample size, and to utilize data collected by the researchers to ensure that the action plans collected have all components and the outcome data can be reviewed for their accuracy.

Action Plan Scoring Guide

As this was the first use of the action plan scoring guide, there are multiple suggestions for further research to determine if the indicators are truly indicative of quality action plans. Specifically the action plan scoring rubric needs to be utilized with a larger sample size and across multiple initiatives. Action planning should be an ongoing process during the implementation of a school based initiative (Dribidu et al., 1996; Gee, 2008; Giangreco et al., 2003; Turnbull & Turnbull, 1996); and since the action plans

should continue to be developed as the school year progresses, it may be beneficial to use the final action plans developed at the end of the school year. Specific to Tier 1 PBS and the use of the action plan scoring rubric, there should be further analysis to determine if the critical elements the schools developed on their action plans have any relationship to their scores on the indicators for these elements on the BoQ. For example, on the action plan the school addresses the element of teaching expectations and rules with six action steps items. Do these six action steps address the indicators for teaching expectations and rules on the BoQ?

Research is needed to identify why certain elements (i.e., evaluation and implementation plan) and some indicators (i.e., team roles, mission statement) were not as prevalent on the action plans. One way of doing this would be to interview or survey schools about the development of their action plans and their perceptions about the development of their action plans. This information could be used to improve upon the training of the schools on SWPBS to ensure all critical elements are addressed, and also improve upon how the schools are trained in developing their action plans.

The mean scores on the action plan scoring rubric for the schools implementing PBS with lower degree of fidelity and those with a higher degree of fidelity were not statistically significant. It may be beneficial instead of comparing the mean action plan scores for all schools with a lower degree of fidelity of SWPBS to those with a higher degree of fidelity of SWPBS, to compare the schools with the top 25% of the BoQ scores and the schools with the lowest 25% of the BoQ scores. This would provide a comparison between the schools with the highest degree of fidelity and lowest degree of fidelity of implementation of SWPBS.

As one of the goals of developing this action plan scoring guide was for it to be used with any school-based initiative, the study should be replicated with other school based initiatives. If this study is replicated to determine the quality of action plans with other initiatives, it will be imperative to utilize a fidelity tool for the initiative that determines when a school is implementing at a higher degree of fidelity versus a lower degree of fidelity. There will also need to be some outcome measures collected that are impacted by the initiative, similar to how Tier 1 PBS should have an improvement in rates of student outcome data such as ODR, ISS and OSS data (e.g., Childs et al., 2009; Lassen et al., 2006; Muscott et al., 2007)

The final suggestion is that the action plan scoring rubric was developed for schools at the program installation and initial installation phases of systems change. There should be some further research with schools engaged in advanced stages of implementation (i.e., full implementation and sustainability) with the action planning scoring guide to determine if it is applicable and if it gives beneficial information about the quality of the action plans. It may be that the action plan scoring guide may need to have different point values, and/or the criteria for the point values for each indicator may need to be more stringent as schools advance through implementation stages of systems change.

Path Analyses

Since the study identified that the exploratory models were not a good fit based on both the fit indices and the path analysis, more research should be done to identify additional mediating factors between the fidelity of implementation and student outcomes for SWPBS. There are some recommendations to be considered for future exploration of

identification of mediating variables. One is to determine the acceptability of combining the three student outcomes (i.e. ODR, ISS, OSS) as one single measure to be utilized as the dependent variable. Additionally, instead of using the total rubric score as a single parameter, future research might break the rubric scores into two parameters. The first parameter would be the indicators that address organizational structures (#1-#4) and the second parameter would be indicators that address the implementation of the initiative (#5, #7-#10). A second way to break the action plan scores into parameters would be to have a parameter that represents the different categories of the indicators (i.e. teaming, meeting, mission statement, critical elements, action steps, persons responsible, and dates). As previously mentioned, there may be a need to survey or interview school personnel to find out how their school-based teams perceived the development of their action plan during training and implementation. During the survey or interview, the teams could be asked to identify what they believe are potential mediating variables. The mediating variables identified by the teams should be explored to determine their validity of being mediating variables when developing future structural equation models.

Summary

The current study attempted to 1) identify the quality of action plans developed for Tier 1 PBS; 2) determine if the quality of the action plans differed between schools implementing Tier 1 PBS with a higher degree of fidelity and those implementing with a lower degree of fidelity; and 3) determine if the quality of the action plans are a mediating factor between fidelity of implementation and student outcomes for Tier 1 PBS. As a result of the study, an action plan scoring rubric was developed that may be able to distinguish between high and low quality of action plans developed for Tier 1

PBS. However, more research needs to be done to support what was found and to address some of the limitations. It was determined that the exploratory path analysis was not a good fit, meaning that the quality of the action plans may not be a mediating factor between fidelity of implementation and student outcomes. As a result, more research needs to be done to identify and test potential mediating variables.

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APPENDICES

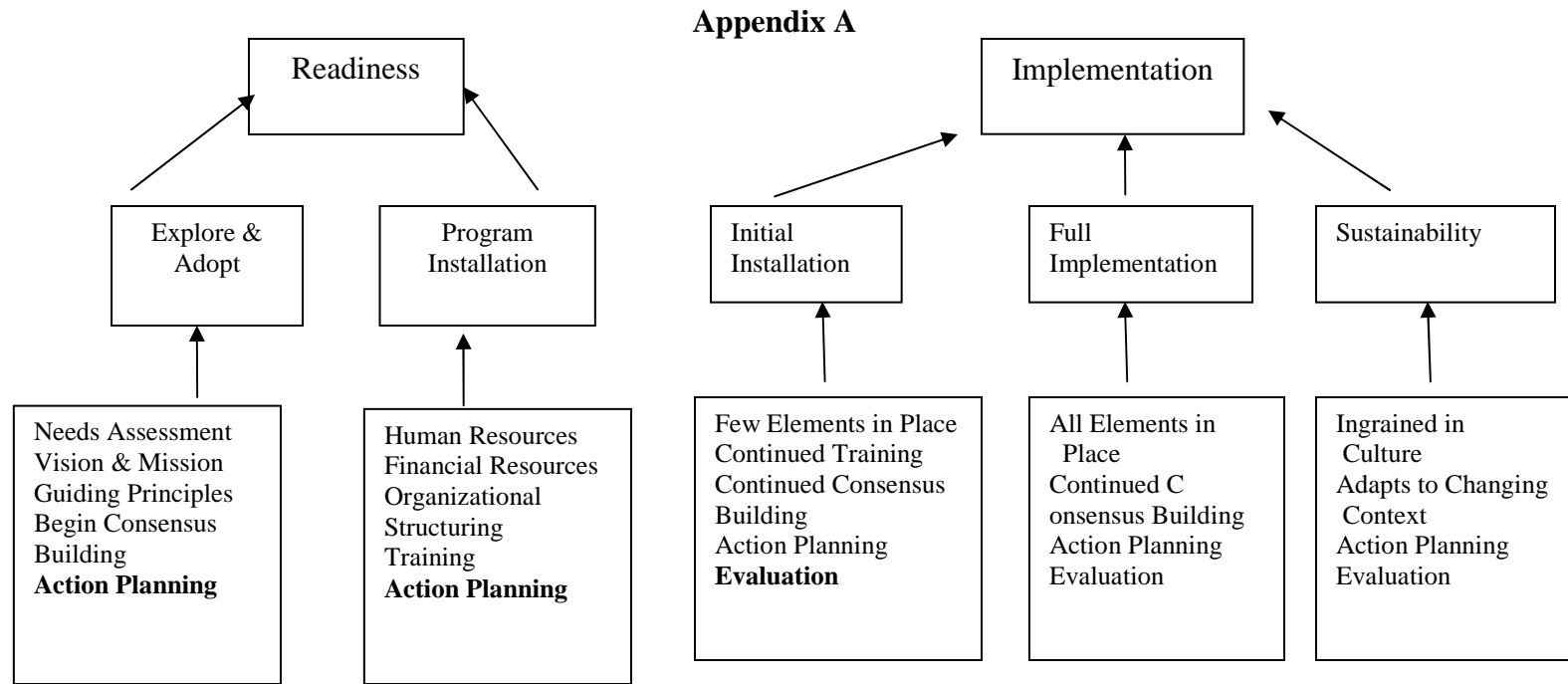


Figure A1. Stage of Systems Change. This figure illustrates the model used to define the different stages of systems change a school must go through to reach sustainability when implementing a school-based initiative.

