Examining Proportional Representation of Ethnic Groups within the SWPBIS Model

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A dissertation
submitted in partial fulfillment of the
requirements for the degree of

Doctor of Philosophy

University of Washington

2012

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Program Authorized to Offer Degree:

Department of Special Education

University of Washington

Abstract

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The quantitative study seeks to analyze if School-wide Positive Behavior Intervention and Support (SWPBIS) model reduces the likelihood that minority students will receive more individualized supports due to behavior problems. In theory, the SWPBIS model should reflect a 3-tier system with tier 1 representing approximately 80%, tier 2 representing 15% and tier 3 representing 5% of all students within the school. The study uses the amount of Office Discipline Referrals as an indicator if students need group or individualized support, found within tier 2 or 3. A statistical representation of each schools overall 3-tier layout is calculated based on whole school population and then on students of specific minority population. The percentages of minority students in each section of the tiers, based on ODRs, should reflect the basic SWPBIS model should proportionally reflection the population of students within the school. An additional analyze of the predictive variables, school and student, will be evaluated as to the impact they present on the likelihood of a student needing additional support. The results will examine whether or not that the SWPBIS model is reducing disproportionality by proportionally representing students within tier 2 and 3. It will also provide insight into other potential predictor variables beyond ODRs, for students being within tier 2 or 3 supports. Understanding if students are represented proportionally within in the tiers can impact future research and practices around SWPBIS. It can also impact the affectability of SWPBIS as a piece of the Response to Intervention (RtI) used to determine if students are at risk for special education supports within Emotional Behavior Disorder (EBD).

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Chapter 1: INTRODUCTION TO THE STUDY

Background

In many school systems across the nation, when a student demonstrates inappropriate school behavior, such as fighting, defiance, disruption, noncompliance, tardiness, or truancy, he or she receives a disciplinary action or punitive consequence from a teacher or administrator (Edelman, Beck, & Smith, 1975; Imich, 1994; McFadden, Marsh, Price, & Hwang, 1992; Spaulding, Ivan, Horner, May, Emeldi, Tobin & Sugai, 2010). Between 47% and 64% of these problem behaviors come from students in the general education classroom and are documented in an Office Discipline Referral (ODR) (Spaulding et al., 2010). Once an administrator receives the ODR, the most common disciplinary practice is punitive (Skiba, Peterson, & Williams, 1997).

Common punitive consequences that schools use include detention, loss of privileges, time in office, and in- and out-of-school suspensions (Edelman et al., 1975; McFadden et al., 1992; Spaulding et al., 2010; Uchitelle, Bartz, & Hillman, 1989). Although expulsion was noted in less than 1% of the data in Spaulding et al. (2010), the authors stated that this could be an underestimated number because most schools must complete a hearing process in order for a student to be removed from the school. Use of punitive practices, such as suspension, is documented over the past four decades, showing up in articles as early as the 1970s. The Children's Defense Fund (1974), for example, found that 1 in every 24 students in elementary schools and 1 in every 13 students at secondary level schools were suspended at least once during a school year. Some school districts had a suspension rate as high as 40.9% of the school's of the entire district's population.

In a national analysis completed by Wu, Pink, Crain, and Mole (1982), research demonstrated that 11% of U.S. students had been suspended at least one time during their school

careers. Punitive practices, like suspensions, started to receive policy makers' attention as researchers connected the punitive methods to increases in aggression, violence, and dropout rates in schools (Costenbader & Markson, 1994; Ekstrom, Goertz, Rollack, & Rock, 1986; Helen & Ehrlich, 1984; Henggeler, Melton, & Smith, 1992; National Dropout Prevention Center, 1992).

Prevention of problem behaviors within schools became the focus among researchers and policy makers in the 1990s. Researchers started understanding that in order to reduce suspensions and exclusionary practices and to increase academic achievement, problem behaviors within both the classroom and non-classroom areas needed to decrease. Since the 1970s, researchers like Goldiamond (1974) discussed using "Constructive Discipline," which focused on teaching students the desired behaviors rather than punishing undesired behaviors. In 1996, Walker, Horner, and Sugai wrote a landmark paper describing reconceptualization of a school's role in preventing problem behaviors in students struggling with problem behaviors. This paper described how schools should use the United States Public Health Service's conceptual model to restructure the framework of discipline as a three-tiered approach of support. Walker et al. (1996) also described supports and programs for a three-tiered system that was individualized, evidence based, and data driven. Policy makers took this advice and began implementing the first steps in making changes in how schools supported students struggling with behaviors at school.

In 1997, policy makers' first step in establishing behavior supports in schools was adding Positive Behavior Supports (PBS) in the reauthorization of Individuals with Disabilities Education Act (IDEA). Positive Behavior Supports focused on providing supports for students with the most severe problem behaviors, such Severe Emotional Disturbance (SED), autism, or

intellectual disabilities. In the beginning, PBS's emphasis was on supporting students with severe behavior problems in learning school- appropriate behaviors through evidence-based practices. With the federal government pushing for better practices and more research, methods of dispensing information around PBS developed very quickly within the same year. Positive Behavior Support grew in adding preventative and intervention supports for at-risk students. The three-tiered system was became more commonly known as Positive Behavior Supports and Interventions (PBIS).

The National Technical Assistance Center for Positive Behavioral Interventions and Supports at the University of Oregon was funded by the U.S. Department of Education with a focus on defining, implementing, and evaluating PBIS across the United States (National TA Center on PBIS, 2012). The reasoning behind developing the Center was to a) document the need for improving the social behavior of students in U.S. schools; b) demonstrate success of PBIS to improve both student social behavior and academic performance; c) demonstrate effectiveness of PBIS as a practical technology that can be implemented at socially important scales by actual implementers; d) the value of school-wide behavior support systems on the education of children with disabilities; and e) a current need to extend PBIS practices to a broader range of students, schools, and contexts (National TA Center on PBIS, 2012). The National TA Center is currently still running and supporting multiple schools across the country in over 40 states in more than 16,000 schools as of 2012 (National TA Center on PBIS, 2012). With the Center established and access for knowledge on PBIS growing, the Association of Positive Behavior Support (APBS) was born. A journal to provide readers with research-based practices around PBIS was also created.

The Journal of Positive Behavior Interventions started publication in 1997 began a national focus on positive supports, interventions, and preventions. The Journal is published through the APBS as a means to dispense information specifically discussed in APBS's mission statement. APBS mission is:

> "To improving the support of individuals in order to reduce behavioral challenges, increasing independence, and ensure the development of constructive behaviors to meet life goals in the areas of social relationships, employment, academic achievement, functional life-skills, self-determination, health, and safety. We believe that the competent and skilled use of PBIS can help individuals make meaningful progress toward these goals" (APBS, 2011).

Each year APBS holds an annual conference separately from the journal. The conference provides up-to-date, research-based practices and a time for collaboration among educators, researchers, administrators and counseling staff. Organizers of the conference hope to continue the evolution of PBIS as a solid practice for schools to use as a prevention and intervention method around problem behaviors. Other groups, such as the Council for Exceptional Children (CEC), the American Educational Research Association (AERA), and the American Psychological Association (APA) are also dispensing information around PBIS and the benefits of schools using the PBIS system to reduce problem behaviors.

Since 1997, the practices of PBIS and School-Wide PBIS (SWPBIS) have grown in schools, districts, and even states. Many states have made SWPBIS a mandatory practice, including California, Texas, Louisiana, Oregon, Illinois, New Hampshire, Maryland, Missouri, Michigan, and Kansas. The integration of SWPBIS into a school's disciplinary practice

represents an effort to reduce problem behaviors, exclusionary practices, and bullying (National TA Center on PBIS, 2012).

As stated above, PBIS was first developed to support, at an individual level, students who were demonstrating aggressive behaviors, but PBIS has evolved to become a three-tier, prevention-based system focused on helping all students develop socially appropriate behaviors through broad systemic change within the school (Carr, Dunlap, Horner, Kroegel, Turnbull, & Sailor, 2002). Today, PBIS is defined as a combination of evidence-based practices, interventions, and system changes and strategies specifically focused on providing empirically supported methods to support the entire school as well as the individual student (Sugai et al., 2005). Schools are choosing to use SWPBIS because it breaks away from reactive, negative disciplinary programs. It also requires schools to develop and implement a proactive system so that all students can learn appropriate school behaviors, which then allows students to focus more on academic learning. When students understand and demonstrate school- appropriate behaviors, they are more likely to stay in the classroom longer and tend to require less negative administrative contact (Bradshaw, Mitchell, & Leaf, 2010; Horner, Sugai, Smolkowski, Eber, Nakasto, Todd & Esperanza, 2009).

Positive Behavior Interventions and Supports demonstrates multiple strengths that allow it to be both evidence based and effective for schools in reducing problem behaviors and increasing academic achievement. The success of this system is that it aligns with current academic methods used in school to help students to learn skills such as math, reading, and writing. Some components of PBIS are that it a) requires staff, administrators, parents, and students to know school expectations; b) uses a reward system to reinforce students who demonstrate appropriate school behaviors; and c) mandates that staff make data-based decisions

on students' behaviors (Lewis & Sugai, 1999; Sugai & Horner, 2006; Taylor-Greene et al., 1997; Warren, Edmonson, Griggs, Lassen, McCart, & Turnball, 2003).

The overall practice of SWPBIS is a multi-level model of supports based on the public health model (Walker et al., 1996). School-wide PBIS emphasizes establishing a foundation level of prevention and then providing more focused interventions based on the needs of students. For the last 15 years, researchers have focused on demonstrating the effectiveness of the SWPBIS. Two randomized controlled studies have evaluated SWPBIS. The first was a randomized, wait-list controlled trial used in elementary schools for a three-year period. Schools using SWPBS found improvements in third graders' state reading test scores as well as a reduction in the amount of ODRs (Horner et al., 2009). The second study by Bradshaw, Mitchell, & Leaf (2010) also examined elementary schools using SWPBIS. The 5-year, longitudinal, randomized, controlled study evaluated fidelity of implementation, ODRs, suspension rates, and academics. Results indicated that schools using SWPBIS with high fidelity demonstrated a reduction in ODRs and student suspensions (Bradshaw et al., 2010). The effectiveness of SWPBIS falls under the umbrella of prevention and data-based decision making supports called the Response to Intervention (RtI) initiative.

The larger movement, the RtI initiative (Hawken, Vincent, & Schumann, 2008), focuses on improving school practices, both academically and behaviorally. The RtI initiative was first developed as an alternative method to identify students with learning disabilities. Policy makers, researchers, advocacy groups, and parents wanted to move away from the traditional IQ-achievement discrepancy testing method (IDEA, 2004). Also, within this same year, Gresham (2005) wrote an article discussing how RtI could also be used as a system for identifying students with Emotional Behavioral Disorders (EBD).

Response to Intervention is a multi-tiered system in which school staff members use evidence-based methods in a problem-solving approach to intervene and support students who are at risk of school failure (either academic or behaviorally) (Fuchs & Fuchs, 2006; Gresham, 2005). School staff members use data and this problem-solving approach to determine what types of support (group or individual) a student needs in order to be successful. If, based on the data, a student continuously needs individualized support; many schools consider the student to fall within special education. The SWPBIS system fit perfectly within RtI, since SWPBIS is also a multi-tier system focused on using data-based decisions to impact risk factors for early aggressive and antisocial behaviors. These early antisocial behaviors are identified as predictors of acts of violent behaviors in youth and adult (Gresham, 2005; Hawkins, & Catalano, 1992, Walker, Horner, & Sugai, 1996).

Statement of the Problem

School-wide PBIS focuses on establishing a strong preventive foundation, and then based on data, the system can move a student to a more supportive group or to individualized supports. The first tier emphasizes prevention of problem behaviors by teaching students social expectations and reinforcing the students' use of school-appropriate behavior. When a student demonstrates a problem behavior that cannot be handled within the classroom, an ODR is written as documentation of the problem. Administrators also document the decided disciplinary actions. Once a student receives one to two ODRs, schools can move a student to tier 2 levels of support. Although some schools are using universal screenings, such as the Systematic Screening for Behavior Disorders (SSBD; Walker, & Sevenson, 1992), to identify at-risk students, this is not a common practice with many schools and parents. Many parents are resistant to this type of screening, perhaps fearing a false-positive identification. Some parents

may also be in denial about identifying the problem because they do not believe the problem to be bad enough. Meanwhile, tier 2 interventions like Check, Connect and Expect (CCE), Check In/Check Out (CICO), and Behavior Education Program (BEP) can be implemented quickly, are flexible on student's functional needs, are data driven, and provide similar implementation across students (Cheney, Stage, Hawken, Lynass, Mielenz, & Waugh, 2009; Crone, Hawken, & Horner, 2010; Simonsen, Myers, & Briere, 2011; Swain-Bradway, 2009; Todd, Campbell, Meyer, & Horner, 2008). Interventions within tier 2 focus on supporting the student who is struggling with peer relations, low academic achievement, and difficulties learning school expectations (Lewis & Sugai, 1999) by offering additional practice and positive reinforcement when the student demonstrates appropriate school behaviors. Using tier 2 interventions for a student gives him or her a chance to learn school expectations and develop a positive bond with teachers and staff. Jewell and Cheney (in progress) found that teachers stated how their perceptions changed for students within the CCE program. A majority of teacher commented about seeing a change in their own behaviors and views on struggling students within CCE.

If tier 2 data and ODRs continue to show a student is struggling to demonstrate appropriate school behavior, then the student receives more additional supports, like a Functional Behavior Assessment (FBA), Behavior Intervention Plan (BIP), or an Individualized Education Plan (IEP). The inappropriate behaviors to be documented are overt and must be observed by an adult within the school. Once students receive between three and five referrals, the students draw the attention of the behavior support team as being at risk for behavior problems (Sugai et al., 2000).

Data-based decision making is the cornerstone of the SWPBIS program and is seen as an important portion of creating a safe and caring school environment (Irvin, Tobin, Sprague, Sugai,

& Vincent, 2004; Lewis & Sugai, 1999; Sugai, Sprague, Horner, & Walker, 2000). The ODRs serve an important role in this process as ODRs allow schools to make valid, data-based decisions about students in need of behavior supports (Irvin, Horner, Ingram, Todd, Sugai, Sampson, & Boland, 2006; McIntosh, Campbell, & Carter, 2009). Supporting students early on and preventing escalated problem behaviors can save the school money and administrative and teacher time (Sugai et al., 2000). To save money and time, schools need to reduce the number of students within the top level of support. Sugai et al. (2000) found that the top 5% of elementary students with the highest number of discipline referrals account for approximately 59% of the schools' total ODRs. The middle school students with the highest number of discipline referrals account for 40% of the schools' total ODRs, which means that teachers and administrators, in correcting chronic behaviors, spend a large amount of time with a small population of the school. These are key reasons why SWPBIS's data-based decision making strongly helps schools support all students, maintain a positive and safe climate, and provide additional, functional supports to students who need it.

