The Effects of Positive Behavior Supports on Academic Achievement in Alabama

by

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Abstract

This dissertation examined the potential effects of Positive Behavior Supports (PBS) on academic achievement in the State of Alabama as measured by the scores of the Alabama Reading and Math Test (ARMT) for fourth graders. In this study 16 districts that had already implemented PBS prior to the 2005-2006 school year, were matched with 16 like districts that had not implemented PBS. The researcher for this study used the National Center for Education Statistics website to examine the demographic data, at the school district level, for all 131 districts in the State of Alabama, then systematically paired each of the 16 PBS districts with a similar non-PBS district, based on seven indicators. The researcher matched districts based on geographic category (i.e. rural, large urban city, etc.), number of schools, number of students, number of positions that are full-time or part-time positions that equal full-time positions (i.e. two half-time positions equal one full-time position) [Full-time Equivalent] (FTE), student/teacher ratio, number of English language learners (ELL), and the racial make-up of the total population under 18. The racial categories included white, black, Hispanic or Latino, American Indian or Alaska native, Asian, and Hawaiian or other Pacific Islander. Then the ARMT scores of these 32 districts were compared between matched districts to see if there was a difference. The results revived that there was a difference between districts that had implemented PBS verses those that had not. The PBS districts had higher fourth grade ARMT scores in both reading and math. However, the difference was not statistically significant.

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Chapter 1

Introduction

Both educators and the mainstream public turned their attention to the problem of school violence after several highly published school shootings, such as the one in Littleton, Colorado. The very fact that the actions of two students found a place in Nigel Cawthorne's (2006) book, "Killers: The Most Barbaric Murderers of Our Time," alongside the likes of Albert DeSalvo, the Zodiac Killer, Charles Manson, Ted Bundy, David Berkowitz, and Jeffrey Dahmer, seems bizarre and out of place. Of course many Americans now know what went on in Columbine High School on April 20, 1999. A few minutes after 11:00 a.m., 19-year-old Eric Harris and 17-year-old Dylan Klebold arrived at their school wielding guns and homemade explosives. By 11:35 they had killed 12 of their classmates, one teacher, and injured 23 others before shooting themselves (Cawthorne, 2006). While most maladaptive behaviors in schools never reach the heights of Columbine, the increased publicity of such behaviors has caused people to focus on the school environment and the issue of safety more intensely.

In this chapter, the author will follow the path from a string of school shootings to poor academic outcomes for students. First, the uncommon occurrence of physical violence and shootings in schools will be addressed. Second, the decline of student behavior will be explored. Third, schools' responses to violence and maladaptive behaviors will be discussed. Fourth, there will be a discussion about the potential effects schools' responses to violence and maladaptive behaviors have on educational indicators for students. Finally, there will be an explanation of the study discussed later in this dissertation.

Violence in Schools

When one thinks of violence one most often turns to the classical definition where an act of aggressive force leads to physical harm. School shootings clearly fall under this type of violence and are important to mention because the public pressure created as a result of them did insight Congress to take legislative action. For example, Congress added a provision to the Missing, Runaway, and Exploited Children's Act, which provided funds for a grant to be awarded from the U. S. Department of Education to the National Academy of Science to study rampage shooting (Newman, 2004). Congress also passed the Gun Free School Zones Act (Kopel, 2009) to combat violence in our schools. While it is important to acknowledge the effects of school shootings, it is equally important to put rampage shooting in perspective.

Newman (2004) examined and discussed rampage shooting in schools in great detail. First and foremost, school shootings are rare. At the peak of school shootings in 1998 and 1999, the chances of dying in a school from homicide or suicide were less than one in two million. However, a series of shootings from the late 1990s through the early 2000s brought school violence to the national stage. While the Justice Policy Institute said the widespread panic over the shooting was unjustified, in the year following Columbine the nation's fifty largest newspapers printed 10,000 stories about the incident. That is an average of one story per paper every other day (Newman, 2004). Therefore, while the public's concern of school shootings is justified as far as the severity of the events, it is not justified in the prevalence of such occurrences.

What is much more common is general maladaptive behaviors (Crone et.al., 2010; Hinduja, & Patchin, 2007). Even so, most behavioral issues in schools are minor. Violent crimes in general and in schools have decreased since the early 1990s. The National School Safety

Center (2006) indicated that from 1992 to 2004 violent crimes in school, such as robbery, sexual assault, rape, and aggravated assault, fell from 4.8 percent to 2.2 percent (The National School Safety Center, 2006).