Appendix B

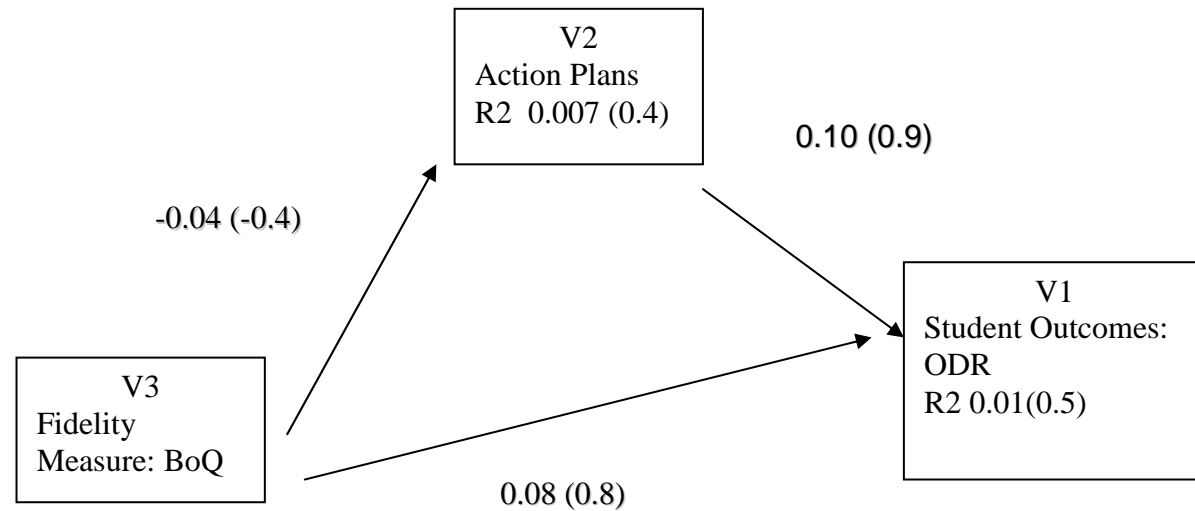


Figure B1. SEM Model 1 Rate of ODR Per Student. This model demonstrates the exploratory path analysis developed to explain the variance explained by action plans between fidelity and rate of ODR per student.

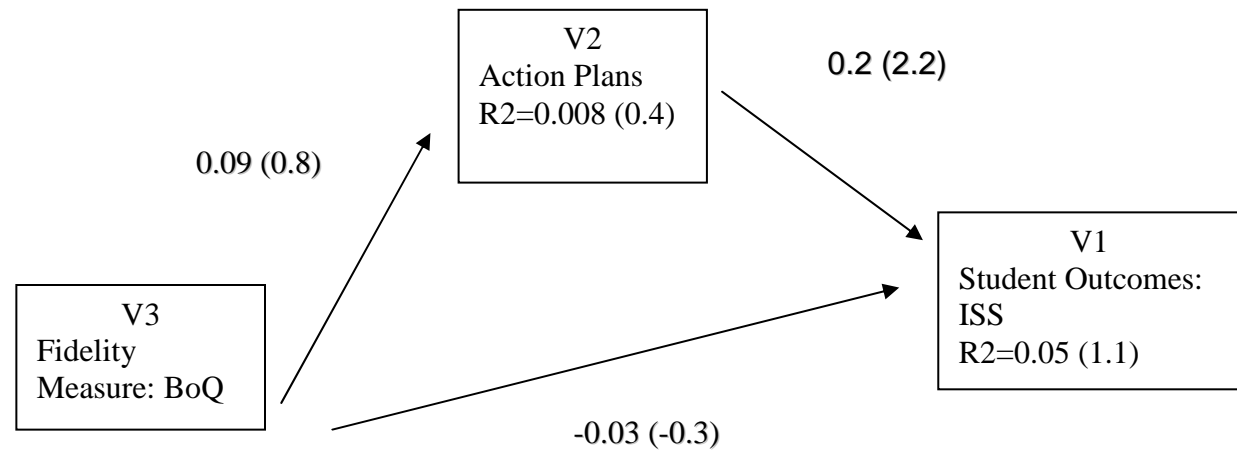


Figure B2. SEM Model 1 Rate of ISS Per Student. This model demonstrates the exploratory path analysis developed to explain the variance explained by action plans between fidelity and rate of ISS per student.

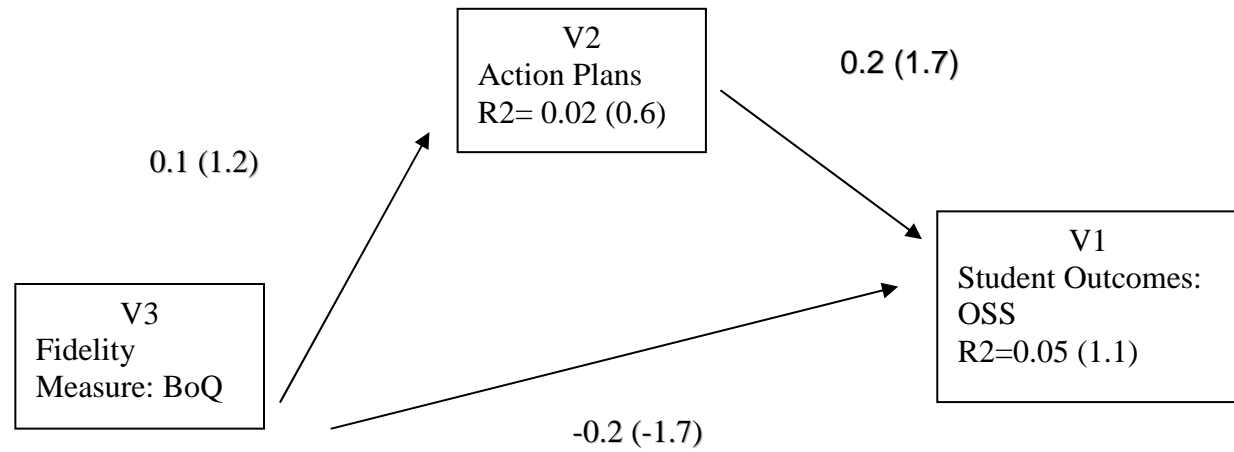


Figure B3. SEM Model 1 Rate of OSS Per Student. This model demonstrates the exploratory path analysis developed to explain the variance explained by action plans between fidelity and rate of OSS per student.