Specifically looking at the students who still receive ODRs is important in understanding how schools and SWPBIS can continue to improve in providing support. Only two studies specifically evaluated the types of students receiving ODRs within the guidelines of SWPBIS. These two studies evaluated ODRs in schools and the ethnic groups who receive ODRs. The first study, from Skiba, Horner, Chung, Rausch, May, & Tobin (2011), evaluated data from the 2005-2006 school year for 120,148 elementary students and 60,522 middle school students in a total of 436 schools. All schools within the study used SWPBS for at least a year. The focus of the study was not the validity of SWPBS as a method to decrease disproportionality in practices within discipline systems. Rather, the focus of the research was to use the SWIS data system to

evaluate if racial/ethnic status impacts the rates of ODRs in elementary or middle schools. Sadly, the results from this study added to evidence from prior research, (Lo & Cartledge, 2007; Skiba, Michael, Nardo, & Peterson, 2002) showing that both in elementary (2.19) and middle schools (3.79), African American students were statistically more likely to receive an ODR then their White peers were. Also within elementary schools, African American students were 2.19 times more likely than White peers to be referred to the office because of an ODR. Both African American and Hispanic students were statistically more likely than their White peers to receive harsher punishments for less severe, "minor" behaviors (Skiba et al., 2011).

The second study, published in late 2010, is the only study published to date that evaluated SWPBIS practices to determine if disproportionality of minority students exists specifically within SWPBIS practices. Vincent and Tobin (2010) evaluated 77 schools using SWPBIS and SWIS as a data collection system for ODRs. The researchers evaluated the exclusionary practices of SWPBIS in schools to determine if there was a decrease in exclusionary discipline practices. The researchers also evaluated the types of students receiving exclusionary discipline based on ethnicity. Results showed an overall decrease in exclusionary practices within the schools over the 2-year period, yet the decrease was larger for White students than for African American students. African American students actually remained over-represented in receiving longer exclusionary practices. Long-term exclusions were defined as a 2-3 day suspension. (Todd, Horner, & Tobin, 2010).

Although these are only two research studies, they open our eyes to the need for further evaluation of student discipline based on ethnicity, particularly in light of the fact that students of color face multiple struggles. As SWPBIS continues to grow in schools, specifically schools in urban settings, research needs to specifically analyze if students are represented within the tiers

proportionally. The overall goal of SWPBIS is to reduce the number of ODRs while also reducing over-representation of minority students in disciplinary practices. If not, the SWPBIS data-based method could be sending more students, based on ODRs, into more individualized supports within SWPBIS, and ultimately within Special Education.

Historically, the area of EBD within special education has been over-represented with minority students, mainly African American males (U.S. Department of Education, 2006). African American students are twice as likely to be labeled with EBD than their White peers are, and African American students are also over twice as likely to receive services within the same category than their culturally and linguistically diverse peers (U.S. Department of Education, 2006). For the disproportionate number of students to be within special education practices, other areas such as school climate, academics, and discipline must fail before students are recommended for services (Artiles, Harry, Reschly, & Chinn, 2010; Artiles, Kozleski, Trent, Osher, & Ortiz, 2010). A school's climate is made up of the staff members' attitudes, beliefs, values, and norms that underlie the curriculum, in addition to the standards for academic achievement and the setup of the school (Brookover, Erickson, & McEvoy, 1997; McEvoy, & Welker, 2000). When teachers and administrators cannot create a safe, familiar environment for students, some students disengage through academic failure and behavior problems (Kewel, Rammani, Gilbertson, Fox, & Provasnik, 2007; McEvoy & Welker, 2000). A disconnection in academics and appropriate school behaviors can be devastating to a student's chance to learn vital information for a strong educational future. Students of color are especially affected by this disconnect since many students (African American, Hispanic, and American Indian) score lower on achievement tests compared to White and Asian peers (Gregory & Weinstein, 2004: U.S. Department of Education, National Center for Education Statistics, 2003).

With academic struggles also come self-confidence issues. Miles and Stipek (2006) found that students with low self-confidence and academic struggles showed higher rates of school disruptions than their peers. Choi (2007) found similar results in middle and high school students struggling with academic achievement, as lower achievement was correlated with more serious problem behaviors throughout the school year. With research already showing a disproportionate number of minority students struggling academically, and increases in behavior problems linked to low achievement, it is not surprising that researchers also found a high number of minority students over-represented in exclusionary discipline practices (Gregory, Skiba, & Noguera, 2010). In a review of the literature, Skiba, Michael, & Nardo (2000) published a report titled “The Color of Discipline.” The report supplies multiple studies evaluating disciplinary practices, suspension, and expulsion in schools regarding the over-representation of African American and Hispanic students when compared to White peers (Cooley, 1995; Costenbader, & Markson, 1994; Gregory, 1997; Lietz & Gregory, 1978; McCarthy & Hoge, 1987; Nicols, Ludwin, & Iadicola, 1999; Skiba, Peterson, & Williams, 1997). Sadly, this is a perpetuating cycle, as research has shown that students who receive exclusionary disciplinary practices struggle academically, even resulting in dropping out of school, as a result of lost instructional time (Arcia, 2006; Raffaele-Mendez, 2003). A system change is needed to reduce the negative factors within a school climate, academic curriculum, and school discipline in order to decrease the over-representation of minority students within special education and within the dropout population.

While SWPBIS attempts to alleviate risk factors related to school climate and disciplinary practices, little research has been completed to evaluate SWPBIS’s ability to reduce the likelihood of over-representation of minority students within the higher-level tiers of

SWPBIS. As already stated above, students of color within a SWPBIS school can potentially be over-represented in disciplinary practices, yet no research evaluates the overall tier supports put into place to reduce all students from receiving more individualized supports, such as special education. Students who receive two or more office disciplinary referrals can potentially receive supports within tiers 2 or 3, yet no one has examined the progression or lack of progression through these tiers. Since SWPBIS is set up within the RtI framework, only students struggling within a lower level supports and data, from a tier 2 program, should be considered for tier 3 supports. Potentially this could mean a reduction in the over-representation of students of color within the higher tiers. Continued research is needed to evaluate if SWPBIS's establishment of a positive climate, multiple levels of supports, and a reduction in disciplinary practices is beneficial for ALL students in schools.

Summary

Today, SWPBIS focuses on providing pro-social, evidence-based methods to reduce problem behaviors that could result in an ODR for students. Also, SWPBIS provides methods to support students who are at risk or already demonstrating chronic problem behaviors that are impeding their ability to learn in school. These SWPBIS methods are attempting to move away from punitive, exclusionary methods, which have proven to not be beneficial for students, especially minority students. Emerging research is starting to examine whether SWPBIS exhibits disparities of over-representation of minority students with high levels of behavior supports similar to those found in previously used methods. This study will address these issues in an analysis of one school district's work on implementing the SWPBIS model at the elementary level.

Purpose of the Study

As stated above, school staff members in the study continue to use ODRs to determine if the student needs more support. Students receiving more than two ODRs are at risk for chronic behavior problems and potential academic failure (McIntosh, Campbell, Russell-Carter, & Zumbo, 2009). The current research will evaluate if proportionality based on ethnicity exists within schools using SWPBIS. An analysis of each school's overall 3-tier percentages is calculated, as well as the percentages based on each school's minority population described on the Office of Superintendent of Public Instruction (OSPI) website. The percentages of minority students in each section of the tiers should reflect the basic SWPBIS model described above, with 80% at tier 1, 15% at tier 2, and 5% at tier 3. An additional analysis of the predictive variables, school and student, will be evaluated as to the impact these variables present on the likelihood of a student needing additional support. The results will demonstrate that the SWPBIS model is reducing disproportionality by proportionally representing students within tiers 2 and 3. It will also provide insight into potential variables, other than ODRs), which are predictors of students being within tier 2 or 3 supports. Understanding whether students are represented proportionally within the tiers can impact future research and practices around SWPBIS. It can also impact the effectiveness of SWPBIS as a piece of the RtI used to determine if students at risk for EBD need special education supports.

Research Questions

1) What are the ODR rates for all students within each tier of the SWPBIS model?
2) Within each tier of the SWPBIS model, are the ODR rates proportional based on student ethnicity?

3) Which of the identified student variables (ODRs, ethnicity, and grade) and school variables (SET (School-wide Evaluation Tool) scores, size of school, and coaching hours) in this study are predictive of needed services in tier 2 of the SWPBIS model?

4) Which of the identified student (ODRs, tier 2 placement, ethnicity, grade, and, and gender) and school (SET scores, size of school, and coaching hours) variables in this study are predictive of placement in tier 3 of the SWPBIS model?

CHAPTER 2: LITERATURE REVIEW

School-Wide PBIS and Disproportionality within the Tiers

In 1996, Walker, Horner, and Sugai wrote a seminal article calling for schools to restructure disciplinary practices in order to consider a preventive system. The article describes an alternative method, based on the community health model, to support all student behavior within a school. The alternative method pushes schools to move away from punitive, exclusionary practices, which demonstrate no benefits in teaching or supporting students on developing more school-appropriate behaviors.

The community health model should be a three-tiered system. The first tier, Walker et al. describe is designed to provide all students with a supportive, environmental protective factor, to create a climate in which problem behaviors are less likely to occur. The secondary tier supports are to provide additional interventions for students demonstrating “at-risk” behaviors. These supports should provide students with skills to reduce “at-risk” behaviors while also focusing on reincorporating returning the student into the universal level of accepted behaviors. Students who continue to fail and to demonstrate persistent patterns of violent, problem behaviors require tertiary supports. Tertiary supports are individualized and focused on long-term, encompassing tools to help the student be successful; school staff members focus on the function, or the reason, the student is demonstrating the behaviors.

The article goes on to discuss growing research practices in the field. Walker writes about a specific whole-school approach called the Effective Behavioral Supports Program (EBS). This approach is written in more detail in a foundational SWPBIS article from Lewis and Sugai (1999). Effective Behavioral Supports is defined as an approach in which school-based teams of educators are provided with training in (a) systems change and management principles and practices; and (b) applications of research-validated instructional and management practices at

the school-wide, classroom, non-classroom, and individual student levels (Lewis & Sugai, 1999). Schools do this through developing school-wide expectations, teaching these expectations to students, reinforcing students when they demonstrate expectations, and supporting students who don't demonstrate the appropriate behaviors. Schools also need to develop a system for continued monitoring when students demonstrate problem behaviors. These recommendations are similar and found in the now-named School-Wide Positive Behavior Interventions and Supports (SWPBIS) approach. This new approach has received lots of research and practice attention, and use of the approach is increasing within districts and schools.

In 2000, Skiba and Peterson wrote more about the need for preventive, "early-response" discipline and the downfalls of punitive discipline. The new SWPBIS preventive system was designed to address the increase in student violence and problem behaviors. Early-response discipline was also developed to focus on system change in order to address administrators' disproportional disciplinary actions affecting minority students. Skiba and Peterson (2000) stated that this preventive system must have a conflict resolution/social instruction component, classroom strategies for disruptive behavior, parent involvement, documentation of early warning signs and screening, school- and district-wide data systems, crisis and security planning, school-wide discipline and behavior planning, and functional assessments and individual behavior plans. School-Wide PBIS works to address these issues by using an approach designed to improve the adoption, accurate implementation, and sustained use of evidence-based practices related to behavior, classroom management, and school discipline systems (Sugai & Horner, 2009, p. 309).

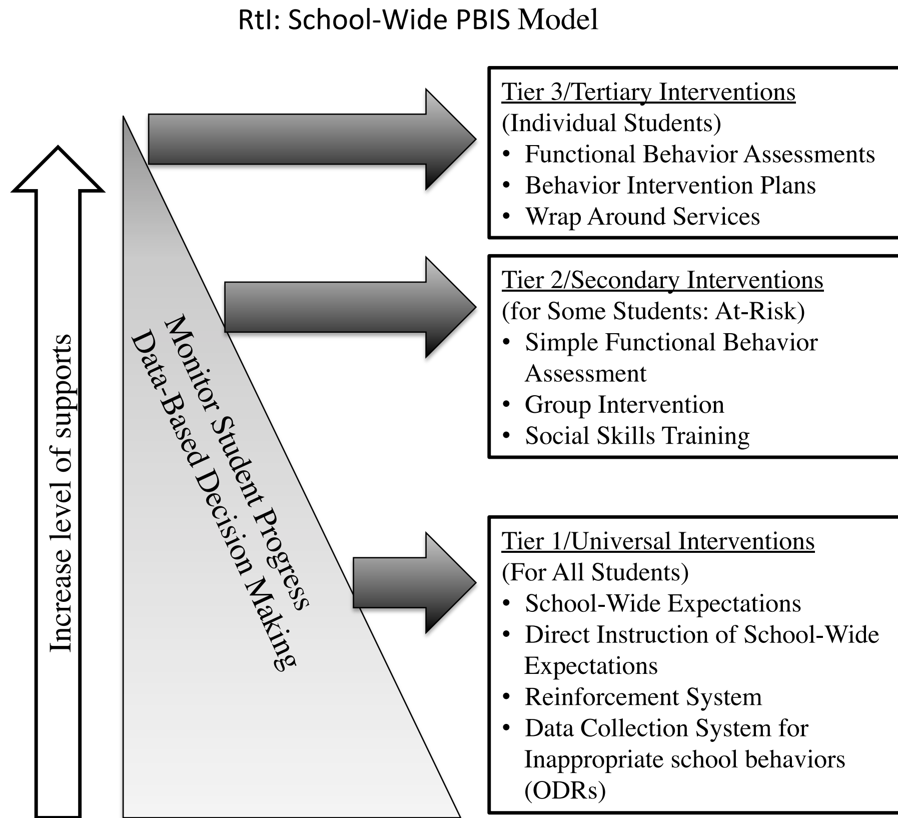
The focus of this literature review is to discuss SWPBIS and the evidence supporting each tier. In Tier 1, evidence-based practices are used as a method to reduce ODRs. Evidence

exists of the use of ODRs in reducing problem behaviors, as a method to measure students' risk of problem behaviors, and as an instrument to measure the organizational health of a school. Since data was collected on Tiers 2 and 3, information on these Tiers is also presented within the literature review as well. Tier 2 articles focus on the practices currently being used by many of the schools within the study. Meanwhile, Tier 3 articles focus on Functional Behavioral Assessments (FBA) and on evaluating the function of problem behaviors to the behavior.