Lippman (2010) attributed changes in policing policy and the enactment of the Violent Crime Control and Law Enforcement Act of 1994 as major contributing factors in the reduction of violent crime. Lippman wrote that one change in policing policy that contributed to the reduction of violent crime was the use of the broken-windows theory. This concept was simple. Instead of mainly concentrating their efforts on more serious criminals, the police focused on visible signs of disorder as a preventative measure. The police used indicators such as broken windows, public drunkenness and vandalism as signs of lawless environments. Once an area is perceived as lawless, more serious criminals believe they can commit crimes with relative impunity. By renewing their commitment to low-level law enforcement the police reduced environments that promoted violent crimes. Another change in policing policy was the use of computer data to map crime and identify emerging problems. It should be noted here that both policy changes relied on prevention. Lippman also pointed to the enactment of the Violent Crime Control and Law Enforcement Act of 1994 as major contributing factor in the reduction of violent crime. The Act required the addition of 100,000 police officers across the country. During the 1990s New York City increased their police force by 35 percent, while their violent crime dropped by 47 percent from 1995 to 2007 (Lippman, 2010).

Student Behavior

Just as violence in general and specifically in schools has decreased, non-violent maladaptive behaviors in schools have increased (Lippman, 2010; The National School Safety Center, 2006; Simonsen, Myers, & Briere, 2011; Sugai et al., 2010). School violence, or the

focus given to school violence, draws attention to student behavior in general (Mayer, & Furlong, 2010; Muschert, 2007; Phillips, 2007). Looking closer, one finds a broader range of maladaptive behaviors in our schools (Crone et.al., 2010; Hinduja, & Patchin, 2007). Some teachers commonly say that student behavior has changed, and that they as educators are ill equipped to handle such a change. If one understands the origin of the belief that student behavior has changed, one can begin to influence improvement in student behavior.

Nelson, Palonsky, and McCarthy (2004) discussed the problem of schools' lack of preparedness to handle student behavioral change from John Dewey's point of view. Dewey believed that schools are an extension of the community and should share a burden in equipping students with skills and habits that will make them successful. Schools base academic and social programs on the community's ideals. As the community becomes overwhelmed with a social problem, schools are expected to lend support to the mitigation of that problem (Nelson, Palonsky, & McCarthy, 2004). For example, during the 1960s, in response to the Brown vs. Board of Education decision, schools addressed the changing attitudes towards racial segregation and expectations by integrating schools. Today, educators must adapt their practices to deal with the reality of chronic, and at times, extreme behavioral problems in schools, such as bullying, cyber stalking and sexting (Butler, Kift, & Campbell, 2009; Jimerson, Swearer, & Espelage, 2010; Ryan, 2010).

Kuhn (1996) referred to novelty in a paradigm as an anomaly. He said that professionals must first gain awareness of an anomaly and explore it before they can gain resolution (Kuhn, 1996). In this case the anomaly of increased school maladaptive behavior within a theory of social violence.

Schools must have a theoretical explanation of why unacceptable behavior has risen through the decades of public education before they can act to solve it. Nelson, et al. (2004) argued that with the birth of the Industrial Revolution, both parents and children spent much more time away from each other and their home. As a result, the family was unable to carry out all of its former functions. Specifically, parents did not equip children with the basic social skills required for them to be successful in schools, such as appropriate peer interaction, complying with authority figures and staying on task. Therefore, schools were pressed to take a larger role in teaching children behavioral skills to succeed in an educational environment (Nelson et al., 2004).

Newman (2004) also explored different risk factors, which have contributed to the increase of disruptive classroom behavior. These risk factors include domestic violence and abuse, weak family bonding and ineffective parental supervision. Newman points to the economic conditions of the 1970s as a contributing cause of these risk factors. Job loss and economic and social stress have contributed to the breakdown of families and other community support for children and adolescents. Parents, especially mothers, began working longer hours outside of the home, putting more responsibility on children at an earlier age. In an attempt to regain this support and form an identity many youth turned to gangs. Newman further states that Emile Durkheim, classical social theorist of the nineteenth century, recognized the risks involved with significant social change (Newman, 2004). Durkheim (1951) argued that the social ties that keep people in check would erode with rapid social change, because people would feel disconnected from their community (Durkheim, 1951).

Lundberg and Pollak (2007) took a closer look at the dramatic changes taking place in the American family over the past few decades. They cited decreasing birth rates, increasing

cohabitation and childbirth before marriage, increasing divorce rate, an increase in single parent homes, an increase in women entering the labor force and a change in traditional gender roles. The authors stated that with these changes the structure of the family became more heterogeneous and less stable. They noted that Americans with higher incomes and education have delayed marriage and childbearing, whereas those with lower incomes and education are delaying marriage but not childbearing. With the ability to control childbirth women were more willing to engage in premarital sex and men no longer felt obligated to marry a woman if she became pregnant. Additionally, social norms began to change with a decreasing stigma associated with cohabitation, childbirth before marriage and single motherhood (Lundberg & Pollak, 2007).