Appendix C

Table C1

Data-Based Item Analysis Per School for Action Plan Items 5, 9, 10

ID Number	5	9	10
1	100	24.1	91.4
2	30	33.3	0
3	40	100	63.2
4	60	63.2	100
5	70	8.7	8.7
6	70	50	72.7
7	100	50	76
8	80	63.2	63.2
9	30	25	0
10	100	16.3	20.9
11	100	52.3	94.9
12	90	45.9	100
13	100	35.2	100
14	90	30.4	43.5
15	30	22.2	55.6
16	90	3.7	45.2
17	100	*	0
18	30	83.3	100
19	90	53.5	81.4
20	100	42.6	97.9
21	80	89.7	100
22	100	83.8	100
23	90	*	0
24	90	70.7	100
25	100	51.6	100
26	30	12.5	0
27	80	9.4	9.4
28	50	38.5	46.2
29	40	35.7	100
30	50	26.7	100
31	10	100	100
32	50	11.8	75.8
33	70	25	100
34	100	50.8	92.9
35	100	65.9	80.5

36	100	86.1	100
37	80	51.1	66.7
38	60	81.8	100
39	80	60.7	53.6
40	100	86.7	100
41	40	5.9	0
42	100	69.7	100
43	100	67.7	83.9
44	70	100	45.5
45	100	19.5	80.5
46	100	59.5	98.7
47	100	50	90.5
48	100	72.1	100
49	100	82	98
50	100	30.2	34.9
51	100	42.5	62.9
52	90	43.4	75.5
53	30	18.2	9.7
54	70	78.8	100
55	70	26.1	91.3
56	90	46.6	5.2
57	70	61.5	100
58	70	52	68
59	30	50	81.3
60	50	64.3	92.9
61	90	30.8	100
62	40	16.7	91.7
63	70	50	86.9
64	70	19.7	100
65	60	46.3	95.1
66	60	41.9	96.8
67	80	40	97.1
68	100	69	72.4
69	50	81.6	100
70	90	35.1	96.1
71	100	69.6	94.6
72	80	84.6	100
73	100	61.9	90.5
74	100	76.8	97.4
75	80	65.9	100
76	100	65.9	100
77	30	54.5	100

78	100	19	95.2
79	100	26.8	47.6
80	100	22.2	98.4
81	40	23.1	7.7
82	10	50	83.3
83	20	25	0
84	20	42.9	100
85	20	75	25
86	80	20.6	52.9
87	20	16.7	0
88	50	*	0
89	60	11.1	0
90	50	58.3	100
91	100	29.2	66.7
92	20	22.2	33.3
93	60	31.8	86.4
94	50	58.8	64.7
95	40	11.1	56
96	50	6.7	0
97	40	62.5	100
98	90	43.4	100
99	20	*	10
100	60	13	15.4
101	80	22.2	22.2
102	0		0
103	60	3.4	6.9
104	80	100	26.1
105	40	41.7	83.3
106	80	54.1	48.6
107	50	31.3	31.3
108	60	77.3	95.5
109	70	40	80
110	50	28.6	46.4
111	70	6.9	0
112	80	34.4	53.1
113	40	40	0
114	60	3.4	13.8
115	40	87.5	100
116	100	28	0
117	100	68.9	97.8
118	90	43.8	100
119	70	41.2	41.2

120	50	23.5	100
121	80	45.8	100
122	90	43.9	80.5
123	30	25	0
124	50	11.6	79.1
125	90	55.6	100
126	30	23.5	17.6
127	90	30.8	73.1
128	70	*	0
129	60	*	0
130	10	33.3	33.3
131	50	70	0
132	10	20	100
133	20	*	0
134	70	87	87
135	50	60	100
136	80	4.3	4.3
137	30	40	0
138	60	84.2	89.5
139	60	*	0
140	40	27.8	66.7
141	30	83.3	83.3
142	30	42.9	0
143	80	60	60
144	0	*	0
145	0	*	0
146	90	43.5	100
147	50	*	100
148	50	27.3	31.8
149	90	18.9	1.9
150	50	7.7	0
151	50	70.2	100
152	100	39.6	87.5
153	70	22.9	20
154	100	34.8	79.7
155	50	33.3	5.6
156	60	14.3	28.6
average	65.50955	29.88889	61.36178
median	70	42.2	79.85
mode	100	50	100
standard deviation	28.28135	23.96639	39.61543
1/2 standard	14.14	11.98319	19.80771

deviation			
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*Indicates that the school did not list a person for taking responsibility of any of the action steps

Appendix D

District: _____ School Name: _____ Date: _____ Rater: _____

Action Planning Scoring Guide

The purpose of this scoring guide is to examine the quality of action plans schools develop to assist them with the implementation of a new initiative on their school campus. The elements of this scoring guide were developed based on the essential components identified in the literature that should be on a well developed action plan. An action plan should be an ongoing, living document that the school updates regularly as they move forward with their implementation of an initiative. The action plan is meant as a tool to assist with holding a school accountable for implementation of any school-based initiative, therefore, the action plan should be periodically reviewed.

The intention of this scoring guide is that it can be used in conjunction with the development of action plans for any school based initiative. As a result of this, it will be necessary to identify up front the critical/essential elements (i.e. teaming, consensus building, professional development, evaluation, etc.) that constitute the initiative to assist with scoring item #5. Please list out the critical/essential elements in the spaces below:

1.	2.	3.	4.	5.
6.	7.	8.	9.	10.

The scoring rubric consists of nine indicators with possible point values of 0, 1, or 2 for each indicator. There is possible total score of 18 points. While scoring the rubric, the rater should be flexible when scoring items #7 and #9. For example, if there happens to be one or two items that are missing a person responsible or date (i.e. 2 out of 20 items) than the rater may want to give the highest score. The rater should provide the Total Score for the school as well as additional comments and feedback.

Action Plan Scoring Rubric

Indicator	2	1	0
1. Teaming. The team consists of 5-8 team members.	The team consists of 5-8 individuals.	The team consists of more than 8 people.	The team consists of less than 5 people or there is no indication of how many people are on the team.
2. Teaming. Each team members has a role or responsibility (i.e. team leader, recorder, time keeper, etc.).	Each team member has an assigned role or responsibility (i.e. team leader, recorder, time keeper, etc.).	Only some team members have an assigned role or responsibility (i.e. team leader, recorder, time keeper, etc.).	No one has an assigned role or responsibility (i.e. team leader, recorder, time keeper, etc.) or there is no indication of each team member's role.
3. Meeting. The team meets on a monthly basis to action plan for implementation.	The team has a regularly scheduled team meeting at least 1 time a month for at least 1 hour.	The team has a regularly scheduled team meeting 1 time a month but less than 1 hour or the team has more than 1 meeting scheduled with each meeting lasting less than 1 hour or there is no indication of the length of the meeting.	The team does not have a regularly scheduled team meeting or it does not occur at least monthly or there is no indication of monthly meeting date and time.
4. Mission Statement/Team Goal. The team has a mission statement or goal including a desired outcome which helps to drive their actions.	The team has an identifiable mission statement or goal that includes an observable and measureable desired outcome.	The team has an identifiable mission statement or goal but it lacks an observable and measureable desired outcome.	The team does not have a mission statement or goal identified.
5. Critical Elements. The action plan addresses all the critical elements.	80% or more of the critical elements have a minimum of one item identified that needs to be addressed.	79%-51% of the critical elements have a minimum of one item identified that needs to be addressed.	50% or less of the critical elements have a minimum of one item identified that needs to be addressed. If a

			critical element is not addressed there is no indication that the element is already in place.
7. Action Steps. The action items are task analyzed into smaller steps that need to be completed.	Each action item has two or more tasks that need to be accomplished.	Each action item has at least one specified task that needs to be accomplished.	There are no tasks listed that need to be completed or the steps listed simply restate the action item.
8. Persons Responsible. All tasks have been assigned a person to be held accountable for its completion.	All tasks (100%) have been assigned.	Some tasks are assigned.	No tasks are assigned for completion.
9. Persons Responsible. All team members take on a variety of tasks to assist with the completion of the action steps identified in indicator #7.	All team members have tasks assigned to them and one person is not taking on more than 30% of the assigned tasks.	More than 30% of the tasks have been assigned to one person or to the entire team.	One person is assigned to all tasks or every item is listed as being completed by the team or no one is identified for any tasks. If item # has a 0 than this item must have a zero.
10. Dates Completed. A timeline has been set for when each action item will be completed or followed up.	All action steps have completion dates. Dates do not have to be specific but do specify a time period (i.e. August, end of 1 st grading period, end of 2 nd semester)	Only some (60% or greater) of the action steps have dates for completion.	Less than 60% of the action steps have dates for completion or the completion dates are the same for all items or all dates are listed or ongoing is listed for all items.
Total Score			/18