Although SWPBIS has been described in research as a system within the Response to Intervention (RtI) approach, it will not be discussed in the literature review, since Iowa IDEA describes RtI only as a method for Specific Learning Disabilities (SLD). Figure 1.1 is a representation of the SWPBIS model to be discussed within the literature review.

Figure 1.1

RtI: School-Wide PBIS Model



In a book chapter published in the *Handbook of Positive Behavior Supports* (2009), Sugai and Horner provide key principles for schools implementing Tier 1 in the classroom. A school should a) define three to five school-wide expectations for appropriate behaviors; b) actively teach these expectations to all students; c) monitor and acknowledge students for demonstration of the expectations; d) provide corrective supports and use a consistently administered continuum of behavioral consequences; e) utilize a data collection system for ODRs; f) maintain a School-Wide PBIS Leadership Team; and g) obtain district-level support (Sugai & Horner, 2009). Currently research is available on two of the six recommended principles. There are also several research articles evaluating the overall effectiveness of SWPBIS.

School-Wide Expectations

Developing the three to five expectations is consistently mentioned within the literature, yet only one study examines the overall use of the expectations in schools. Lynass, Tsai, Richman, and Cheney (2011) evaluated behavior matrices from 155 schools from 12 different states implementing SWPBIS. Upon collecting the behavior matrices from each school, the researchers coded the expectations and guidelines. After coding, an analysis was conducted with NVivo08 on the frequency of each individualized expectation or guideline. The results show that there were 52 expectations, which occurred across all of the behavior matrixes. The top three expectations found on matrices were respect (88.7%), responsible (72.2%), and safety (64.2%). Although schools could use up to five expectations, the fourth and fifth expectations, ready to learn (26.5%) and care (9.9%), were not as common. When looking within the guidelines or behavior indicators, many schools asked students to use kind words and actions (54.5%) and keep hands and feet to self (75.3%). Also these indicators and expectations were found in each of the four regions across the country, meaning that schools are consistent in their use of overall expectations of students and in the specific behaviors students are asked to demonstrate within schools. This study helps to further the understanding of expectations within schools, yet no research is available on the teaching practices used when communicating the expectations to students, staff, and parents. Also, researchers can observe where schools are focusing a majority of their time, and how the schools relates to the types of ODRs and problem behaviors demonstrated by students.

Office Disciplinary Referrals

The second area receiving focused research is a school-wide data collection system, specifically the use of ODRs. An ODR has been defined as an event in which (a) a student

engaged in a behavior that violated a rule or social norm in the school; (b) the problem behavior was observed or identified by a member of the school staff; and (c) the event resulted in a consequence delivered by administrative staff, who produced a permanent (written) product defining the whole event (Sugai, et al., 2000, p. 96).

The use of ODRs has been researched both inside and outside of SWPBIS. Specifically in this study, research outside of SWPBIS focused on using the ODR system as a measure for exclusionary rates within schools in order to compare the number of minority students being excluded to the number of White students being excluded. Studies within SWPBIS are just starting to compare minority students to White students; the majority of prior studies have focused on the reduction of problem behaviors

Evaluating School Disciplinary Practices

In 1974, the Children's Defense Fund (CDF) began a descriptive analysis on ODRs and exclusionary practices. The results were published in a yearly report. In the first publication (1974), the report discussed the high rates of suspension for students in elementary and secondary levels. The report found that African American and Hispanic students were over-represented in school suspensions when compared with White students. At the secondary level (middle and high school), African American students were three times more likely to be suspended than White students. The report recommended a better method for tracking students who are removed from school or who seek services from places other than a public setting. Every couple of years, the CDF published reports, and in the 2004 publication, the results still discussed the alarming number of students receiving exclusionary discipline based on ODRs. The results demonstrated that only 14.6% of the White student population had received exclusionary discipline from a secondary (seventh through twelfth grade) school, compared to

38.2% of Native American, 35.1% of African American, and 19.6% of Hispanic students. A second follow-up study in 2006, which was published in the 2011 State of America's Children Report, found that African American students are three times more likely than White or Asian/Pacific Islander students to be suspended from school. African American students were also twice as likely as Hispanic students to be suspended from school.

In Skiba, Peterson, and Williams (1997), researchers focus on one step instead of completing an overall analysis. The researchers completed two studies evaluating the relationship between disciplinary practices based on ODRs in one school district. The first study evaluated a large district in the Midwest serving over 50,000 students. For this study, 11,001 middle school students within 19 middle schools participated. Middle schools within a district were evaluated on the number of discipline referrals and the consequences received by students from an administrator based on the behavior written on the discipline referral. Once all the data were compiled into the database, a descriptive analysis was completed. The results showed that 4,521 (41.1%) of the students within the study population had at least one ODR. The analysis also showed a statistically significant relationship between receiving an ODR and ethnicity, $F(4, 10{,}996) = 44.63, p < .001,$ gender $F(1, 10{,}999) = 209.44, p = < .001$, lunch status $F(2, 10{,}998) = 57.91, p = < .001$, and disability services status $F(4, 4{,}500) = 24.22, p = < .001$.

In the second study, the researchers used only one middle school located 600 miles away from the previous study. Researchers evaluated exclusionary practices and ODRs on a more simplistic level and sought to correlate results to the larger, first study, again using descriptive statistics. This research found results similar to the first study. For example, 75.4% of the students receiving ODRs were male, and almost half of the students receiving ODRs, 47.1%, were on free/reduced lunch, yet the overall population receiving lunches from the school were

just 29.5%. The most commonly documented behaviors on the referrals were disobedience, misconduct, disrespect, fighting, lack of cooperation, insubordination/verbal abuse, excessive tardiness/absences, and inappropriate/profane/abusive language. Of the 21 possible administrative responses, suspensions were used 33% of the time. This is slightly lower than the 40.9% suspension rate the Children's Defense Fund (CDF; 1974) found when analyzing suspension rates across the country. The Children's Defense Fund also found that 1 in every 24 elementary students (4% of the school population) and 1 in every 13 secondary level students (7.7% of the school population) had been suspended at least one time.

In another study, which took a further examination of SWPBIS, Spaulding el al. completed a nationwide study using 1,510 elementary schools to evaluate problem behaviors and consequence patterns in ODRs. All schools within the study were using the SWIS data collection system. Although the study used schools implementing SWPBIS, the fidelity of implementation was not collected, so the researchers could not connect the results to SWPBIS literature. One purpose of the study was to evaluate this system, the ODRs entered into the system, and administrative choices made on the ODRs. Spaulding's study was similar to the Skiba et al., 1997 study with regard to common disciplinary problems on referrals, such as fighting (32.4%), tardiness (24.0%), truancy (21.3%), and struggles with authority, defined as defiance (29.0%) and disruption (18.2%). Spaulding's team used descriptive analysis to determine results of the study. This study was similar to Skiba's 1997 results showing the classroom teacher to be the common person writing ODRs and the classroom as the common place for ODRs to occur. Spaulding et al. (2010) found that between 47% and 64% of problem behaviors are generated out of the student's classroom. The researchers also found that on

average, approximately one ODR was written each day for every 300 students at the elementary level, while at the high school level, the rate increased to four in every 300 students per day.

Reduction in Problem Behaviors

Office Discipline Referrals within SWPBIS are used to evaluate the effectiveness of the approach in reducing problem behaviors in the schools based on implementation of the recommended key principles discussed above.

In 1997, the same year Skiba published research revaluating the demographics from ODRs, Taylor-Greene et al. (1997) published an article evaluating the ability of SWPBIS in a rural middle school to reduce ODRs. The researchers completed a 2-year study evaluating grades 6, 7, and 8 (approximately 530 students) and the rate of ODRs acquired within each year. The staff received training on rolling out the program at the beginning of the year and on implementing SWPBIS. A pre- and post-comparison was completed for each year of the study. The results show an overall reduction of 42% in ODRs from year 1 to year 2. The study also saw a 50% reduction in the top three behaviors (defiance, disruption, and fighting).

Research grew from one school to many schools, and in 2008, two studies were published evaluating the effectiveness of SWPBIS within two states supporting statewide implementation of the positive support program. Muscott, Mann, and LeBrun (2008) published a study evaluating 28 programs consisting of one Head Start, 13 elementary, six middle, four high, and four multilevel schools. Muscott's study focused more on evaluating the fidelity of implementation of the schools and on sustainability, yet also looked at the reduction of ODRs and suspension rates. Barrett, Bradshaw, and Lewis-Palmer (2008) also published a study evaluating ODR reductions in conjunction with the level of implementation of SWPBIS practices. The study involved 33% (467 out of 1,400) of Maryland's schools, specifically 247

elementary schools, 135 middle schools, 52 high schools, and 33 alternative schools. Both studies completed trainings in the designated schools to support schools on implementing SWPBIS with high fidelity, and to monitor this, SET scores were collected. Office Disciplinary Referrals and suspensions were used as outcome measures to evaluate the effectiveness of SWPBIS. Both studies hypothesized that if SWPBIS was working correctly, then ODRs and suspensions would decrease over the duration of the study. In Muscott et al.'s study, 22 of the 28 schools demonstrated a reduction in ODRs by 28% overall (6,010 ODRs) within the first year. School suspensions, combining in- and out-of-school suspensions, were reduced by 50%. The data also showed that big problem areas, such as disruption, defiance/disrespect, and aggression, dropped within the middle schools by at least 50% in a 6-week time period of SWPBIS implementation. Barrett et al. found similar results, with schools demonstrating a reduction in ODRs and suspension rates. Within elementary schools, there was a 43% drop in ODRs per 100 students per school day, and in middle school, there was a reported 33% decrease in ODRs. High schools reported similar results with an overall reduction of 37% fewer ODRs. For suspension rates, Barrett used a repeated measures analysis to compare suspension rates. The results showed a significant reduction in suspension rates, over one year, following the implementation of SWPBIS, $F(1, 60) = 4.91, p = .03$.

Both studies show an overall reduction in ODRs and suspension rates for schools, yet the researchers did not compare these results to schools not using SWPBIS. The following year a randomized, wait-listed controlled study was published, adding to the literature on the effectiveness of ODRs in reducing problem behaviors.

The study by Horner, Sugai, Smolkowski, Eber, Nakasto, Todd, and Esperanza focused on multiple elementary schools for a three-year period in the Hawaii and Illinois schools (2009).

The research group examined fidelity of implementation, the ability of SWPBIS to reduce ODRs, and how this system improves perceived safety and academics within the school. Schools within each state were divided into "Treatment" and "Control" groups. The first cohort started with 30 schools, 15 from each state, in each group. Within the first year, the Treatment group received an observation, treatment/training, and an observation protocol; and then in the second year, received only two observations with no trainings. The Control group did not receive training the first year, but did receive training the second year between observation points. To analyze the results, a repeated measure analysis was used. The researchers collected four different measures: 1) SET scores; 2) Perceived School Safety Survey (SSS); 3) ODRs; and 4) either the Illinois State Achievement Test or the Stanford Achievement Test. The results of the study did not show statistical differences in SET scores between the Treatment and Control groups, $t(59) = -.039$, $p = .9687$. The study showed an increase in perceived safety right after trainings; overall there was statistically significant difference between the two groups, $t(35)= -2.55$, $p = .0154$. Based on what Irvin et al. (2004) recommended, the study was unable to report complete results, since no pre-ODR data was available to compare. For academics, no statistically significant difference was found between treatment and condition, yet a statistically significant difference was found between treatment 1 and treatment 2, $t(57) = 2.75$, $p = .0080$. The study acknowledged that more research should be completed in order to replicate the results.

One year later, Bradshaw, Mitchell, and Leaf (2010) published a second randomized, wait-list controlled study evaluating the effectiveness of SWPBIS. The study was similar to that of Horner et al. (2009), using "Treatment" and "Control" groups. The study was conducted over five years in 37 elementary schools, with 21 schools in the Treatment group and 16 schools in the Control group. The researchers evaluated the effectiveness of SWPBIS compared to a

"business as usual" model. Researchers also looked for a reduction in ODRs and in the suspension rate. Measurements were collected on SET and Effective Behavior Support Survey (EBS) scores and the number of ODRs and suspensions each year. The SET was designed to evaluate the overall implementation of SWPBIS, but the researchers also wanted to measure the staff's level of implementation. This is why they chose to use the EBS. Schools in the Treatment group, which were incorporating SWPBIS, received training on implementing SWPBIS. A general linear model using repeated measures was used to analyze the data. The results were similar to Horner et al.'s (2009) results with regard to SET scores and suspensions. The SET scores did not show a statistically significant difference between the SWPBIS and business as usual within the 4 years, $F(4, 32) = 2.37$, $p = .073$. School suspensions were neither statistically significant between treatments nor over time, although suspensions did decrease in SWPBIS schools and not in the Control schools. While the number of ODRs dropped to below the national SWIS average, the decrease the number of major behaviors per 100 students per day was nonsignificant. The number of ODR events per student did decrease statistically significantly over the 4 years, $F= (1, 14) = 12.90$, $p= .003$.

While the studies described above evaluated the reduction in problem behaviors, researchers and practitioners know that some students will still need additional supports. Research focused on evaluating if ODRs can not only show decreases in problem behaviors, but can be used as a method of documenting too many problem behaviors. This would mean students are receiving too many ODRs and could be at risk of demonstrating chronic problem behaviors.

Criteria for Additional Support

Several studies have evaluated the number of ODRs a student acquires before moving into the next Tier. These cutoff scores are important within SWPBIS, since schools using all three Tiers and studies (Sugai et al., 2000) use these same scores to assign levels of support: Tier 1 (0-1), Tier 2 (2-5), and Tier 3 (6 or more).

Researchers Walker, Cheney, Stage, and Blum (2005) and McIntosh, Campbell, Carter, and Zumbo (2009) evaluated cutoff scores of ODRs compared to recommendations made from different social emotional assessments. Walker el al. (2005) used the Systematic Screening for Behavior Disorders (Walker & Sevenson, 1992) and the Social Skills Rating System (Gresham & Elliot, 1990), while McIntosh et al. (2009) used the Behavior Assessment Scale for Children-Second Edition Teacher Report Scale-Child Form (BASC-2). Both studies used the recommended cutoff scores from Sugai et al. (2000). To analyze the results, Walker's group used a one-way ANOVA to compare ODRs as the independent variable to the Social Skills and Problem Behavior Scales on the SSRS as the dependent variable. McIntosh's group used only correlation results between the number of ODRs and results from the Externalizing, Internalizing, and/or Adaptive Composite. The Walker et al. results showed that ODRs were distributed by the tiered representation of 80-15-5 when separated by the cutoff recommendations among all three schools. Also, the SSBD had identified 75% of the students as demonstrating externalizing at-risk behaviors within the three different schools, yet no students were identified as internalizing. The internalizing results are similar to those found by McIntosh et al. (2009). The group found no correlations between the BASC-2 Internalizing, $F(2,37) = .01, p = .99$ and Adaptive Composites, $F(2,37) = 2.15, p = .13$ and cutoff points for ODRs. Although, for the Externalizing Composite and cutoff points for ODRs, researchers found a

statistically significant correlation, $F(2,37)) = 6.55, p < .01$. Both studies show that ODR cutoff scores correlate with social-emotional assessments.