Lundberg and Pollak (2007) then focused their attention on how the changing family affected the educational outcomes of children. They found that children reared with both parents in the home perform significantly better than those reared in other family structures (Lundberg & Pollak, 2007).

Conway (2006) identified a relationship in the data between family characteristics and the prevalence of mental health problems in children. There is a link between family characteristics and the prevalence of mental health problems in children.

> Children and adolescents from low socioeconomic backgrounds, from families in lower paid employment, and from blended and stepfamilies were more likely to experience mental health problems. Among the family factors cited were (a) unstable relationships with parents or caregivers; (b) death of a parent; (c) inadequate parenting skills; (d) family discord, violence, separation, or family breakdown; and (e) parents with serious mental health, alcohol, or drug problems that affected parenting. (Conway, 2006, p. 16)

Newman (2004) went on to discuss the need for schools to facilitate the social and emotional development of students, because families are increasingly fractured by the burden of work. However, some teachers resent the idea that they should be expected to contribute to their students' social and emotional development. They feel under qualified and overwhelmed by the idea that they are not only responsible for teaching academic subject mater, but social skills and emotional adaptation as well (Newman, 2004).

Schools' Response to Behavioral Issues

Sugai, Horner, and McIntosh (2007) reported that teachers' number one request for assistance is in the area of behavior and classroom management. Additionally, 16 of the 38 years that the Gallop poll was given to teachers and community members revealed that discipline, conduct and control ranked number one amongst their greatest concerns (Sugai, Horner, & McIntosh, 2007). Senge, et al. (2000) described such concerns in education as "tension." In other words, as behavioral problems become more severe and their causes more complicated, educators seem ill-equipped to handle the task of appropriately teaching children the common behavioral skills needed to succeed in school (Hancock, & Scheffer, 2010; Senge, et al., 2000; Whitted, 2011).

In an attempt to regain behavioral control educators have seen a number of social and behavioral programs and interventions in schools, such as, the Gang Resistance Education and Training (GREAT) Program, the Stop & Think Social Skills Program and the First Step to Success program (Esbensen, Peterson, Taylor, Freng, Osgood, Carson, & Matsuda, 2011; Knoff, 2001; Sprague & Perkins, 2009). Another program example seen in schools is the Assessment of Inclusivity and Multiculturalism (AIM) program, created by the National Association of Independent Schools (NAIS) (2011). AIM is a tool used to evaluate a school's culture to

determine whether or not it possesses inclusivity and multiculturalism (The National Association of Independent Schools, 2011). Cohen and Pickeral (2007) stated, "Positive school climate is associated with and/or predictive of academic achievement, effective risk prevention efforts, and healthy youth development" (p. 14).

Just as there has been a focus on school climate, Spears (2010) stated, "In recent years there has been a growing interest in the nature of character and character education, based upon a belief that positive character traits can be both taught and learned" (p. 25). A widely known character education program used by many schools is the Six Pillars of Character from Character Counts!, from the Josephson Institute of the Center for Youth Ethics. The Josephson Institute (2008) stated that the Six Pillars of Character are trustworthiness, respect, responsibility, fairness, caring, and citizenship. The founder of the Josephson Institute, Michael Josephson (2002) wrote that the Six Pillars of Character are values that guide our behavior. Therefore, by teaching these values, students will be able to make ethical decisions.

Harms and Fritz (2001) examined some of the effects of the Six Pillars of Character from three studies. They stated that Character Counts! revealed significant positive behavior change on a pilot school in Des Moines as evident by a 26 percent reduction in time-outs, a 17 percent reduction in detentions and a 91 percent reduction in bus discipline referrals. A survey of Nebraska educators noted that 85 percent of educators reported an overall positive difference in their students, while 75 percent reported a positive change in their own behavior. Yet another study focused on changes in identified behaviors. This study showed a 61 percent increase in students helping each other, a 55 percent decrease in blaming each other and a 50 percent increase in being truthful (Harms & Fritz, 2001). However, not all interventions have been positive or proactive.

Institutional Violence

Aside from physical violence here is a much broader concept of violence referred to as institutional violence. Institutional violence in schools occurs anytime school personnel take an action, or its institutional structure, or formal or informal policy leads to a student falling short of his or her learning potential. For example, Gultung (1969) states that literacy is valued almost everywhere. Therefore, if the actions or inactions of a school were to lead to a student reading at a level lower than his potential, then that school would be enacting violence upon that child (Galtung, 1969).

Exclusionary discipline is also a form of institutional violence because it removes students from direct instruction. Some examples of exclusionary discipline are seating a student outside the classroom, suspension, expulsion and placement in an alternative setting.