Appendix E

Table E1

BoQ Scores Across School Years and Point Change

ID	BoQB	BoQ1	Point Difference
2	12	99	87
3	28	101	73
4	36	102	66
5	21	78	57
6	47	106	59
7	64	24	-40
8	43	11	-32
9	22	59	37
12	35	97	62
14	7	100	93
15	19	107	88
17	30	107	77
18	47	99	52
21	83	100	17
22	50	107	57
23	21	95	74
23	21	105	84
25	20	91	71
29	3	65	62
30	33	72	39
31	29	80	51
33	25	60	35
32	44	45	1
35	22	64	42
36	37	60	23
37	24	38	14
38	36	96	60
39	21	63	42
40	31	66	35
42	15	66	51
43	22	99	77
44	18	97	79
45	22	35	13

46	23	64	41
47	50	63	13
48	77	21	-56
49	44	96	52
50	19	86	67
51	37	11	-26
52	16	73	57
53	18	74	56
54	23	66	43
55	60	99	39
56	63	84	21
57	62	100	38
48	24	93	69
59	58	104	46
60	33	73	40
61	20	70	50
62	19	99	80
63	7	94	87
64	16	84	68
65	9	97	88
66	6	93	87
67	8	44	36
68	42	98	56
69	7	107	100
70	8	61	53
71	29	102	73
72	9	99	90
74	21	61	40
75	21	105	84
76	14	55	41
77	35	90	55
81	45	104	59
82	51	67	16
83	27	16	-11
84	37	63	26
85	55	66	11
87	61	96	35
88	25	83	58
89	60	77	17
90	54	96	42
91	46	59	13
93	61	35	-26

94	29	65	36
95	43	46	3
96	64	95	31
97	34	90	56
98	53	67	14
99	44	83	39
100	72	103	31
101	63	76	13
102	54	97	43
103	21	77	56
104	44	55	11
105	64	79	15
106	22	62	40
107	18	55	37
108	18	75	57
109	27	61	34
110	30	13	-17
111	45	66	21
112	45	74	29
113	7	63	56
114	28	57	29
115	8	22	14
116	15	74	59
117	22	89	67
119	24	53	29
120	36	87	51
121	21	86	65
122	9	94	85
123	40	85	45
124	26	59	33
125	35	19	-16
126	35	61	26
128	36	76	40
129	29	72	43
130	27	27	0
131	27	46	19
132	25	97	72
134	20	49	29
135	49	89	40
137	43	18	-25
138	16	21	5
143	20	32	12

144	44	83	39
145	27	94	67
149	20	69	49
151	49	81	32
153	23	38	15
152	26	94	68
155	14	76	62
156	33	85	52
Average	32.096	73.256	41.16
Standard Deviation	17.11273	25.30807	30.00252678

Appendix F

Table F1

Action Plan Scores Per Item by School

ID Number	1	2	3	4	5	6	7	8	9	Total
1	1	2	2	1	2	1	2	2	2	15
2	0	0	0	0	0	0	1	2	0	3
3	0	0	0	0	0	2	2	1	0	5
4	0	0	0	0	1	1	1	1	2	6
5	2	2	2	0	1	2	0	2	0	11
6	0	0	0	0	1	0	1	1	1	4
7	1	2	1	1	2	2	2	1	1	13
8	2	2	1	1	2	1	0	0	0	9
9	1	2	1	1	0	1	2	2	0	10
10	0	0	1	0	2	1	1	2	0	7
11	0	0	0	0	2	1	2	1	2	8
12	2	2	2	2	2	2	2	1	2	17
13	0	0	1	0	2	2	2	2	2	11
14	0	0	0	0	2	1	1	0	0	4
15	2	0	1	1	0	0	0	0	0	4
16	2	2	1	1	2	1	1	2	0	12
17	2	2	1	1	2	2	0	0	0	10
18	0	0	1	0	0	1	2	0	2	6
19	1	1	2	1	2	1	2	1	1	12
20	0	0	0	0	2	2	2	1	2	9
21	0	0	0	0	2	2	2	0	2	8
22	0	0	0	0	2	2	2	0	2	8
23	0	0	0	0	2	2	0	0	0	4
24	0	0	0	0	2	2	2	1	2	9
25	0	0	0	0	2	1	2	1	2	8
26	1	1	2	1	0	0	1	2	0	8
27	1	2	1	2	2	0	1	2	0	11
28	2	2	1	1	0	1	2	1	0	10
29	0	0	0	0	0	1	2	1	2	6
30	0	0	2	1	1	1	2	2	2	11
31	1	2	1	1	0	1	1	0	2	9
32	0	0	0	0	1	2	1	2	1	7
33	1	2	1	0	1	2	2	2	2	13
34	0	0	1	0	2	2	2	1	2	10
35	1	1	1	1	2	2	2	1	2	13

36	1	2	1	1	2	2	2	1	2	14
37	2	2	1	1	2	2	1	1	1	13
38	1	2	1	1	1	1	2	0	2	11
39	2	2	1	2	2	2	1	1	0	13
40	2	2	1	0	2	2	2	1	2	14
41	2	2	1	1	0	2	0	0	0	8
42	0	0	0	0	2	2	2	1	2	9
43	0	0	0	0	2	1	2	1	1	7
44	0	2	2	0	1	1	2	1	2	11
45	0	0	0	0	2	1	1	2	2	8
46	0	0	1	0	2	2	2	1	2	10
47	0	0	0	0	2	2	2	1	2	9
48	0	0	0	0	2	1	2	1	2	8
49	0	0	0	0	2	1	2	1	2	8
50	0	0	0	0	2	1	2	2	0	7
51	0	0	0	0	2	2	1	1	1	7
52	0	0	0	0	2	2	1	1	1	7
53	1	0	1	0	0	0	1	2	0	5
54	2	2	1	0	1	2	2	1	2	13
55	1	2	2	0	1	2	2	2	2	14
56	0	0	0	0	2	2	2	1	0	7
57	2	1	2	1	1	2	2	1	2	14
58	0	0	0	0	1	2	2	1	1	7
59	0	0	0	0	0	2	2	1	1	6
60	0	0	0	0	0	2	2	1	1	6
61	0	0	0	0	2	2	2	2	2	10
62	2	2	2	1	0	2	1	2	2	14
63	0	0	0	0	1	1	1	1	1	5
64	0	0	0	0	2	2	2	2	2	10
65	2	2	1	1	1	2	2	1	2	14
66	0	0	0	0	1	2	2	1	2	8
67	0	0	0	0	2	1	2	1	2	8
68	1	2	2	2	1	1	1	1	1	12
69	1	0	2	0	0	2	2	1	2	10
70	1	2	2	1	2	2	2	1	2	15
71	1	2	1	1	2	2	1	1	2	13
72	1	2	1	2	2	2	2	1	2	15
73	0	0	0	0	2	1	2	1	2	8
74	2	2	2	2	2	2	2	1	2	17
75	0	0	0	0	2	2	2	1	2	9
76	1	1	1	2	2	2	2	1	2	14
77	0	0	0	0	0	2	2	1	2	7