McIntosh went on, a year later, to evaluate the psychometric adequacy of ODRs as a behavioral assessment tool for use in data-based decisions from the cutoff points 0-1, 2-5, and 6 or more total ODRs (McIntosh, Frank, and Spaulding, 2010). There were 990,908 participants in the study from 2,509 elementary schools. The group used logistical regression analyses to demonstrate cutoff points as grow trajectories to predict the likelihood of future ODRs for an individual student, based on ODRs the student had acquired in the fall. The results found that the months the students received the initial ODRs affected the risk as well. Having one or more ODRs by the end of September was a moderately accurate predictor of chronic problem behaviors, but became a highly accurate predictor in later months, specifically December. Having two or more ODRs per month by the end of September (the first month of school) is a highly accurate predictor of further problem behaviors resulting in more ODRs later in the year. Seventy-nine percent of the students who needed Tier 2 supports were identified by December as engaging in further problem behaviors. This means that schools should act quickly once a student acquires two early ODRs, because more ODRs are likely to ensue, and the student will then need more intense supports. Students with six or more problem behaviors correlated with the data collected earlier in the school year and the researchers found 50% of the students identified for additional supports with 6 or more ODRs were found by October. Identifying students early by the ODR cutoff scores is an effective method for early intervention and can potentially reduce the trajectory of problem behaviors.

Although SWPBIS is about reducing problem behaviors and developing methods to evaluate students' needs for additional help, researchers have also looked into the overall benefits of SWPBIS in creating a more positive school environment.

Overall Well-being of the School

Bradshaw, Koth, Bevans, Ialongo, and Leaf (2008) focused on SWPBIS through the lens of school climate. The participants were the same as those described in the Bradshaw, Mitchell, and Leaf (2010) study described above. The study evaluated the fidelity of SWPBIS implementation and the operational health of the school. The climate was evaluated by reports collected from staff members at the 37 elementary schools. The Organizational Health Inventory for Elementary Schools (OHI; Hoy & Feldman, 1987) evaluated each school's *institutional integrity* (the school's ability to cope successfully with destructive outside forces; teachers are protected from unreasonable community and parental demands); *staff affiliation* (warm and friendly interactions, positive feelings about colleagues, commitment to students, trust and confidence among the staff, and sense of accomplishment); *academic emphasis* (students are cooperative in the classroom, respectful of other students who get good grades, and are driven to improve their skills); *collegial leadership* (principal's behavior is friendly, supportive, open, egalitarian, and neither directive nor restrictive); and *resource influence* (principal's ability to lobby for resources for the school and positively influence the allocation of district resources). All of these elements are characteristics that schools using SWPBIS should score well on, based on previous research completed on SWPBIS's effectiveness in reducing ODRs and demonstrating high SET scores. The results indicated that PBIS schools showed improvement in institutional integrity at a level approaching statistical significance ($z = 1.80$, $p = .072$). No other areas improved at a level indicating statistical significance. However, when researchers

examined the correlations between the intercept and slope for each of the models, the researchers found a significant negative association between the intercept and slope for each area. This means that schools with a lower starting baseline within the OHI report tended to improve the most over the course of the 5-year study. In comparing the SET results to the OHI report, the study found that schools that reached their 80% criteria grew the least compared to schools not meeting the SET criteria in previous years.

These studies add to the literature on SWPBI improving school climate and of the need for specific training to staff. The results also show that schools using SWPBIS are improving in comparison to schools not using SWPBIS, although maybe not at a speed that is statistically significant over a short period of time, such as 4 to 5 years. Problems of this nature within schools are decades old, and new systems are not going to change these struggles in a blink of an eye. More research is still needed.

Evaluating Ethnicity Outcomes

Recent studies have evaluated the relationship between SWPBIS practices and the disproportionality of minority students. The first published by Skiba, Horner, Chung, Rausch, May, and Tobin (2011) examined data from the 2005-2006 school year with an *N* of 120,148 elementary students and 60,522 middle school students in a total of 436 schools. All schools within the study used SWPBIS for at least a year. The focus of the study was not the validity of SWPBIS as a method to decrease disproportionality within discipline practices. Rather, research focused on the using the SWIS data system to evaluate whether racial/ethnic status impacts the rates of ODRs in elementary or middle schools. This study also examined whether disparities exist in ODRs and the categories of behaviors around racial/ethnical influences. The researchers defined categories as an overall description of the behavior (disruptive, noncompliant, minor

misbehavior, tardy/truancy, and major violation) within schools. To answer these questions, the researchers evaluated ODRs, the ethnicity of students, and the administrative decisions made on each ODR. Based on previous research, students from minority backgrounds are disproportionately over-represented in receiving harsher punishments compared to their White peers. The study evaluated, based on the student's ethnicity, whether the students received an ODR and if the student was sent to the office to engage with an administrator, based on the ODR.

The results from this study sadly added to prior research, showing that both in elementary (2.19) and middle schools (3.79), African American students were statistically more likely to receive an ODR then their White peers were. Also within elementary schools, African American students were 2.19 times more likely than their White peers to be referred to the office because of the ODR. Since the current research also looks at the Hispanic population, it is also important to note that in elementary schools, this ethnic group of students was under-represented in their rate of referrals to the office compared to their White peers, yet in middle school, Hispanic students were instead over-represented in their rates of ODRs. When the researchers looked at administrative decisions made when students were sent to the office, they found, before adding ethnicity into the variable, that in elementary and middle school settings, minor behaviors proportionally correlated with minor discipline and major behaviors proportionally correlated with major discipline. Although when ethnicity was added into the model, over-representation can be seen in suspension/expulsion for both African American and Hispanic students compared to White peers in both elementary and middle school. When looking at another model, researchers found that ethnicity's contribution has an impact independent of the type of behavior the student committed in school. This means African American students were statistically more

likely than their White peers to receive severe infractions (like suspensions) for minor behaviors (3.75, $p < .01$), which means they are less likely to receive minor consequences (detentions) for minor or moderate behaviors than their White peers in elementary and middle school. Hispanic students received consistently severe consequences (out of school suspension and expulsion) for minor, moderate, and major infractions. Although this research adds to the established literature that shows African American and Hispanic students are disproportionally represented in disciplinary actions, it is the first use of the data coming from a newer practice, SWPBIS. The practice of SWPBIS was not evaluated on fidelity, but this is the first step in seeing if new practices and better data collection systems are pinpointing where discrimination is happening within disciplinary practices.

At nearly the same time, Vincent and Tobin (2011) published a study analyzing SWPBIS and disciplinary practices based on ethnicity and disability. Like Skiba's research group, Vincent and Tobin used the SWIS data to evaluate the disciplinary practices of schools using SWPBIS. Vincent and Tobin, however, took the research one step forward by holding schools to a level of fidelity of implementation using the Effective Behavior Support (EBS) Survey. The study focused specifically on exclusionary data from 2 consecutive years in 77 schools using SWPBIS. The researchers wanted to investigate whether there was a decrease in exclusionary practices among the universal, classroom, non-classroom, and individual levels. They also evaluated whether students, based on ethnicity and disability, are proportionally represented in exclusionary practices in schools using SWPBIS. The majority of the schools were elementary (49.4%), followed by middle schools (29.9%), high schools (9.1%), alternative schools (6.5%), and K-8/12 schools (5.6%).

Again, the study specifically evaluated exclusionary practices, defined as either an out-of-school suspension (OSS) or an expulsion. The SWIS defines out-of-school suspensions as a "consequence for a referral that results in a 1-3 day period when the student is not allowed on campus"; an expulsion was defined as a "consequence for a referral that results in a student being dismissed from school for one or more days" (Todd, Horner, & Tobin, 2010). Elementary schools in this study saw a statistically significant reduction in OSSs in the classroom setting, while middle schools saw the statistically significant reduction in non-classroom settings. When evaluating OSSs by ethnicity, researchers found SWPBIS caused a statistically significant reduction in the number of Hispanic and White students receiving OSSs. Although African American students increased in OSS between the time points, yet was not statistically significant. The researchers evaluated a total of 20,507 OSS events. For expulsions, African American students were the only ethnicity considered over-represented at both time periods in the study. The study also showed a decrease in OSSs for students with disabilities, although again African American students were still expelled more often than any other ethnicity.

Although the research from Vincent and Tobin (2010) took place within just one academic year, the results give us a glimpse of how SWPBIS supports all students. Vincent and Tobin, along with other researchers, completed another project continuing the evaluation of race within SWPBIS.

The second study by Vincent, Tobin, Hawken, & Frank (in print) evaluates ODRs and access to secondary level supports for elementary and middle school students. The study, currently in the process of being published, analyzes data to look for specific patterns within Tier 1 and Tier 2 by student ethnicity (African American, Hispanic, and White). The researchers disaggregated data from 155 elementary and 46 middle schools. The study questions focused on

the probability of access to CICO based on the number of ODRs and representation in ODR risk groups (low, 0-1 ODRs; medium, 2-5 ODRs; and high, 6 + ODRs) based on the student's ethnicity (African American, Hispanic, and White). The researchers based each risk group on the potential for school failure; students with 0-1 ODRs have the lowest risk, while students with 6+ ODRs have the highest risk of failure. The results show that Hispanic and White students were under-represented in all risk levels within Tier 1. While African American students were under-represented in the low risk level, they were over-represented in the medium and high-risk levels. With Tier 2 (CICO), African American students were over-represented at each risk level, while Hispanic students decreased in number as the level of risk increased. African American students were under-represented at the low risk level but were over-represented at medium and high-risk levels. When looking at access to CICO, ODRs were a statistically significant predictor of access as well as race/ethnicity for both elementary and middle school. The researchers also looked at the start time of accessing CICO and found that students of all ethnicities who received services within the first semester experienced statistically significant decreases in ODRs. This means that all students benefit from early detection and interventions provided by CICO. Further research must be done to evaluate the supports for all students in each tier of SWPBIS, and this is the focus of the current study being completed. Understanding how SWPBIS supports all students throughout the tiers is an area of little research. This study focuses on adding additional information around SWPBIS and supporting the reduction of minority students within the highest Tier.

Once students demonstrate problem behaviors, either Tier 2 or Tier 3 should offer specialized supports evaluating the risk for a student to potentially be labeled with EBD. To

follow are descriptions of Tiers 2 and 3 along with research around the common practices schools within the study use to support all students.

Tier 2 Interventions

Generally, around 15% or less of students within a school need more specialized interventions at the secondary tier in SWPBS. The secondary tier specializes in instruction, which helps students who are demonstrating at-risk behaviors, such as low academic achievement, poor peer affiliation, limited family or community support, and/or behavioral struggles that require some environmental or curriculum modifications (Lewis & Sugai, 1999). At the secondary level, interventions are typically conducted within small groups and at the classroom level, where students can receive specific interventions based on their needs (Hawken & Horner, 2003; March & Horner, 2002). Specialized instruction may include extra practice in demonstrating school/classroom appropriate behaviors, re-teaching the school's expectations, reinforcement for following school/classroom expectations, and obtaining support from adults within the school (Crone, Hawken, & Horner, 2010; Sailor et al., 2009).

Several studies have looked at using programs such as the Behavior Education Program (BEP) and Check In-Check Out (CICO) in supporting students in relearning school expectations while trying to demonstrate school-appropriate behaviors. Both programs require extra supports from adults.

Among the first to study this were Hawken and Horner (2003), who used a middle school in the Pacific Northwest. Out of the 487 students in this study, 6 students were picked based on teacher nominations and having received a minimum of 5 ODRs. The students were also not receiving additional behavior supports at the time of intervention. By the end of the study, only four students remained. All four students' problem behaviors, based on the FACTs form, were

verified by peer and/or adult attention. Data were collected through direct observation of problem behaviors and academic engagement. An A/B design was used, with a baseline period followed by the intervention period of the BEP. Additional data was collected on "control peers" in all four students' classrooms as a method of comparing the average classroom environment. During baseline, the four students, on average, engaged in 18.25% (29%-12%) observed intervals with problem behaviors, yet during baseline, this dropped to 12% (0%-30%). One student demonstrated a reduction of 17 percentage points from baseline to intervention. With regard to academic engagement, the students were engaged on average at the same level as their control peers although scores were sporadic. Yet after starting the intervention the students started demonstrating more consistency of engagement. This study was the first of many to use this design to evaluate the effectiveness of Tier 2 supports.

In 2007, four research articles were published in four different peer-reviewed journals, adding to the literature on Tier 2 supports. Two of the studies evaluated BEP (Hawken, MacLeod, & Rawlings; McCurdy, Kunch, & Reibstein, 2007) and two evaluated CICO (Fairbanks, Sugai, & Lathrop, 2007; Filter et al., 2007).

Both McCurdy et al. and Fairbanks et al. used single school designs to evaluate the supports of the Tier 2 program. McCurdy et al.'s study focused on the percentage points earned on the BEP by the eight students within the study, while Fairbanks et al. evaluated intervals of problem behaviors and engaged behaviors. While both used different outcome measures, the results were similar, with both studies showing improvements in problem behaviors. McCurdy's group showed this through increasing students' overall BEP points and maintaining an 80% criterion average of points for several weeks, while Fairbanks's group demonstrated this with a reduction of mean intervals in problem behaviors for 4 out of the 10 students. Fairbanks's group

went on to provide additional, more specialized supports for the other students. Additional supports for four students consisted of completing a Functional Behavior Assessment (FBA) while also providing additional social skills training. The researchers were able to identify the function of the students' behavior problems, and although the students were not successful in a group intervention, more specialized instruction, like those found in Tier 3 interventions, might prove successful for the students. Further discussion of these interventions is described below.