78	0	0	0	0	2	1	2	2	2	9
79	0	0	0	0	2	1	1	2	0	6
80	0	0	0	0	2	2	2	2	2	10
81	1	0	1	1	0	2	1	2	0	8
82	0	0	0	0	0	2	1	1	1	5
83	0	0	0	0	0	0	1	2	0	3
84	1	1	0	0	0	2	2	1	2	9
85	0	0	0	0	0	0	1	1	0	2
86	1	0	0	0	2	2	1	2	0	8
87	0	0	0	0	0	2	1	2	0	5
88	1	0	0	2	0	1	0	0	0	4
89	0	0	0	0	1	1	1	2	0	5
90	2	1	2	1	0	2	2	1	2	13
91	0	0	0	0	2	2	2	2	1	9
92	1	0	1	1	0	1	1	2	0	7
93	0	0	0	0	1	0	1	2	1	5
94	0	0	0	0	0	2	2	1	1	6
95	0	0	0	0	0	0	1	2	0	3
96	2	0	2	0	0	0	1	2	0	7
97	1	1	1	1	0	2	2	1	2	11
98	2	2	1	1	2	0	1	1	2	12
99	1	1	1	2	0	0	0	0	0	5
100	2	1	1	0	1	2	1	2	0	10
101	1	2	1	2	2	0	1	2	0	11
102	2	2	1	1	0	0	0	0	0	6
103	0	0	1	0	1	2	1	2	0	7
104	0	0	0	0	2	2	2	2	2	10
105	1	1	2	2	0	2	2	1	1	12
106	0	0	0	0	2	2	1	1	0	6
107	0	0	0	0	0	2	1	1	0	4
108	0	0	0	0	1	1	2	1	2	7
109	0	0	0	0	1	0	1	1	1	4
110	0	0	0	0	0	2	1	1	1	5
111	0	0	0	0	1	1	0	0	0	2
112	0	0	0	0	2	2	1	1	0	6
113	0	0	0	0	0	1	1	0	0	2
114	0	0	0	0	1	2	0	0	0	3
115	0	0	0	0	0	2	2	1	2	7
116	0	0	1	0	2	2	1	2	0	8
117	0	0	0	0	2	2	2	1	2	9
118	0	0	0	0	2	2	2	1	2	9
119	0	0	1	0	1	1	1	1	1	6

120	0	0	0	0	0	2	1	2	2	7
121	0	0	0	0	2	2	2	1	2	9
122	0	0	0	0	2	2	2	1	1	8
123	0	0	0	0	0	0	1	2	0	3
124	0	0	0	0	0	2	1	2	1	6
125	0	0	0	0	2	1	2	1	1	7
126	0	0	0	0	0	0	1	2	0	3
127	1	0	2	1	2	1	1	2	1	11
128	0	0	0	0	1	1	0	0	0	2
129	0	0	0	0	1	2	0	0	0	3
130	2	2	1	1	0	2	0	0	0	8
131	1	2	2	0	0	0	1	0	0	6
132	0	0	0	0	0	1	2	2	2	7
133	1	1	2	1	0	0	0	0	0	5
134	0	0	0	0	1	1	1	0	1	4
135	2	2	1	1	0	2	1	1	2	12
136	0	0	0	0	2	1	1	1	0	5
137	2	2	1	0	0	0	1	2	0	8
138	2	2	1	1	1	2	2	1	1	13
139	1	2	0	1	1	2	0	0	0	7
140	0	0	0	0	0	1	2	2	1	6
141	0	0	0	0	0	1	2	1	2	6
142	1	2	1	1	0	1	1	0	0	7
143	0	0	0	0	2	1	2	1	1	7
144	2	2	2	2	0	0	0	0	0	8
145	1	2	1	2	0	0	0	0	0	6
146	2	0	2	1	2	1	2	1	2	13
147	0	0	1	0	0	2	0	0	2	5
148	0	0	0	0	0	0	1	2	0	3
149	0	0	0	0	2	1	1	2	1	7
150	2	0	1	2	0	0	0	0	0	5
151	2	2	2	1	0	2	2	1	2	14
152	2	2	1	0	2	0	1	1	1	10
153	2	2	1	1	1	2	1	2	0	12
154	1	1	1	1	2	2	2	2	1	13
155	2	0	1	0	0	0	1	2	0	6
156	2	1	1	1	1	1	0	0	0	7
Sum	101	100	98	68	168	210	210	176	160	1291
Mean	0.65	0.64	0.63	0.44	1.08	1.35	1.35	1.13	1.03	8.28
Median	0	0	0	0	1	2	1	1	1	8
Mode	0	0	0	0	2	2	2	1	2	7
Standard	0.81	0.89	0.73	0.65	0.89	0.76	0.71	0.71	0.89	3.40

Deviation											
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Appendix G

Table G1

Rates of ODR Per Student For Schools with Action Plans

ID	Baseline Per Student	Year 1 Per Student	% change
1	0.3292	0.3203	-2.7035237
2	0.9227	1.7486	89.5090495
3	1.1196	0.8315	-25.732404
4	1.2676	0.7036	-44.493531
5	0.5015	0.4567	-8.9332004
6	0.53	0.36	-32.075472
12	0.4307	1.0973	154.771303
18	1.3913	1.145	-17.702868
20	0.1563	0.0263	-83.173385
21	5.3047	9.902	86.6646559
22	1.4667	2.6471	80.4799891
23	1.4087	1.104	-21.629872
24	2.615	1.893	-27.609943
25	1.0612	0.6242	-41.179796
29	2.923	2.5884	-11.447143
31	3.3142	2.8836	-12.992577
32	0	0.2887	
34	0.8192	0.5415	-33.898926
35	0.0955	0.316	230.890052
38	0.1855	0.1108	-40.269542
40	0.2588	0.1733	-33.037094
42	0.1211	0.0814	-32.782824
43	0.1103	0.1877	70.1722575
44	0.094	0.1219	29.6808511
46	0.2114	0.6738	218.732261
47	0.2786	0.1389	-50.143575
48	0.6662	0.1654	-75.172621
49	0.457	0.31	-32.166302
54	0.052	0.0296	-43.076923
56	0.6198	0.4545	-26.669894
57	0.2222	0.3869	74.1224122
58	0.567	0.1845	-67.460317
51	0.938	0.6011	-35.916844
52	0.3218	0.4311	33.9651958

59	0.2546	0.2431	-4.5168892
61	2.7627	2.9222	5.77333768
62	0.2118	0.0443	-79.084042
63	0.4408	0.3252	-26.225045
64	0.4458	0.221	-50.4262
65	0.2393	0.1498	-37.400752
66	0.0966	0.2286	136.645963
67	1.0035	0.2857	-71.529646
68	1.7633	0.3075	-82.561107
70	0.8993	0.4704	-47.69265
71	18.7166	8.3556	-55.357276
74	0.3624	0.3062	-15.507726
75	1.0504	1.2986	23.6290937
76	2.2238	1.1781	-47.023114
77	3.0096	1.7022	-43.440989
87	0.2513	0.3326	32.3517708
88	0.2454	0.2794	13.8549307
89	0.4378	0.4109	-6.1443582
90	0.0224	0.0177	-20.982143
91	32.3025	54.1473	67.6257256
92	0.0687	0.1395	103.056769
93	0.0333	0.0904	171.471471
94	0.0425	0.044	3.52941176
95	0.582	0.4717	-18.95189
96	0.1697	0.0841	-50.441956
97	0.2608	0.1193	-54.256135
98	1.0327	1.704	65.0043575
99	0.1569	0.1429	-8.9228808
100	0.1583	0.215	35.818067
101	0.7807	0.6684	-14.384527
102	0.2449	0.222	-9.3507554
103	0.324	0.2746	-15.246914
104	2.5651	2.2784	-11.176952
105	0.1254	0.1178	-6.0606061
106	10.3281	10.2266	-0.9827558
107	0.1878	0.2667	42.0127796
109	0.8748	0.6036	-31.001372
110	0.2215	0.2516	13.5891648
111	0.4061	0.4451	9.60354592
112	0.9305	0.8676	-6.7598066
113	0.6495	0.6862	5.65050038
114	1.162	0.5167	-55.533563

116	0.529	0.4359	-17.599244
118	2.5269	9.1538	262.254145
119	0.5261	0.5227	-0.646265
120	0.5667	0.5063	-10.658197
121	0.8222	0.9975	21.3208465
122	0.3222	0.31	-3.786468
125	0.1395	0.1401	0.43010753
126	0.3795	0.2539	-33.096179
127	6.1915	2.045	-66.970847
128	0.1587	0.0879	-44.612476
129	0.0382	0.0705	84.5549738
130	0.11115	0.24	115.924426
131	0.1188	0.0218	-81.649832
132	0.1332	0.1348	1.2012012
133	0.6276	0.6975	11.1376673
134	0.0329	0.0337	2.43161094
135	0.1957	0.2069	5.72304548
136	0.6399	0.6638	3.73495859
137	0.0997	0.0604	-39.418255
138	0.1459	0.049	-66.415353
139	1.8143	1.7481	-3.6487902
140	1.6136	1.2115	-24.919435
141	0.5842	0.6539	11.9308456
143	0.2423	0.2983	23.1118448
144	0.7652	1.0778	40.8520648
146	0.093	0.1242	33.5483871
147	0.1664	0.0932	-43.990385
148	0.4544	0.2486	-45.290493
149	0.2896	0.3733	28.9019337
150	0.769	0.36	-53.185956
151	0.2934	0.9319	217.620995
154	3.0646	2.1246	-30.672845
155	1.9519	3.0763	57.6054101
156	0.648	0.224	-65.432099
Average	1.338176606	1.431924771	3.83179481
Standard Deviation	3.708220909	5.406248159	67.3167424

Table G2

Rates of ISS Per Student For Schools with Action Plans

School ID	Baseline Per Student	Year 1 Per Student	% Change
1	0.0872	0.0071	-91.8577982
2	1.453	0.8149	-43.9160358
3	0.3137	0.3463	10.39209436
4	0.1784	0.1221	-31.558296
5	0.1018	0.0738	-27.5049116
6	0	0	0
12	0.1413	0.7432	425.9731069
18	0.4967	0.3	-39.601369
20	0	0	0
21	0.3125	4.608	1374.56
22	1.6667	1.1765	-29.4114118
23	1.215	0.3428	-71.7860082
24	0.2575	0.6978	170.9902913
25	0.0816	0.094	15.19607843
29	3.8023	0.7041	-81.4822607
31	0.4162	0.209	-49.7837578
32	0.0166	0.0097	-41.5662651
34	0.0081	0.0033	-59.2592593
35	0	0.0035	
38	0.0043	0.0078	81.39534884
40	0	0	0
42	0.0056	0.0109	94.64285714
43	0.0019	0.0051	168.4210526
46	0.0246	0.0951	286.5853659
47	0.007	0.0028	-60
48	0.0971	0.0952	-1.95674562
49	0.0123	0.0077	-37.398374
52	0.0145	0.0012	-91.7241379
54	0.0248	0.0106	-57.2580645
56	0.0615	0.0591	-3.90243902
57	0	0.0047	
58	0.0175	0.0311	77.71428571
59	0.0172	0.0264	53.48837209
61	0.02	0.0521	160.5
62	0	0.02	
63	0.0299	0.0148	-50.5016722

64	0.0289	0.0131	-54.6712803
65	0.0256	0.0257	0.390625
66	0.0852	0	-100
67	0.1287	0.2044	58.81895882
68	0.7386	0.2246	-69.5911183
69	0	0	0
70	0.5916	0.2849	-51.8424611
71	0.9198	1.1389	23.82039574
72	0.0038	0.0029	-23.6842105
74	0.0163	0.0056	-65.6441718
75	0	0.4217	
76	0	0.5092	
77	0	0.3528	
87	0	0.0091	
88	0.0911	0.0533	-41.492865
89	0.0756	0.0816	7.936507937
90	0	0.0048	
91	28.6723	41.8372	45.91504693
92	0.0014	0	-100
93	0.0116	0.0143	23.27586207
94	0.0167	0.0165	-1.19760479
95	0.1623	0.1335	-17.7449168
96	0.0084	0.0032	-61.9047619
97	0.035	0.0092	-73.7142857
98	0.08	0.1781	122.625
99	0.0286	0.0321	12.23776224
100	0.03231	0.0366	13.27762303
101	0.2877	0.17	-40.9106708
102	0.0952	0.0987	3.676470588
103	0.0636	0.12254	92.67295597
104	0.7313	0.6369	-12.9085191
105	0.0059	0.0315	433.8983051
106	3.5625	3.0156	-15.3515789
107	0.0204	0.0187	-8.33333333
109	0.2567	0.1643	-35.9953253
110	0	0	0
111	0.0519	0.0569	9.633911368
112	0	0.0271	
113	0.0031	0.0033	6.451612903
114	0.0231	0.0071	-69.2640693
115	0.0043	0.0047	9.302325581
116	0.26	0.0092	-96.4615385

118	2.3226	6.712	188.9864807
119	0.0321	0.0197	-38.6292835
120	0.0175	0.0018	-89.7142857
121	0.3704	0.0458	-87.6349892
122	0.0422	0.0262	-37.9146919
125	0.0184	0.0077	-58.1521739
126	0.1255	0.0421	-66.4541833
127	0.043	0.021	-51.1627907
128	0.017	0.0112	-34.1176471
129	0.0014	0.0122	771.4285714
130	0.0294	0.061	107.4829932
131	0.0058	0.115	1882.758621
132	0.042	0.0583	38.80952381
133	0.2108	0.1958	-7.11574953
134	0	0.0022	
135	0.0178	0.0138	-22.4719101
136	0.3647	0.4234	16.09542089
137	0	0.015	
138	0.0623	0.0013	-97.9133226
139	0.5732	0.9404	64.06140963
140	0.4745	0.9869	107.9873551
141	0.2042	0.2945	44.22135162
143	0.0069	0.0486	604.3478261
144	0.1309	0.2916	122.7654698
146	0	0	0
147	0.0015	0.0536	3473.333333
148	0.0012	0	-100
149	0	0	0
150	0.6223	0.488	-21.5812309
151	0.0178	0.0227	27.52808989
153	0.0146	0	-100
155	1.7221	2.768	60.73398757
156	0.2232	0.2164	-3.04659498
Average	0.501996486	0.671682342	86.67242279
Standard Deviation	2.764642505	4.036735365	433.0187397

Table G3

Rates of OSS Per Student For Schools with Action Plans

School ID	Baseline Per Student	Year 1 Per Student	% Change
1	0.1068	0.0534	-50
2	1.2635	0.295	-76.65215671
3	0.4588	0.2759	-39.86486486
4	0.1441	0.0941	-34.6981263
5	0.1572	0.2239	42.43002545
6	0.0377	0.0548	45.35809019
12	0.2413	0.7432	207.9983423
18	0.1717	0.0775	-54.86313337
21	1.9375	2.3333	20.4283871
22	1.8667	3.5294	89.07162372
23	0.1908	0.0665	-65.14675052
24	0.1188	0.2995	152.1043771
25	0.1973	0.0403	-79.57425241
29	0.4342	1.8475	325.4951635
31	0.3792	0.5738	51.3185654
32	0.0566	0.163	187.9858657
34	0.0163	0.0166	1.840490798
35	0.0973	0.0671	-31.03802672
38	0.0086	0.0156	81.39534884
40	0.0201	0.033	64.17910448
42	0.0433	0.0271	-37.41339492
43	0.0669	0.0614	-8.22122571
46	0.1678	0.128	-23.71871275
47	0.0099	0.0486	390.9090909
48	0.0492	0.0556	13.00813008
49	0	0.0076	
51	0.0801	0.5	524.2197253
52	0.1419	0.2049	44.397463
54	0.0201	0.0059	-70.64676617
55	0.0141	0.0379	168.7943262
57	0	0.0047	
58	0.099	0.0757	-23.53535354
59	0.0637	0.037	-41.91522763
61	0.3657	0.8094	121.3289582
62	0.0014	0.01	614.2857143
63	0.0367	0.0418	13.89645777