The two other studies completed in 2007, Filter et al. and Hawken et al., consisted of more than one school. One study took place within three schools while the other took place in 12. Both studies focused on observing the reduction of problem behaviors based on Tier 2 support given to the students. Training was provided to the school staff at both schools so the supports could be implemented with high fidelity. After at least six weeks on the program, both studies showed a decrease in ODRs for students involved in CICO or BEP supports. For Hawken et al., 9 of the 12 students demonstrated a reduction of 75% in the number of average referrals per month, which is statistically significant, $t(11) = .1.803$, $p < .05$. While Filter et al. showed the same reduction for 13 out of the 19 students, when looking at the ODRs holistically, students did not demonstrate enough reduction to be statistically significant. However, desegregating the ODRs between major and minor behaviors did show a statistically significant reduction specifically in minor behaviors (disruption, noncompliance, and disrespect).

Todd, Campbell, Meyers, and Horner (2008) focused on the function of problem behaviors demonstrated by the students. The study used four elementary students in a school in the Pacific Northwest. The students participated in CICO, with teachers also completing a Functional Assessment Checklist for Teachers and Staff (FACTS; March et al., 2000). Office Discipline Referrals and direct observations were also collected on students, specifically during

academic times when problem behaviors might occur. Plus the FACTS form indicated when the function for demonstrating behavior was primarily for teacher attention. Students participated in the CICO program for 10 weeks. Using an A/B multiple baseline design, the study was able to demonstrate a reduction in problem behaviors for all four students involved in the study, similar to the studies described above. This study and the study by Filter et al. (2007) begin to demonstrate the need for understanding the function of the student's problem behaviors in order for Tier 2 supports to be successful. Knowing the function is beneficial for students if they need extra supports in Tier 3.

Thereafter, McIntosh, Campbell, Russell-Carter, and Rossetto-Dickey (2009) used 34 elementary students demonstrating problem behaviors either based on attention or on escape. Students with attention as the function for problem behaviors demonstrated a statistically significant decrease in the number of problem behaviors while being on the CICO intervention. Students struggling with escape behaviors demonstrated a minimal decrease in their rate of problem behaviors, but the results did not reach statistical significance. These results, along with Filter et al. (2007) and Todd el al. (2008) show the importance of function in, and that students struggling with attention seem to be successful with CICO or BEP supports.

Many of the studies above were single subject designs for a small number of students although in 2009, Cheney and his research group completed a randomized controlled study to evaluate the effectiveness of Tier 2 supports (Check, Connect, & Expect) in schools. Cheney et al.'s study addressed academic and social outcomes of elementary students at various levels within the intervention compared to students who do not participate in the intervention.

Check, Connect, and Expect combines the major elements from Check In and Check out (CICO) and Behavior Education Program (BEP). The CCE intervention is composed of (a) daily

student check-ins and check-outs with a coach (adult mentor); (b) the use of daily progress reports (DPRs);(c) feedback from the teacher to the students about behavior, which is noted on the DPRs; (d) problem-solving sessions for students who are struggling to meet daily goals; (e) feedback from coaches during check-out about whether or not the students met the daily behavior goals; (f) charting and reviewing by coaches of students' DPR data; and (g) reinforcement when students met weekly and daily goals.

There are four phases of the CCE program: Basic, Basic Plus, Self-Monitoring, and Graduation, all designed to support students. Schools first use a systematic process, such as screening, to determine who needs and/or would benefit from the intervention. Results for CCE showed a 60% drop in the level of problem behaviors of students in the program across two years of the study. Based on the Social Skills Rating Scale (SSRS; Gresham, & Elliott, 1990) and Teacher Rating Form (TRF; Achenbach, 2001), students who graduated from CCE reduced their problem behaviors to within normal range, compared to both non-graduates and the comparison group, both of whom remained within the clinically at-risk range. Of the 104 students in the intervention group, only 8 (8%) became eligible for Special Education in year 1, while 12 students (11% total) became eligible in year 2, compared to 31% of the comparison group in year 2 (Cheney, 2008).

A second randomized controlled study was completed and published in 2011 by Simonsen, Myers, and Briere. The study compared CICO, a common Tier 2 practice used within SWPBIS, and standard, business-as-usual school practice. Only one middle school located in the New England area was used. When students needed additional Tier 2 supports, they were randomly selected, through a flip of a coin, to be in either the "Treatment" or "Control" group. A total of 51 students participated in the treatment while only 29 participated in the control group.

Teachers completed a Functional Assessment Checklist Teacher Survey (FACTS) and an SSRS on each student to determine their function in demonstrating problem behaviors. The researchers used a pre-post test design to evaluate students' success in the program and found that with direct observation, a statistically significant difference was demonstrated between the Treatment and Control groups, $F(1, 40) = 10.41, p < .01$. In social skills, both groups did show an increase post intervention, and no change was detected for academic competency gains between either group. Researchers could not evaluate the function of behaviors due to small group numbers. The results from this study showed evidence of improvements, even though not always to the point of statistical significance, for the support of structured Tier 2 supports like CICO, BEP, and CCE.

As seen in several of the studies above, some students still need extra supports not found within Tier 2 interventions. In these cases, the intervention did not support the function of the behavior or the severity of the behavior. Within SWPBS, however, intensive, function-based supports can be found with Tier 3. The goal of Tier 3 functional supports is to reduce the likelihood students will need a special education label. Many students with chronic behavior problems can be given the label of Emotional Behavior Disorder (EBD). Many research studies demonstrate the over-representation of minority students, specifically Black males, in EBD classifications. However, this study does not focus on the EBD label or the lack thereof; the study focuses only on typical supports students can receive in Tier 3 after receiving six or more ODRs.

Tier 3

Tier 3 (intensive) levels of supports are typically considered to be individualized for each student, and these supports often use functional-based interventions to maximize student academic and social success. The federal government supports the use of function-based

intervention as included in the FBA in IDEA's 1997 revisions. It has been theorized that about 5% or fewer students will exhibit chronic challenging behaviors and will then need services at this level (Crone, Horner, & Hawken, 2004; Lewis & Sugai, 1999). The goal is to help students decrease problem behaviors and increase participation in the academic curriculum. Several studies have evaluated supporting individual students based on the function of the student's problem behaviors to show the success of Tier 3 programs.

Between 2003 and 2005, three studies evaluated single case studies of students demonstrating high levels of problem behaviors (Brooks, Todd, Tofflemoyer, & Horner, 2003; Burke, Hagan-Burke, & Sugai, 2003; Ingram, Lewis-Palmer, & Sugai, 2005). These problem behaviors required supports within an Individualized Education Plan (IEP) along with an FBA and a Behavior Intervention Plan (BIP). Two students were in elementary (Brook et al., 2003; Burke et al., 2003) and two students were in middle school (Ingram et al., 2005). All three studies followed standards for conducting an FBA as given by O'Neil, Horner, Albin, Sprague, Storey, & Newton (1997). This book is a common resource used by the district used within the study. The studies all used a single subject design, yet the design differed between an A/B, A/B/C, and an A/B/C/B/C design. The overall results for each study demonstrate success for the students. Students were able to decrease problem behaviors while increasing academic engagement.

As stated above, the study did not track students receiving a special education label, only that the school placed a student into Tier 3 supports. All schools' goals are to reduce the likelihood of a student needing more intense, individualized supports and of being potentially labeled with a disability, such as EBD. In 2009, Lane et al. published an article in the *Education and Treatment of Children* describing a case study of two first graders. The goal was to evaluate

functional-based interventions, after completing an FBA, in reducing the risk of an EBD label by increasing academic engagement time while decreasing problem behaviors. Using an A/B/A/B design, the research group was able to show an increase in engagement time for both students when functional-appropriate interventions were used. Both boys were taught replacement behaviors and also received reinforcements after demonstrating the appropriate behaviors.

Using functional-based interventions is beneficial when supporting students demonstrating chronic problem behaviors. According to the study, students receiving six or more ODRs should be placed within this Tier for further support.

Summary

For the past 15 years, research has increasingly showed that SWPBIS is a beneficial approach for schools to use when incorporating RtI methods. Using SWPBIS can reduce ODRs (Horner et al., 2009; Lassen et al., 2006), increase time in class (Sugai et al., 2000), and support and grow academic achievement (Horner et al., 2009; Lassen et al., 2006). Using such a positive, preventive approach, researchers and policy makers hope to reduce the number of punitive practices occurring in schools, the number of students being referred for more individualized behavior supports, and the disproportionate number of students of color over-represented in punitive practices and Special Education. To accomplish these goals, more research must be completed to analyze and offer data as evidence that the SWPBIS approach is working, or else to offer ideas on how to change the system so no child is left behind.

CHAPTER 3: RESEARCH DESIGN AND METHODOLOGY

Problem and Purposes Overview

School-wide PBIS demonstrates itself as a system effective for reducing problem, antisocial behaviors within schools (Bradshaw et al., 2010; Horner et al., 2009.) Multiple states, districts, and schools around the country are using SWPBIS because policy and research supports its use within schools (IDEA, 2004). Schools using the PBIS approach are demonstrating the reduction of ODRs, meaning an overall reduction in inappropriate school behaviors for all students. Little published research is available, however, to answer the question as to whether SWPBIS is reducing the disproportional number of ODRs received by Black and Hispanic male students who receive a higher number and who are overlabeled in special education. Previously, students with behavior problems were referred directly to special education from general education without any intervening Tier 2 services or support. School-Wide PBIS attempts to reduce problem behaviors through intervention across the three-tier model of support. The current study focuses on assessing whether SWPBIS is effectively addressing student needs across the three-tier system. The SWPBIS system, if effective within schools, should demonstrate proportional distribution of the school's population based on ethnicity and predictive factors around age, grade level, and school size when analyzing why students are placed in tier 2 and tier 3 levels of supports.

Participants

This study was conducted in a school district in the northwest, metropolitan area of Washington State. The district is so diverse that an article in The New York Times (2011) named it as one of the most diverse districts in the nation. The district, last year, served 17,824 students. Ethnically, the district's representative percentages are 26.8% White, 11.1% Black, 33.8% Hispanic, 14.9% Asian, 19.0% Asian/Pacific Islander, 4.1% Pacific Islander, and 1.3% American Indian/Alaskan Native. More than half of the district's students (66.9%) receive free or reduced-priced meal services, and 13.6% of the student population is served within Special Education (OSPI, 2012). Within the district, data were collected and evaluated from 15 elementary schools that were using SWPBIS. Individual school demographics are located in Tables 3.1 and 3.2.

Table 3.1

Demographics of Schools Within the Study

School	Population # of students	Gender Percentage	Free and Reduced Lunch Percentage	Special Education
School A	649	52.3% Female 47.7% Male	79.5%	10.8%
School B	592	45.8% Female 54.2% Male	68.4%	10.0%
School C	453	51.5% Female 48.5% Male	47.7%	12.8%
School D	603	50.8% Female 49.2% Male	83.6%	11.4%
School E	585	51.6% Female 48.4% Male	92.5%	13.0%
School F	576	46.3% Female 53.7% Male	31.4%	9.4%
School G	410	45.6% Female 54.4% Male	81.7%	13.7%
School H	563	49.8% Female 50.2% Male	91.7%	9.8%
School I	607	52.6% Female 47.4% Male	86.2%	13.0%
School J	532	44.3% Female 55.7% Male	54.5%	15.4%
School K	507	46.5% Female 53.5% Male	57.4%	9.9%
School L	458	48.8% Female 51.2% Male	62.4%	14.0%
School M	293	48.6% Female 51.4% Male	78.8%	17.7%
School N	596	47.7% Female 52.3% Male	87.1%	15.9%

N = 7,424 students

The district began implementing the SWPBIS model in one school in 1998, expanded their efforts to other elementary schools from 2004-2008, and in 2009 mandated the implementation of SWPBIS in all schools. Table 3.1 presents each school's enrollment, and student percentages for gender, free and reduced lunch, and Special Education participation for 2010-2011. In Table 3.2, each school's 2010-2011 race/ethnicity percentages are displayed.

Table 3.2

Race/Ethnicity Demographics of Schools Within Study

School	White	Black	Hispanic	Asian/Pacific Islander	Pacific Islander	Asian	American Indian/Alaska Native
School A	16.7%	20.3%	31.1%	25.0%	7.7%	17.2%	1.1%
School B	24.9%	8.1%	36.2%	25.2%	6.0%	19.2%	2.6%
School C	39.4%	10.4%	23.3%	13.7%	3.1%	10.6%	0.4%
School D	14.5%	13.2%	48.7%	19.5%	4.8%	14.7%	1.2%
School E	6.8%	16.9%	54.8%	15.9%	7.3%	8.6%	0.7%
School F	63.6%	8.1%	14.1%	6.5%	0.9%	5.6%	1.8%
School G	22.2%	18.9%	31.2%	20.2%	6.0%	14.1%	1.0%
School H	12.8%	12.3%	50.9%	18.0%	7.4%	10.6%	1.5%
School I	10.6%	9.7%	44.6%	30.3%	6.2%	24.0%	2.1%
School J	42.8%	7.2%	21.4%	13.7%	2.2%	11.4%	3.1%
School K	34.4%	17.3%	21.0%	19.8%	5.3%	14.6%	1.2%
School L	29.6%	10.5%	21.1%	22.9%	2.6%	20.3%	0.9%
School M	16.5%	6.9%	44.9%	22.4%	6.2%	16.2%	0.6%
School N	10.4%	17.9%	30.2%	37.9%	4.2%	33.7%	0.9%

Data Collection and Instrumentation

School-wide Information System

All schools in this study enter ODR behavioral data into a web-based data system known as the School-wide Information System (SWIS, May et al., 2002). The SWIS system is licensed through the University of Oregon, and schools pay an annual fee of $250 to use the ODR system and $50 for the tier 2, Check In/Check Out system. SWIS was developed so that schools could: a) make data-based decisions to evaluate their disciplinary practices; b) provide charts for ODR referrals across multiple school settings; c) support individual support plans with data on function of behavior; and d) report information to the district, state, and federal agencies about the schools' behavioral outcomes (www.swis.org, 2012). Once a school has met SWIS prerequisites and at least three school staff members are trained on SWIS, the school can begin entering ODRs in the SWIS. With ODR data, schools can run reports on an individual student, group of students, or an entire student body. Schools can evaluate ODR data by variables such as the specific location or event over a specific time period. Teachers and staff can also evaluate

the types of behaviors for which students are receiving ODRs within the school. The behavior support teams can run reports to evaluate which students potentially need tier 2 supports based on the number of ODRs the student has received throughout the school year.

Schools can work with a SWIS facilitator to receive additional training on using data from SWIS. Facilitators can also support software maintenance and answer simple software questions. Only the school's SWIS documented facilitator is allowed access to the school's SWIS data, located on UO's mainframe server, through the use of a password provided by SWIS staff at the University of Oregon.

For purposes of this study, ODR data were exported from the SWIS system into an Excel spreadsheet with all identifying information, such as the students' names, removed from the data. All procedural steps for obtaining the data were approved by the University of Washington's Institutional Review Board. A random number only identifies the student, and the school's SWIS facilitator has the masterlist for this list of numbers. This allows for student and school level SWIS information to be kept confidential and anonymous for this study.

Student Variables

For this study, student level data collection came from each school's SWIS system or from the records of the behavior support teams. The specific data collected from SWIS were the number of ODRs within the 2010-2011 school year, student demographics (age, gender, ethnicity, and grade), and which students were placed within tier 2. The tier 3 data section was collected by the district SWPBIS coordinator who contacted each school's behavior support team to collect the necessary information. All identifying information was then removed prior to using it in this study. Student variables collected from SWIS are described in Table 3.3.

Table 3.3

Student Variables and Descriptions

Variable – Student	Description
Office Discipline Referrals (ODRs)	Documentation of problem behaviors happening within the classroom or non-classroom environment completed by teachers and staff and turned in to administrators.
Placement in tier	Coding of whether a student was placed within tier 2 and placement into tier 3 interventions based on SWIS
Ethnicity	American Indian/Alaskan Native, Asian, Asian/Pacific Islander, Black, Hispanic, and White, which are the codes used by the district and within the SWIS database.
Grade	Student's grade during 2010-2011 school year
Gender	Coded whether a student is female or male

After the student data from the 2010-2011 school year were exported from the SWIS, the district PBIS coordinator removed any identifying information pertaining to students. Identifying information removed included the student's name, classroom teacher, birth date, SWIS number, and student number. For coding purposes, each school was given a code letter to represent the school's name. Each student received a five-digit number along with the letter designating the school. (For example: A00000.)

Students could possibly have information in one of the tiers, two of the tiers, or within all three tiers. Once all student information was entered into this study's Excel format, a reliability test was completed on the Excel file. For reliability, every 10th person was checked in regards to all variables (ODRs, age, grade, gender, ethnicity, and placement within tier 2 and/or tier 3). Student data were kept in a different spreadsheet section than the school data were for analysis purposes.

Tier 2 Students

Data on placement in Tier 2 were coded as occurrence/non-occurrence. In this study, this data was from the CICO tab in SWIS only for students from the 2010-2011 school year. All schools used Tier 2 intervention known as CCE (Cheney et al., 2009) to support at-risk students.

Tier 3 Students

Data collection for students within tier 3 was reported and collected from each school's behavior support team. The SWPBIS district coordinator met with each team and collected tier 3 data from the 2010-2011 school year. The behavior support teams are charged with collecting all data and designing interventions for students who are not responsive to Tier 2 intervention. For this study, only data from students who received individualized supports (such as a Functional Behavior Assessment, or individualized supports from Special Education due to behavior problems in 2010-2011) was used.

School Variables

The school variables were collected from two sources. The SWPBIS district coordinator reported each school's SET (School-Wide Evaluation Tool) score and tier 2 coaching hours. The school's population in 2010-2011 and demographic variables were collected from the publically available spell out: OSPI report card, which provided the percentages of each ethnicity/race for each school. A more in-depth description of each school variable is located within Table 3.4

Table 3.4

School Variables and Descriptions

Variable – School	Description
School membership	Total number of students within the school in 2010-2011
Demographics for school membership	Diversity makeup of the entire school, based on SWIS data entry, of the school population, calculated into percentages
SET[a] score	SET is a combination of scores across seven (7) features with a score ranging from 0 to 2. The total possible score of 56 points will be used in this study
Coaching Hours	Students in Tier 2 are assigned a school coach. The number of hours the person specifically works on "coaching" for tier 2 is recorded for each school. Because schools receive different funding from tier 1 to support tier 2 and 3 coach's hours will also be used in calculating possible moderating factors

[a]School-Wide Evaluation Tool

The School-Wide Evaluation Tool was developed to measure the impact of SWPBIS on students and staff (Horner, Todd, Lewis-Palmer, Irvin, Sugai, & Boland, 2004) The SET score demonstrates the school's fidelity of implementation of SWPBIS. The SET has 28 items arranged in 7 subscales representing the 7 key features of SWPBIS. The seven subscales are: expectations defined, expectations taught, reward system, violation system, monitoring and evaluation, management, and district support. To complete the SET, the SWPBIS district coordinator or assistant trained in SET methods, completes interviews with school staff and students, reviews school documents, and complete an environmental assessment of the school, which includes observations of the school, classroom, and common areas. The evaluator then rates each of the 28 items on a Likert scale with a score of 0, 1, or 2 (0 = not implemented, 1 = partially implemented, and 2 = fully implemented.) Items are summed across a subscale for the seven summary scores. Points earned are divided by total possible points and multiplied by 100

for a percentage summary score for each of the seven subscales. A criterion score of 80% or higher of the possible points is considered to provide fidelity of effectively implementing SWPBIS. The study did not control for SET scores, yet schools must have a solid SWPBIS system in place before moving to tier 2 and/or tier 3 interventions.

Coaching hours were also evaluated since, due to budget cuts, the personnel within the positions were not always available for students or had other responsibilities at the school. Since the multiple tier 2 programs (BEP, CCE, and CICO) require additional care by an adult for students who are at risk for problem behaviors, analyzing the effects of coaching time was one way to evaluate the validity of the program within schools.

Once the school information was cleaned of any identifying information and schools were given a letter of identification, the information was transferred into an Excel sheet for analysis. The researcher completed a reliability check on all SET scores, school size, demographic makeup of the school, and coaching hours from the PBIS district coordinator's document files and online OSPI website. The data were stored in an Excel spreadsheet until the spreadsheet was transferred into the Hierarchical Linear Modeling evaluation program.

Data Analysis

The first two research questions focus on examining the distribution of students, based on ethnicity, within schools using SWPBIS. The second two research questions focus on determining which variables from those provided by the researchers could determine if a student receives supports within tier 2 and tier 3. Below are the four questions the study will be focused on within this paper.

1. What are the ODR rates for all students within each tier of the SWPBIS model?

2. Are the ODR rates proportional based on student ethnicity within each tier of the SWPBIS model?
3. Which of the identified student variables (ODRs, ethnicity, grade, and age) and school variables (SET scores, size of school, and coaching hours) in this study are predictive of needed services within tier 2 of the SWPBIS model?
4. Which of the identified student (ODRs, tier 2 placement, ethnicity, grade, gender, and age) and school (SET scores, size of school, and coaching hours) variables in this study are predictive of placement in tier 3 of the SWPBIS model?

To answer these questions, the researcher used descriptive statistics (percentages) to describe each school. To determine the descriptive statistics, SPSS software, a statistic analysis program, was used after the data is exported from the provided Excel files. Using descriptive statistics to analyze the data allowed the researcher to observe if all students, not controlling for ethnicity, are proportionally represented in each tier of the SWPBIS model. Then percentages of students by ethnicity was calculated, using the same descriptive statistical method, to observe if students are proportionally represented in each tier of the SWPBIS model. Data was presented both at the individual school and district level.

Hierarchical Linear Modeling (HLM) was used to find the results for the third and fourth questions. The third research question focuses on analyzing student variables, which could potentially predict a student being placed within tier 2. The same procedure was followed for the fourth research question, as the researcher will use the same analysis plus tier 2 placements to analyze the potential prediction for tier 3 placements of students. Table 3.5 provides the names and abbreviations for each code used in the HLM equations.

Table 3.5

HLM Variable Description

Abbreviations	Variables
ODR	Office Discipline Referrals
SET	SET score
SIZ	Size of the school
DIV	Diversity of the school
ETH	Ethnicity of the student
GRA	Grade level of student
GEN	Gender of student
COH	Coaching hours in school
T2	Placement in tier 2
T3	Placement in tier 3

The ODR equation represents level one or tier 1. Tier 2 and tier 3 are both level 2 within HLM and will be run separately as two separate equations. Below are the equations used for HLM.

$$ODR_{ij} = (SET)_j + (SIZ)_j + (DIV)_j$$

$$T2_{ij} = (ODR)_{ij} + (ETH)_{ij} + (SET)_j + (GRA)_{ij} + (GEN)_{ij}$$

$$T3_{ij} = (ODR)_{ij} + (ETH)_{ij} + (SET)_j + (COH)_j + (GRA)_{ij} + (GEN)_{ij} + (T2)_{ij}$$

When analyzing the data, the researcher used Hierarchical Linear Modeling 7 (HLM 7). This program is available from Scientific Software International, Inc. Only two levels at a time were analyzed with ODR representing level 1 or the school level. Level 2 is either tier 2 or tier 3, which represents the student level. The classroom level was not be analyzed for this study due to difficulty of collecting teacher-level data and potential for identification of students within the study. Future research should consider adding classroom-level teacher identification data into the study. Tier 2 and tier 3 will be run separately with level 1 ODRs. This is because tier 2 is considered a predictor of placement in tier 3 and no connection between the two equations exists. Since the number of ODRs does not guarantee placement in tier 2, nor does placement and failure in tier 2 guarantee placement in tier 3.

CHAPTER 4: RESULTS

Analysis of Data

The results of this study are presented for 14 of the 15 schools. One school was dropped due to the school's deletion of SWIS data, which precluded analysis for this study. Out of the 7,632 students in the study during the 2010-2011 school year, 1,474 students received one or more ODRs. The data were compiled within Excel files, transferred to SPSS (SPSS Inc., 2010), and evaluated or transferred into the HLM program (Raudenbush & Bryk, 2002) for evaluation. Before transferring the data to SPSS files, every 10th student record was checked for data integrity. Data were saved in three different files for evaluation (Excel, SPSS, and HLM 6.0), with only the student code for analysis purposes.

Results

Question 1: Tier Distribution for Students

The results for Question 1 are found within Table 4.1. Data were analyzed by reviewing the number of ODRs per level of PBIS model (Tiers 1, 2, or 3) to evaluate the overall distribution of students within each school. The theoretical distribution across Tiers 1, 2, or 3 was derived from the PBIS literature: The SWPBIS 80-15-5 distribution model predicts that 80% of students would be expected to have 0-1 ODRs, 15% would have 2-5, and 5% would have 6 or more. Actual percentages for the students in this study are presented in Table 4.1.

Table 4.1

ODR Distribution of Students in Schools for the Three-Tiered Model

School	A	B	C	D	E	F	G	H	I	J	K	L	M	N
Tier 1	89.0% (577)	86.6% (513)	96.2% (436)	89.7% (541)	81.7% (478)	87.3% (503)	85.6% (351)	84.7% (477)	96.1% (584)	90.6% (482)	96.4% (489)	98.5% (451)	97.0% (284)	92.1% (549)
Tier 2	7.5% (49)	11.0% (65)	3.6% (16)	7.6% (46)	13.2% (77)	9.9% (57)	10.7% (44)	8.2% (46)	3.6% (21)	7.5% (40)	2.8% (14)	1.3% (6)	2.7% (8)	6.7% (40)
Tier 3	3.5% (23)	2.4% (14)	0.2% (1)	2.7% (16)	**5.1% (30)**	2.8% (16)	3.7% (15)	**7.1% (40)**	0.3% (2)	1.9% (10)	0.8% (4)	0.2% (1)	0.3% (1)	1.2% (7)

As seen in Table 4.1, all schools exceeded the recommended Tier 1 80% level, with schools ranging from 81.7% to 96.4%. This means that over 80% of the students in each school had only 0-1 ODR in the 2010-2011 school year. These students were considered to be at low risk for developing significant behavior problems. All schools were below the theorized 15% level for Tier 2 ODRs, with student ODRs ranging from 1.3% to 13.2%. These students were considered “at-risk” for developing significant problem behaviors in the 2010-2011 school year, and therefore to be in need of additional group supports. For students receiving 6 or more ODRs, the theorized number for needing Tier 3 support, 12 of the 14 schools were within the recommended 5%, with scores ranging from 0.2% to 7.1%. Two school’s percentages (School E and School H) were over the recommended 5% (5.1% and 7.1%, respectively). The results of this analysis suggest that the schools in the study are performing somewhat better than the hypothesized proportions in the SWPBIS model.

Question 2: Minority Students in the Tiers

The above data from the distribution in the three Tiers leads into the results for the second question of the study, which focused on the number of minority students represented in each Tier of risk, based on the number of ODRs received. Each school’s overall ethnicity representation is shown in Table 4.2. When ethnicity is not included, the results are consistent

with the percentages described above. In Tier 1 (based on 0 to 1 ODRs), by ethnicity, American Indian/Alaskan Native (AI/AN) percentages ranged from 85.7% to 100%; Asian from 96.9% to 100%; Hispanic from 88.8% to 100%; Black from 62.1% to 100%; White from 42.5% to 97.8%; and Pacific Islander from 91.6% to 100%. Black students in 6 of the 14 schools were under-represented in Tier 1, and White students were under-represented in Tier 1 in one of the 14 schools.