64	0.18	0.0094	-94.77777778
65	0.0185	0.0642	247.027027
66	0.0114	0.0429	276.3157895
67	0.1747	0.3705	112.0778477
68	0.5814	0.0828	-85.75851393
69	0.1356	0.0543	-59.95575221
70	0.3077	0.1855	-39.71400715
71	4.1337	1.0056	-75.67312577
72	0.005	0.0043	-14
74	0.0364	0.0134	-63.18681319
75	1.4136	1.2707	-10.10894171
76	0.8906	1.0538	18.3247249
77	1.323	1.0105	-23.62055933
87	0.0685	0.1109	61.89781022
88	0.0539	0.0496	-7.977736549
89	0.1089	0.0669	-38.56749311
90	0.0048	0.0048	0
91	1.437	1.6357	13.82741823
92	0.0044	0.0233	429.5454545
93	0.0217	0.0215	-0.921658986
94	0.0103	0.0178	72.81553398
95	0.0723	0.1316	82.01936376
96	0.1261	0.0381	-69.78588422
97	0.0515	0.0275	-46.60194175
98	0.4682	0.6032	28.8338317
99	0.0199	0.0185	-7.035175879
100	0.0501	0.0335	-33.13373253
101	0.3156	0.1659	-47.43346008
102	0.0328	0.034	3.658536585
103	0.0873	0.0972	11.34020619
104	0.6959	0.6633	-4.684581118
105	0.0015	0.0137	813.3333333
106	9.5	9.6406	1.48
107	0.0122	0.0613	402.4590164
109	0.2472	0.3696	49.51456311
110	0.1013	0.148	46.10069102
111	0.0322	0.0353	9.627329193
112	0.1778	0.2137	20.1912261
113	0.2473	0.3886	57.13708047
114	0.4028	0.3476	-13.7040715
115	0.1734	0.0744	-57.09342561
116	0.0197	0.3599	1726.903553

118	19.5878	40.6442	107.497524
119	0.0281	0.0712	153.3807829
120	0.1175	0.1664	41.61702128
121	0.4222	0.5293	25.36712459
122	0.1	0.1114	11.4
125	0.0891	0.1094	22.78338945
126	0.176	0.0685	-61.07954545
127	8.9361	1.0944	-87.75304663
128	0.0139	0.0196	41.00719424
129	0.0464	0.0881	89.87068966
130	0.0943	0.103	9.225874867
131	0.0092	0.0103	11.95652174
132	0.031	0.0328	5.806451613
133	0.1704	0.2314	35.79812207
134	0	0.0022	
135	0.0237	0.0138	-41.7721519
136	0.485	0.6308	30.06185567
137	0.022	0.0359	63.18181818
138	0.0195	0.052	166.6666667
139	0.5444	0.7187	32.01689934
140	0.8659	0.8872	2.459868345
141	0.2602	0.4119	58.30130669
143	0.0195	0.052	166.6666667
144	0.1187	0.2411	103.1171019
146	0	0.0261	
147	0.0277	0.1852	568.5920578
148	0.04	0.0871	117.75
149	0.1604	0.1795	11.90773067
150	0.1468	0.1189	-19.00544959
151	0.0146	0.0535	266.4383562
153	0.3562	1.3865	289.2476137
155	0.4379	1.3912	217.6981046
156	0.0769	0.0656	-14.69440832
Average	0.596954054	0.749928829	80.74172976
Standard Deviation	2.239154262	3.95730919	223.8740201

Appendix H

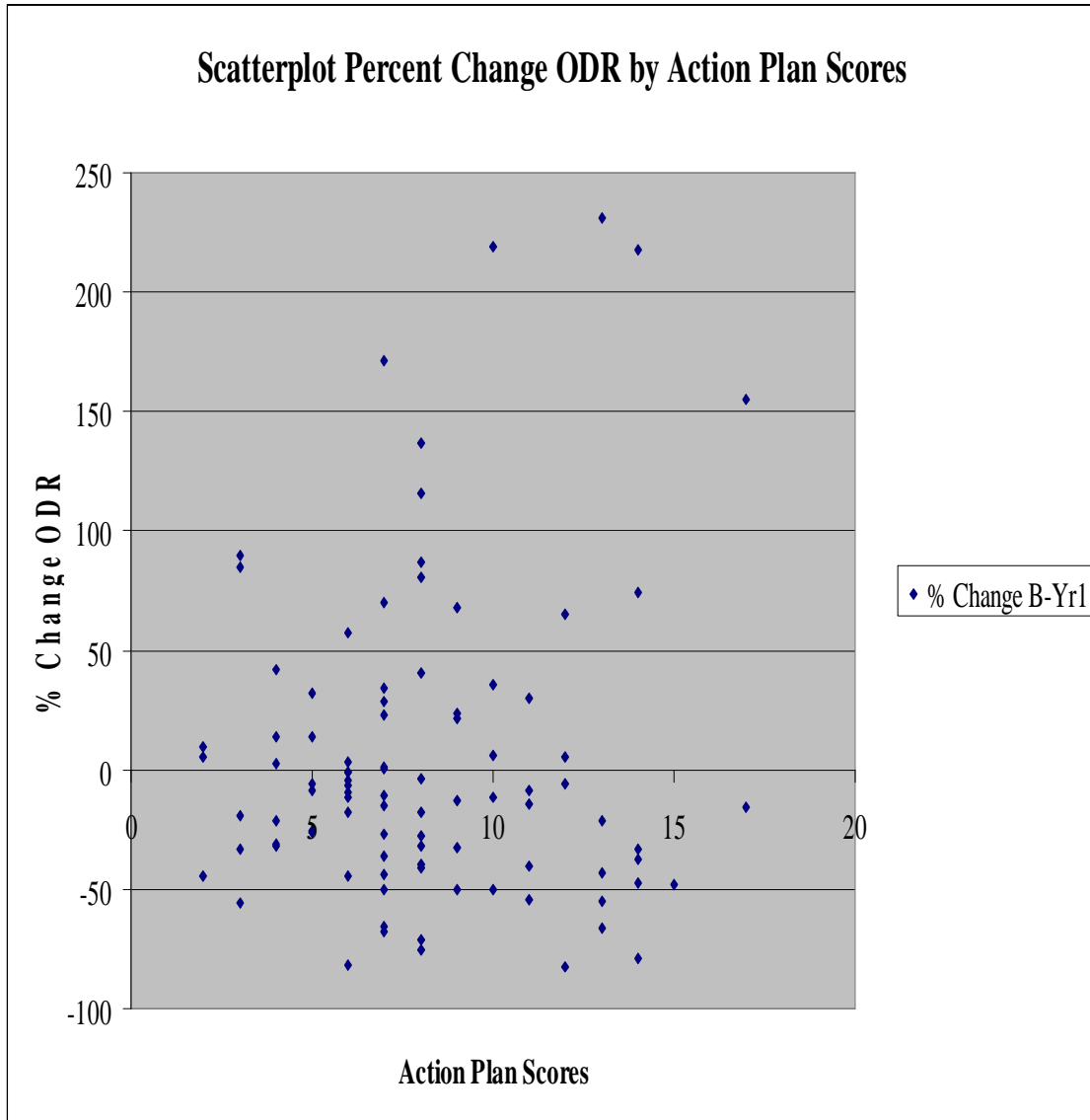


Figure 13: Scatter plot Percent Change ODR by Action Plan Scores. This scatterplot provides a visual depiction of the percent of change in ODR rates per 100 students in comparison to the action plan scores.