Table 4.2

ODRs by Tier and Ethnicity in Each School

School	AI/AN	Asian	Hispanic	Black	White	Not Listed	Pacific Islander
School A							
Pop. %	1.1%	17.2%	31.1%	20.3%	16.7%		7.8%
(N)	(7)	(110)	(199)	(130)	(107)		(50)
Tier 1 (0-1)	85.7%	97.3%	90.5%	**78.5%**	88.8%	(16)	98% (1)
Tier 2 (2-5)	14.3% (1)	1.8% (2)	7.0% (14)	**13.1% (17)**	8.4% (9)	(6)	-
Tier 3 (6+)	-	0.9% (1)	2.5% (5)	**8.5% (11)**	2.8% (3)	(2)	2% (1)
School B							
Pop. %	2.6%	19.2%	36.2%	8.1%	24.9%		6.0%
(N)	(16)	(118)	(222)	(50)	(153)		(37)
Tier 1 (0-1)	100%	98.8%	91.4%	84%	85.6%	(18)	97.3%
Tier 2 (2-5)	-	4.2% (5)	6.8% (15)	12.0% (6)	12.4%(19)	(19)	2.7% (1)
Tier 3 (6+)	-	-	1.8% (4)	4% (2)	2% (3)	(5)	-
School C							
Pop. %	0.4%	10.6%	23.3%	10.4%	39.4%		3.1%
(N)	(2)	(48)	(106)	(47)	(179)		(14)
Tier 1 (0-1)	100%	100%	99.1%	89.4%	95.5%	(10)	100%
Tier 2 (2-5)	-	-	0.9% (1)	8.5% (4)	4.5% (8)	(3)	-
Tier 3 (6+)	-	-	-	2.2% (1)	-	-	-
School D							
Pop. %	1.2%	14.7%	48.7%	13.2%	14.5%		4.8%
(N)	(7)	(88)	(292)	(79)	(87)		(29)
Tier 1 (0-1)	100%	98.8%	93.2%	81.0%	88.5%	(16)	100%
Tier 2 (2-5)	-	1.1% (1)	5.1% (15)	13.9% (11)	9.2% (8)	(11)	-
Tier 3 (6+)	-	-	1.7% (5)	**5.1% (4)**	2.3% (2)	(5)	-
School E							
Pop. %	0.7%	8.6%	54.8%	16.9%	6.8%		7.3%
(N)	(4)	(51)	(324)	(100)	(40)		(43)
Tier 1 (0-1)	100%	98%	91.4%	**67.0%**	**42.5%**	(23)	100%
Tier 2 (2-5)	-	2% (1)	7.1% (23)	**23% (23)**	**27.5% (11)**	19)	-
Tier 3 (6+)	-	-	1.5% (5)	**10% (10)**	**30% (12)**	(3)	-
School F							
Pop. %	1.8%	5.6%	14.1%	8.1%	63.6%		0.9%
(N)	(10)	(32)	(80)	(46)	(361)		(5)
Tier 1 (0-1)	100%	96.9%	88.8%	**65.2%**	91.7%	(17)	100%
Tier 2 (2-5)	-	3.1% (1)	7.5% (6)	**28.3% (13)**	5.5% (20)	(17)	-
Tier 3 (6+)	-	-	3.8% (3)	**6.5% (3)**	2.8% (10)	-	-
School G							
Pop. %	1.0%	14.1%	31.2%	18.9%	22.2%		6.0%
(N)	(4)	(56)	(124)	(75)	(88)		(24)
Tier 1 (0-1)	100%	98.2%	92.0%	**73.3%**	89.8%	(14)	91.6%
Tier 2 (2-5)	-	1.8% (1)	7.3% (9)	**17.3% (13)**	6.8% (6)	(14)	4.2% (1)
Tier 3 (6+)	-	-	0.7% (1)	**10.7% (8)**	3.4% (3)	(2)	4.2% (1)
School H							
Pop. %	1.5%	10.6%	50.9%	12.3%	12.8%		7.4%
(N)	(8)	(57)	(274)	(66)	(69)		(40)
Tier 1 (0-1)	100%	96.4%	90.1%	**62.1%**	87.0%	(21)	100%
Tier 2 (2-5)	-	1.8% (1)	5.8% (16)	**16.7% (11)**	8.7% (6)	(12)	-
Tier 3 (6+)	-	1.8% (1)	4.3% (12)	**21.2% (14)**	4.3% (3)	(10)	-
School I							

	AI/AN	Asian	Hispanic	Black	White	Not Listed	Pacific Islander
Pop. %	2.1%	24%	44.6%	9.7%	10.6%		6.2%
(N)	(12)	(139)	(258)	(56)	(61)		(36)
Tier 1 (0-1)	100%	99.3%	95.7%	94.6%	96.8%	(11)	100%
Tier 2 (2-5)	-	0.7% (1)	3.9% (10)	5.4% (3)	1.6% (1)	(6)	-
Tier 3 (6+)	-	-	0.4% (1)	-	1.6% (1)	-	-
School J							
Pop. %	3.1%	11.4%	21.4%	7.2%	42.8%		2.2%
(N)	(17)	(62)	(115)	(39)	(232)		(12)
Tier 1 (0-1)	100% (1)	100% (1)	92.2% (11)	**71.8% (7)**	91.0% (19)	(11)	100%
Tier 2 (2-5)	-	-	7.8% (9)	**25.6% (10)**	6.0% (14)	(7)	-
Tier 3 (6+)	-	-	-	2.6% (1)	3.0% (7)	(2)	-
School K							
Pop. %	1.2%	14.6%	21.0%	17.3%	34.4%		5.3%
(N)	(6)	(75)	(108)	(89)	(177)		(27)
Tier 1 (0-1)	100%	100%	98.1%	96.6%	94.9%	(4)	100%
Tier 2 (2-5)	-	-	0.9% (1)	3.4% (3)	4.0% (7)	(7)	-
Tier 3 (6+)	-	-	0.9% (1)	-	1.1% (2)	(2)	-
School L							
Pop. %	0.9%	20.3%	21.1%	10.5%	29.6%		2.6%
(N)	(4)	(93)	(97)	(48)	(136)		(12)
Tier 1 (1)	100%	100%	96.9%	100%	97.8%	(2)	100%
Tier 2 (2-5)	-	-	9.1% (3)	-	1.5% (2)	(1)	-
Tier 3 (6+)	-	-	-	-	0.7% (1)	-	-
School M							
Pop. %	0.6%	16.2%	44.9%	6.9%	16.5%		6.2%
(N)	(2)	(52)	(144)	(22)	(53)		(20)
Tier 1 (0-1)	100%	100%	100%	95.6%	90.6%	(5)	100%
Tier 2 (2-5)	-	-	-	4.5% (1)	7.5% (4)	(3)	-
Tier 3 (6+)	-	-	-	-	1.9% (1)	-	-
School N							
Pop. %	0.9%	33.7%	30.2%	17.9%	10.4%		4.2%
(N)	(5)	(192)	(172)	(102)	(59)		(24)
Tier 1 (0-1)	100%	99%	90.7%	89.2%	91.5%	(28)	100%
Tier 2 (2-5)	-	1% (2)	7.6% (13)	8.8% (9)	6.8% (4)	(12)	-
Tier 3 (6+)	-	-	1.7% (3)	2% (2)	1.7% (1)	(1)	-

AI/AN = American Indian/Alaskan Native

In Tier 2 (based on 2-5 ODRs) by ethnicity: American Indian/Alaskan Native students ranged from 0 to 14.3%; Asian from 0 to 4.2%; Hispanic from 0 to 9.1%; Black from 0 to 28.3%; White from 1.5% to 27.5%; and Pacific Islander from 0 to 4.2%. Six of the fourteen schools had an over-representation of Black students in Tier 2, demonstrating percentages over 15%. One school had an over-representation of White students in Tier 2 while also showing an over-representation

in Black students, with both groups of students representing minority populations within the school.

In Tier 3 (based on 6 or more ODRs) by ethnicity, American Indian/American Native students showed no range, Asian from 0 to 1.8%, Hispanic from 0.4% to 4.3%, Black from 0% to 21.2%, White from 0.7% to 30%, and Pacific Islander from 0 to 2%. Over-representation was demonstrated in 6 of the 14 schools, with more than 5% of the population of Black students seen in Tier 3. Again, White students are over-represented at Tier 3 at one school, the same school that demonstrated over-representation of Black students in Tier 3. The results show that nearly half of the schools (43%) are over-representing Black students in Tiers 2 and 3.

Question 3: Predictors of Tier 2 Intervention

Question 3 focused on whether or not the identified student variables (grade, gender, number of ODRs, and ethnicity), and school variables (population size, diversity, and SET scores) were predictive factors for a student obtaining Tier 2 services.

Table 4.3

Tier 2 Predictors

	Coefficient	Odds Ratio
Level 2 Predictors		
School Population	0.9307 (0.5022)+	2.7619
SET Scores	0.1223 (0.5551)	1.0532
Diversity of School	-0.5736 (0.6823)	0.6321
Level 1 Predictors		
Gender	-0.4955 (0.3134)	0.6033
Grade	-0.3561 (0.0652)***	0.6961
Number of ODRs	0.1102 (0.0229)***	1.1207
Asian/AI/AN/ Pacific Islander	0.0421 (0.5882)	1.0523
Hispanic	-0.1385 (0.3385)	0.8722
Black	-0.2858 (0.3757)	0.7451
Not Listed	0.2425 (0.3285)	1.2900

Note: + $p > .1 < .05$, * $p < .05$, ** $p < .01$, *** $p < .001$, AI/AN = American Indian/Alaskan Native

The results, shown in Table 4.3, reveal that a large school population is a likely predictor of a student being placed in Tier 2 ($WALD(4, 10) = 2.02, p > .1 < .05$). For student variables, schools were statistically more likely to put students in Tier 2 who were in lower elementary grades than those who were in higher elementary grades ($WALD(11, 1{,}463) = -5.55, p < .001$). Office Discipline Referrals were also a statistically significant predictor, as the more ODRs a student received, the more likely the student was to be placed in Tier 2 ($WALD(11, 1{,}463) = 4.98, p < .001$). Since White students were held as the reference group, they were not considered in determining the predictive factors. Also, ethnic groups AI/AN, Pacific Islander, and Asian, who had small numbers in Tiers 2 and 3, were consolidated into a smaller group for Tiers 2 and 3 analysis. None of the ethnicity groups at Tier 2 were considered to be a predictor for further supports.

Question 4: Predictors of Tier 3 Intervention

Question 4 focused on whether the identified student variables (grade, gender, number of ODRs, and ethnicity), and school variables (population size, diversity, and SET scores) were predictive factors for a student obtaining Tier 3 services.

Table 4.4

Tier 3 Predictors

	Coefficient	Odds Ratio
Level 2 Predictors		
School Population	0.1450 (3.0364)	1.1561
SET Scores	-1.5458 (3.3210)	0.2126
Diversity of School	0.1407 (4.1163)	1.1511
Tier 2 Coaching Time	4.2358 (3.3725)	69.1182
Level 1 Predictors		
Gender	0.2553 (0.5521)	1.2909
Grade	-0.2957 (0.1248)*	0.7440
Number of ODRs	0.3966 (0.0531)***	1.4867
Tier 2	1.3233 (0.5941)*	3.7559
Asian/AI/AN/Pacific Islander	-1.2997 (0.9879)	0.2726
Hispanic	-2.1950 (0.7176)**	0.1114
Black	-1.4689 (0.7298)*	0.2302
Not Listed	0.0521 (0.5464)	1.0534

Note: * $p<.05$, ** $p<.01$, *** $p<.001$, AI/AN = American Indian/Alaskan Native

In Table 4.4, the data suggest that none of the school-level factors (size, coaching, SET score, or diversity) were statistically significant predictors of Tier 3 supports. At the student level, four different variables were statistically significant predictors of Tier 3 supports. Similar to the findings at Tier 2, students in lower elementary grades were more likely to receive Tier 3 supports than those in higher elementary grades ($WALD(13, 1,461) = -2.37, p < .05$). The number of ODRs a student received was also a statistically significant predictive factor for a student to receive Tier 3 supports ($WALD(13, 1,461) = 7.46, p < .001$). Receiving two Tier 2 supports before moving into Tier 3 supports was also shown to be a statistically significant predictive factor ($WALD(13, 1,461) = 2.23, p < .05$). Two ethnic groups were statistically significant as predictors to not be within Tier 3 supports: both Black ($WALD(13, 1,461) = -2.01, p < .05$) and Hispanic ($WALD(13, 1,461) = -3.06, p < .01$) students were less likely to be receiving Tier 3 supports.

CHAPTER 5: DISCUSSION

Summary of Study

The current study evaluated the proportional distribution model (80-15-5) within SWPBIS based on the total population and on 6 different ethnicity groups in each of 14 schools. This study also evaluated the predictive factors at the school and student level to assess how ethnicity influences a student's placement in Tier 2 and Tier 3 and the distribution of students within Tiers. The results are contrary to what past researchers have found in regards to the distribution model and urban schools (Warren, Edmonson, Griggs, Lassen, McCart, Turnbull, and Sailor, 2003). Although some of the schools from the current study were shown to have proportional representation of Black students in Tier 1, those schools were over-represented at Tier 2 and Tier 3. An HLM analysis on the current study suggested that when other variables were held constant, Black students were less likely to be nominated for Tier 3 supports. Hispanic students were under-represented in Tier 2 and Tier 3 with predictive results showing that Hispanic students were also less likely to be nominated for Tier 3 supports.

Findings

The 14 diverse, urban schools in this study were within the range of the proportional representation of the SWPBIS distribution model based on ODRs recommended by Walker et al. (1996) and Sugai et al. (2000). Warren et al. (2003), however, suggested that urban, inner city schools with a majority of ethnically diverse students were not consistently demonstrating the 80-15-5 SWPBIS model. Instead, when evaluating 724 middle schools in 2 different states, Warren et al. found that the overall representation of the distribution model is actually 38-30-21-11, and the model consisted of 4 Tiers (0-1, 2-5, 6-14, and 15+).

This study, meanwhile, talks about the struggle with teacher and administrative buy-in and the need for school and district support. The schools in this study differ from Warren et al.

(2003), because each school in this study had district and administrative support along with a PBIS district coordinator to support implementation.

Some of the schools in this study maintained these low proportional rates while not passing the SET, although many were close to passing or had passed within the last two years. The schools with non-passing scores (based on the PBIS district coordinators' scoring) lost points only because the school did not have proper PBIS posters displayed around the school at the time of the evaluation, or because other pieces of documentation were not available in the school handbook. Although the schools did not pass, all teachers and students knew the expectations, the established reward systems and consequence plan in place to support students.

After evaluating each school's overall proportionality in the Tiers, each ethnicity's proportional representation was calculated within each school. The terms "under-represented" and "over-represented" were used to describe the ethnic representation of students in the Tiers when compared to the 80-15-5 model. This same terminology was used in Vincent et al. (in press), who demonstrated that when a group of students, based on ethnicity, was below any Tier within the recommended 80-15-5 model, they would be under-represented. If students in an ethnic group were over any Tier of the 80-15-5 model, they were considered to be over-represented. Identifying the under-represented students is as important as identifying the over-represented, as both groups can be studied.

The results showed an under-representation of Pacific Islander and American Indian/Alaskan Native in the Tier 2 and Tier 3 risk levels, as indicated by the number of ODRs received. A study published from the U.S. Department of Health and Human Services (2001) reported that for American Indian/Alaskan Native students, this under-representation could be due to struggles with internalizing disorders, such as depression or suicide. The under-

representation could also be due to the low population number of American Indian/Native American students within each school, or because SWPBIS does not evaluate or collect data on internalizing problems. SWPBIS focuses on collecting data on externalizing problem behaviors to provide supports based on the number of ODRs. This system lacks a mechanism for the detection or monitoring of students who struggle with internalizing problems such as depression and suicide.

Similarly low percentages of ODRs within Tier 2 and Tier 3 are seen for Asian and Hispanic students, although these populations are more evenly distributed within each school. Hispanic students are the majority students in 8 out of the 14 schools. This under-representation within the Tiers could occur for many reasons, such as various mental health issues. A lack of more intensive supports for some minority students could also be related to access and the acceptance of interventions that provide protective factors for students (Breslau, Aguilar-Gaxiola, Kendler, Su, Williams, & Kessler, 2006).

Vincent et al. (in print) found similar under-representation for Hispanic students when they evaluated ODRs at the risk levels of Tier 1 (0-1 ODR) and Tier 2 (2-5 ODRs). While similar mental health reasoning, like that discussed above, could support some of the results, research from Skiba et al. (2011) shows that this under-representation must be researched more thoroughly. Hispanic students, although not represented in the higher Tiers, could be receiving harsher punishment than their White peers. Another possibility could be that since these districts have a majority of Hispanic students, Hispanic students gain advantage by setting the behavioral norms. Other student behavior is then compared to the majority (Hispanic) population's behavior.

The district in the study has invested in professional development around culturally responsive practices with the Hispanic community. These schools work with community groups that support parents and families, and staff members also arrange services like translators or volunteers to support school functions. Building a community within schools could be another reason schools did not show over-representation of Hispanic students at Tiers 2 and 3, based on ODRs.

Black students in schools were under-represented in 8 out of 14 (57%) of schools in Tier 1, based on ODRs. Under-representation at the Tier 1 level meant that Black students in the six schools were over-represented in the higher tiers, based on 2-5 ODRs, and therefore were at potential risk within Tier 2 supports. Again, these results are similar to what Vincent et al. (in print) discovered when evaluating ODRs; patterns in Tier 1 and Tier 2 by ethnicity by were not similar when looking at predictive factors for Tier 2 supports.

Black students were over-represented in the Tier 3 risk level (receiving 6 or more ODRs and potentially being placed in Tier 3 interventions. Only 36% of the schools were over-represented in ODRs for Black students at both risk levels of Tier 2 and Tier 3, with one school over-represented at Tier 2 and one school over-represented at Tier 3. Overall, Black students were over-represented in the number of ODRs and level of risk in 43% of the schools (6 out of 14 schools), which increased the probability that Black students being qualified for special education. Student data were analyzed to determine whether the student received Tier 2 and Tier 3 supports from each school. However, students were not tracked by the type of services they received, so researchers could not evaluate whether a student received a special education label. Prior studies have shown that Black/African American students are over-represented in ODRs,

and they are at high risk for chronic problem behaviors like those found in Tier 3 risk levels (Skiba et al., 1997; Skiba et al., 2011).

Although Black students were over-represented in six schools at Tier 3, it should be noted that four of the schools did not have any Black students receiving six or more ODRs (and therefore none were placed in the Tier 3 risk level.) These schools were all over-representing students within the Tier 1 range, with percentages above 90%.

Multiple points could be inferred from these results. First, schools are potentially engaging in culturally responsive practices and using SWPBIS to establish a climate where all students feel safe and welcome, which is a foundational goal of the approach (Sailor et al., 2009). Another possible reason: these schools and teachers were being trained and supported by a district PBIS coordinator and an assistant who provided professional development trainings on supporting student behaviors positively in the classroom and around school. While the discussion with the district coordinator not a part of this study, a meeting to discuss the results brought up mention the potential problems with the data could include a lack of reporting that kept ODRs low within several of the schools. Some principals have also stated that teachers sometimes do not report students or write up referrals due to the school's use of SWIS, which can evaluate data by location, time, and sometimes by staff. This can cause staff to be criticized by the behavior team for writing up too many students, which can reduce the likelihood of writing ODRs in the future, even when the situations require an ODR.

The discrepancies between five schools with over-representation in both tier 2 and 3, two schools with only overrepresentation and 1 tier (either 2 or 3) and seven schools without any representation of a high number of ODRs for Black students was likely a contributing factor to the potential predictive factors of a student receiving Tier 2 or Tier 3 supports. Interestingly,

ethnicity as a variable in the HLM model was not found to be a significant predictor. This contradicts results found by Vincent et al. (in print) when evaluating predictive factors for Tier 2 interventions. Their study showed ethnicity was a statistically significant factor in predicting supports for students. This study, meanwhile, actually found negative coefficients for Black students, signifying that they were less likely to be labeled for Tier 2 supports. This study suggests that schools engaging in culturally responsive practices and receiving professional training on praising positive behavior while reducing problem behaviors could reduce the over-representation of minority students, specifically Black students, within an overall school district. Also, these results demonstrate the need for individualized analysis when evaluating schools' proportional representation of ethnicities within each school versus overall representation of multiple schools within the district. Grouping schools, which was done to answer questions 3 and 4 of the study, provided entirely different results than looking at each school individually. This should be considered when conducting future research into over-representation of minority students.

There were several variables in the Tier 2 predictive model that were statistically significant: grade and number of ODRs. The more ODRs a student received, the higher the odds (1.12) the student would be placed within Tier 2, compared to students who did not receive any ODRs or a smaller number. Although this cut off number was not determined for this study. These findings support and build upon research on cut-off scores for Tiers of supports and student access to these Tiers. Also, since McIntosh et al. (2010) demonstrated that ODRs correlate with the BASC-2 when evaluating for externalizing problem behaviors, this research adds that ODRs are predictive and useful to schools, even when those schools are not in a research study, to moving students who are struggling with problem behaviors into higher levels

of support. Stage et al. (2005) found similar results comparing ODRs to the SRSS when observing elementary students. This paper's results aid in demonstrating that students receiving higher numbers of ODRs and determined to be clinically at risk for further problem behaviors are being referred to Tier 2 by school behavior support teams. These teams see that these students need additional support, and team members are trying to reform practices to teach students pro-social behaviors.

Another significant predictive factor was student grade level. The model showed significant connections between students' grade levels and the likelihood of being placed in Tier 2 supports. Students within the lower grades had greater odds (0.63) of being placed within Tier 2 interventions than students within the higher elementary grade levels. These interesting results need to be taken with caution. The results could mean two different possibilities: either SWPBIS is detecting problem behaviors more effectively and earlier on, or setting up a "child find" system that creates undesired outcomes similar to the old problem of labeling within Special Education. Students within younger grades are younger students, and they are still learning the socially appropriate norms and behaviors in school. For a successful school career, students must receive many lessons in academic subjects, but other than SWPBIS school expectation trainings, students may receive few supports around appropriate school behaviors and expectations. This may be because elementary teachers are not receiving training on how to adequately support younger students to develop behavior skills while at the same time still providing lessons on school-appropriate behaviors during instructional times.

Similar statistically significant results for the number of ODRs and grade were seen as predictive factors for Tier 3 supports within schools. Students with a higher number of ODRs had greater odds (1.49) of receiving supports in Tier 3 than students who did not receive any

ODRs. This is consistent with previous findings in the literature regarding cutoff criteria (McIntosh et al., 2010; Sugai et al., 2000). This is key again in supporting students at risk or with chronic problem behaviors, because the higher number of ODRs predicts that students are at higher odds for needing more individualized supports. A student can receive a complete Functional Behavior Assessment to determine which specific setting events, antecedents, behaviors, and consequences can be modified within the environment to support the student in reducing problem behaviors while teaching replacement, pro-social behaviors. These replacement behaviors are taught and supported in the Behavior Intervention Plan (BIP). Schools can also provide intense one-on-one social skills support or entire family supports like those found in wraparound programs. The schools in this study provided multiple supports and were not restricted to a protocol.

Lower grade level students had greater odds (0.74) of being within Tier 3 supports compared to higher elementary students. Determining that students are being identified early can be a double-edged sword, and this early identification requires further investigation in both research and practice. Since SWPBIS is based on the needs of the student and on data-based decision making, students can receive supports earlier, and school staff are not practicing the "waiting to fail" method or zero tolerance practices (Sailor et al., 2009). Or schools could be identifying students early who are in need of intense, individualized supports, and therefore are subsequently reducing the students' odds of more violent and chronic problem behaviors (Sailor et al., 2009). Early identification could be a beneficial approach, assisting teachers and staff in providing social skills support and training so that the student does not need these supports later on. This approach also potentially reduces criminal or violent behavior in the student's

adolescent and adult life. More questions are developing in this area, providing researchers with a path to where more research is needed.

Researchers also found that students who were in Tier 2 had a 3.76 higher odds ratio of being within Tier 3 supports than those who did not receive Tier 2 supports. This brings into question several issues. First, Tier 2 interventions are relatively new, and schools may not yet have powerful interventions to address the needs of these students. Schools may not be screening effectively and/or there may not be fidelity of implementation. In these schools, there has been an effort to implement CCE, so one would think these students are nonresponders. When schools have nonresponders, teachers and staff need to identify them early and provide Tier 3 supports. These results should be considered with caution, as students who continue to struggle within Tier 2 should eventually be within Tier 3. But SWPBIS does not set up the system to become a pipeline to the same methods schools were previously using to label students with behavior problems. When comparing these results to the school's proportional model, there does not seem to be an over-representation of students within Tier 2 or Tier 3. This should raise concerns, but when looking at the students based on ethnicity, the results suggest an over-representation of Black students. This illustrates a well-documented struggle of the over-representation of Black students within EBD. Although since IEP data was not collected for this study, no direct correlation can be made at this point.

While a student being in Tier 2 was a significant predictor of a student's placement in Tier 3 supports, the number of coaching hours a school had for students was not a statistically significant predictor. These results mean that schools could use staff to check students in and out and conduct social skills support while also completing other jobs around the school. Studies like Cheney et al. (2009) used full-time coaches within each school when studying the Tier 2

support and CC&E. The results were strong and positive for the field, yet based on the results from this study, could similar results have been demonstrated with a coach only working part time or even less than part time? Lowering the cost of interventions while providing the best supports possible to students is a focus for researchers and schools attempting to implement best practices with the least amount of funds.

Interestingly, two ethnicities demonstrated results opposite to what has been seen in prior research. All ethnic groups showed negative coefficients when compared to White peers at the Tier 3 level. Black and Hispanic students had .23 and .11 lower odds of being put in Tier 3 supports than White students. These statistics do not lend support to the disproportionality results, but instead demonstrate that SWPBIS shows opposite results for Black students.

This also brings up many questions and thoughts on how schools and research should evaluate over-representation in a larger school. When looking at ODRs based on ethnicity, 43% of the schools were over-represented with Black students at higher risk levels, yet 57% (7) of the schools were under-represented with Black students within the higher risk levels. These results are the first to show that SWPBIS could be reducing students of color overall in the higher tiers, yet the odds ratios are not strong, which means many students with multiple ODRs are still at the Tier 1 level. Based on previous research, these students may be over-represented in punitive practices (Skiba et al., 1997; Skiba et al., 2011).

Limitations

These results are beneficial to the field, yet should be taken with some hesitation, since the fidelity of the data entered into SWIS lacked external validity from 14 schools within 1 district. Although there was a large sample size for ODRs, as students move to Tier 2 and Tier 3 supports, the N reduces. Future researchers should increase the number of schools in order to

increase the N in evaluating Tier 2 and Tier 3 analyses. A larger sample size consisting of multiple diverse elementary schools within several cities should be considered for a future study. This would broaden the representation geographically and allow for testing these findings in similar and different urban districts.

Since these groups are designed to have a smaller representation of schools, many schools did not have a large number of students within Tier 2 or Tier 3.

Although coaching hours were rarely discussed due to lack of significant data, further evaluation of the continuous use of minutes 0 – 720 could have affected the outcomes for the study. More research around what schools can do with another adult person in the school supplying specific supports to at-risk students is needed. This research could determine the lowest number of hours needed to produce the most benefit from adding an additional adult to help students reduce their risk of chronic problem behaviors.

Ethnicity continues to be a major discussion point in educational research and practice, since the country is growing more diverse. The ethnicity of some students within the study was not listed, so clarifying demographic data for all is important in such a study. Some families believe the five major categories for ethnicity are not descriptive of them, and therefore decide not to enter a code. Other families may have entered an ethnicity code they did not feel completely represented them, but they felt they must indicate something within the constrained options provided by the school district. The school knows continued supports must be completed in this area, yet when reporting entities, SWIS, and OSPI use different ethnicity group reporting standards, students and families may continue to not feel represented and simply not respond when faced with only four or five different ethnicity categories.

The overall results could have been impacted, for the positive, by the other supports being implemented in each of the elementary schools. The elementary schools were implementing social-emotional curriculum and academic supports within the RtI model. Although data are available for academic achievement and from behavior rating scales, these data were not included in this study. It is possible these variables influence the number of ODRs or need for additional tier 2 or tier 3 student supports.

Future Research

There are multiple future research suggestions from this study. The first is to continue evaluating urban schools' 80-15-5 model. This study demonstrates that when urban schools are properly trained and supported, schools can represent the recommended SWPBIS triangle, even when a majority of the students are minority ethnicities. Another area of future research is comparing and contrasting schools that over-represented to those under-represented Black students in the 80-15-5 model. Qualitative and quantitative research should be conducted to determine when schools are engaging in effective culturally responsive practices compared to schools struggling to support students of all cultures at school.

Future research should break the coaching hours into three sections (0,1,2) for less than part-time, part-time, and full-time within a school day. The results within this study provide motivation for future research to continue evaluating the impact of SWPBIS on diverse, urban schools. Continued research evaluating the longitudinal outcomes of diverse, urban schools is needed to support school districts like the one used in the study to continue using SWPBIS for their diverse populations. While still focusing on the overall proportional representation of students in the 80-15-5 model, researchers should break down this model into different ethnicity groups to evaluate how levels of risk based on ODRs affect the ethnic groups within the study.

Further research studies should also write up case studies to evaluate the culturally diverse schools that are successfully supporting all students based on the 80-15-5 models, in order to understand how SWPBIS can improve implementation. An evaluation comparing a successful culturally diverse school to an unsuccessful culturally diverse school could help researchers and practitioners understand which variables affect a school as they aim to reduce ODRs and problem behaviors for all students.

Future research should also evaluate, on a more focused level, what schools like the seven who were underrepresenting Black students and successfully incorporating or not incorporating that reduces the likelihood of Black students engaging in problem behaviors or receiving high numbers of ODRs.

Additional research is needed on ethnicity as a predictor for more intense levels of supports. This study demonstrated results opposite to what is being seen in the current research, yet little research has looked at the path students take to Tier 3. A reduction in upper level supports could be occurring, yet students from different ethnicities could be receiving higher levels of punitive consequences at Tier 1. Although ODRs are a significant predictor of higher-level supports, the odds ratio is not strong, which means schools are keeping some students with high ODRs at Tier 1. More research is needed to investigate why schools support some students over others.

As discussed in limitations, other variables could have influenced the results. Future research should consider evaluating the effectiveness of academic and social-emotional interventions, separately and in conjunction with SWPBIS on student outcomes.

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