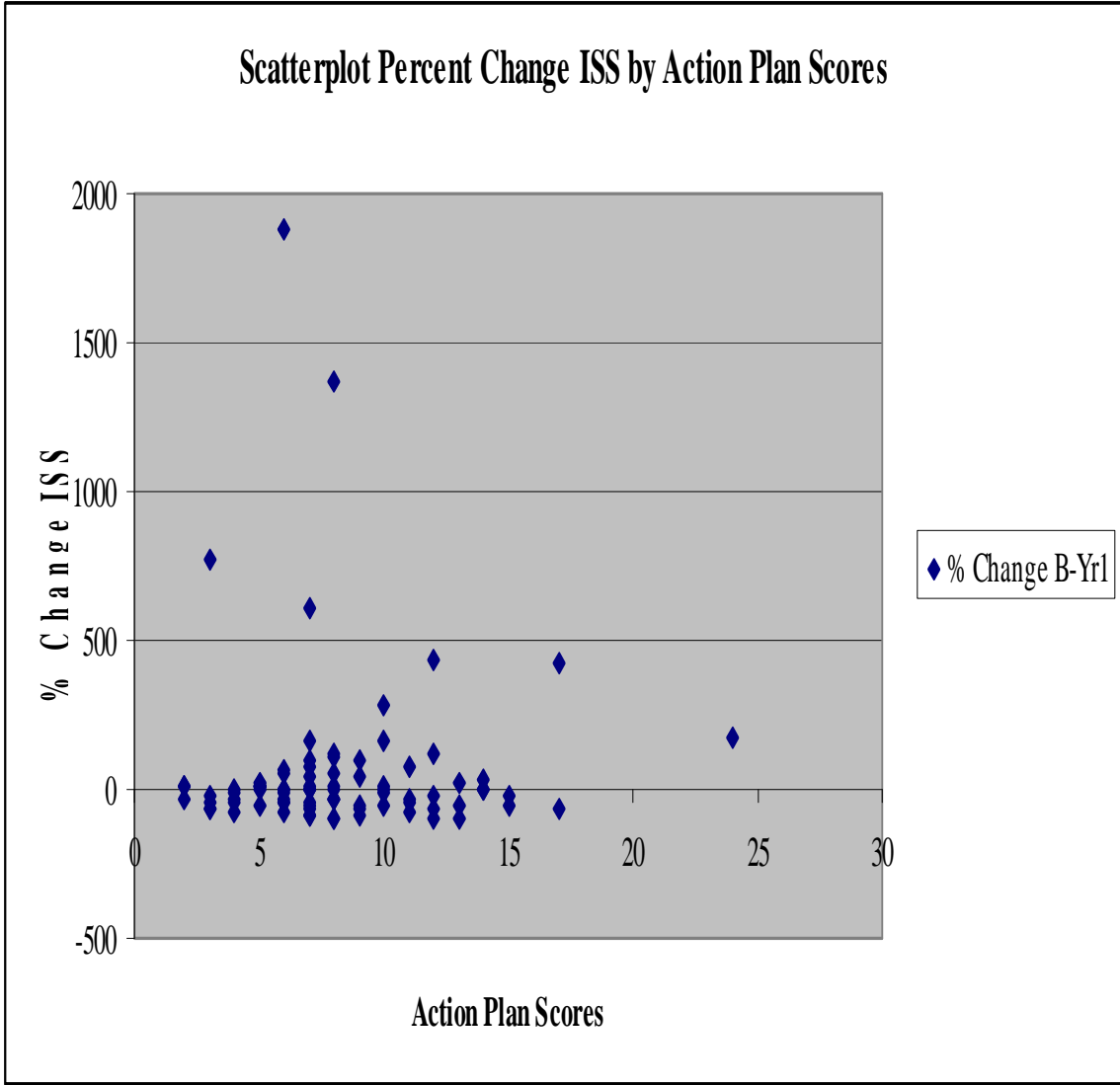


Figure 14: Scatter plot Percent Change ISS by Action Plan Scores. This scatterplot provides a visual depiction of the percent of change in ISS rates per 100 students in comparison to the action plan scores.

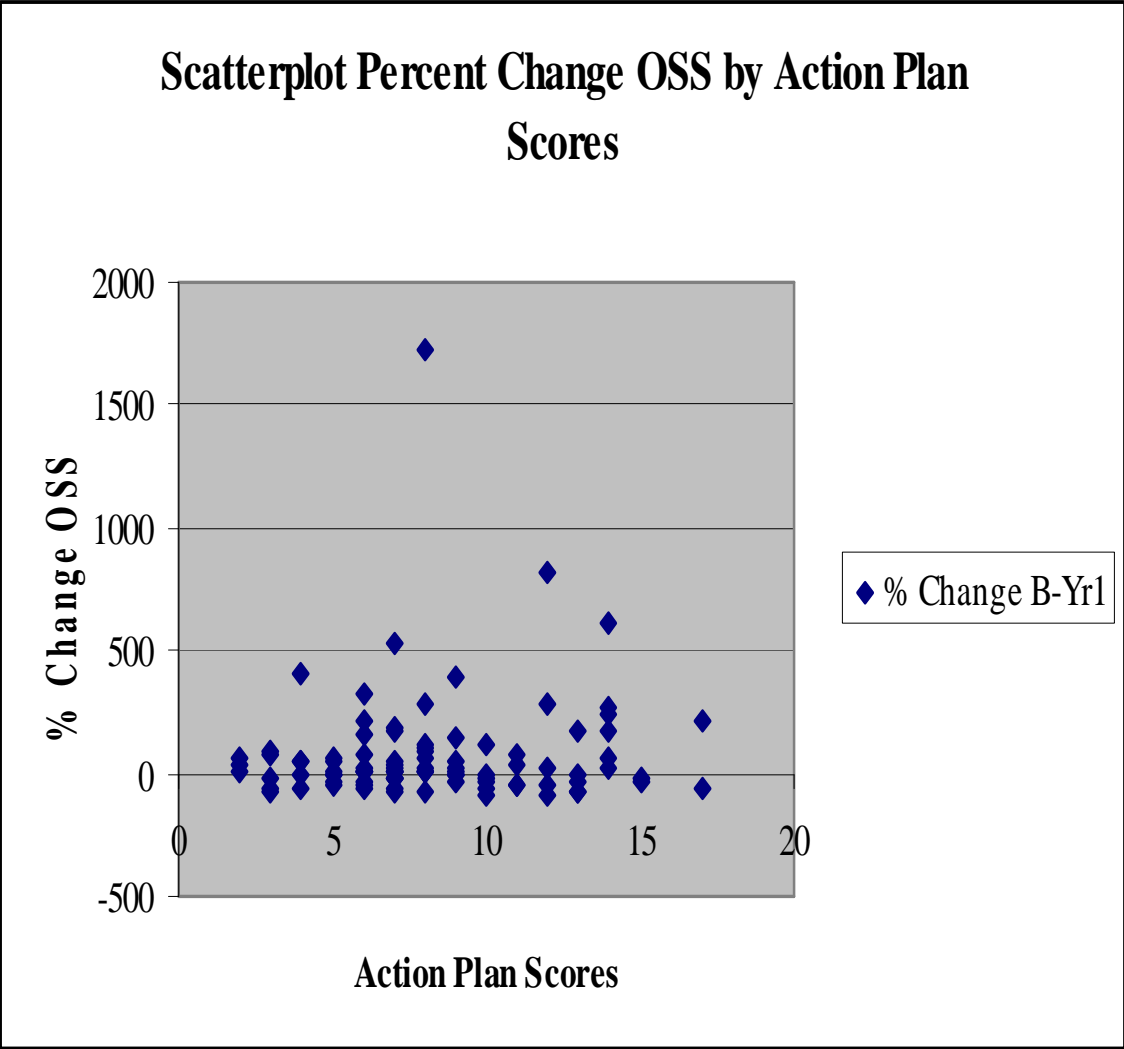


Figure 15: Scatter plot Percent Change OSS by Action Plan Scores. This scatterplot provides a visual depiction of the percent of change in OSS rates per 100 students in comparison to the action plan scores.