Galtung (1969) defined institutional violence as:

A point of departure…when human beings are being influenced so that their actual somatic and mental realizations are below their potential realizations. Violence is here defined as the cause of the difference between the potential and the actual, between what could have been and what is. Violence is that which increases the distance between the potential and the actual, and that which impedes the decrease of this distance. In other words, when the potential is higher than the actual is by definition avoidable and when it is avoidable, then violence is present. (pp. 168-169)

Under Galtung's definition of violence, any act taken upon a school that impedes a student's learning is a violent assault. Therefore, removing students from direct instruction by taking them out of the classroom is an act of aggression towards that child learning potential. This can be done through removing a student from instruction for an office referral, suspension

and expulsions, placement in alternative settings, etc. For example, even the common behavioral practice of sitting a student outside the classroom equally takes that individual away from instruction.

Fenning and Rose (2007) wrote about the disproportionate representation of students of color and poverty in the institutional violent act of exclusionary discipline. They state that in an attempt to regain control of their classrooms, educators unfairly labeled students of color as dangerous, leaving these students vulnerable to exclusionary discipline consequences, which is an act of institutional violence (Fenning & Rose, 2007).

Curtin and Litke (1999) further defined institutional violence as psychological abuse that that damages a child's self-respect. This abuse can be covert. Some schools may not even be aware of the damage they are inflicting by having certain unwritten but followed practices. Some school districts may see stronger scores in math and science among boys because they receive more direct instruction than their female classmates. Girls start to believe they are not good at math and science, when in actuality their male counter parts receive more attention, encouragement and instruction in these areas. The authors refer to these actions in education as "systematic exclusion from important life options" (Curtin & Litke, 1999, p. xii). Normalizing the lack of direct instruction for females is an act of covert institutional violence (Curtin & Litke, 1999).

Osler (2006) also described institutional violence occurring against females when they are excluded from learning opportunities. She stated that females find it more difficult to access resources than their male classmates, are excluded from instruction as a form of behavior management and are subjected to verbal and psychological abuse, which often go unchallenged in school cultures (Osler, 2006).

The abuses of institutional violence can also be overt. For example, Herr (2004) explains the open abuses that are allowed in our schools against students who are homosexual. She describes how some of these students feel so alienated and unsupported by the adults in their school that they dropout (Herr, 2004). Aleman (2011) supports Herr when she writes:

School Boards, and individual schools, aided by a strong homophobic parental voice, have also responded negatively to queer students by denying them the ability to form GSA clubs, preventing them from attending prom with a partner of the same sex, and refusing to allow transgender students from cross-dressing on their campuses " (p.380)

Aleman believes that schools perpetuate heterosexism through institutional violence, such as alienation, omission, and repression of gay students (Aleman, 2011).

Zero tolerance policies are a common example of an institutional violent or exclusionary discipline policy. Many school districts established zero tolerance policies following the shootings of the 1990s. Newman (2004) stated "these policies require schools to follow formalized disciplinary procedures after any threat of violence and leave administrators with little discretion to separate serious offenders from casual jokers" (p.285). In Jonesboro a five-year-old pointed a chicken finger at another student and said "bang, bang, bang." Because of the district's zero tolerance policy the child was suspended from school (Newman, 2004).

Newman (2004) wrote:

a punitive approach is counter productive, because it does little to change the underlying dynamics of peer relations and the flow of information in school – factors that lie closer to the root of the problem. Moreover, rigid disciplinary policies often backfire, because

they create greater distance between students and staff who need to enforce these

measures. (p. 285)

Newman stressed that zero tolerance policies are too extreme and do not allow for administrators

to make professional judgments. They also lead students to distrust their teachers, making it

impossible for them to confide in the very adults who need the information to stop abuses

(Newman, 2004).

Statement of the Problem

The issue of institutional violence in schools goes far beyond a scolding from the teacher.

The path from problem behavior to exclusionary discipline is obvious. Inappropriate behaviors

lead to a correction from a teacher, which can lead to an office referral, which does lead to time

spent away from instruction (Ervin et al., 2007; Scott & Barrett, 2004), which can lead to poor

academic achievement (Algozzine, Wang, & Violette, 2011; Larsen, Steele, & Sailor, 2006;

Miles & Stipek, 2006), which can lead to dropout, which can lead to lower job satisfaction for

the teacher, which can lead to teacher dropout (Hancock, & Scheffer, 2010; The Southern

Poverty Law Center 2008), and so on.

The progression from problem behavior to dropouts by both student and teacher must be

examined to formulate a plan for prevention of this progression. To change pervasive behavior

practitioners often examine the events leading up to the incident and what actions were taken

following the incident. Many times the behavior could have been avoided with proper attention

or in some cases the behavior may have been provoked. Schools should look into any policies or

practices that may contribute to undesirable behaviors.

As mentioned, Curtin and Litke (1999) touched on the concept of schools misusing their

power in their book *Institutional Violence*. Institutions, such as the military, police, churches, and

schools, at times need to use force for the public good. However, there are cases in each of these institutions where power is abused. The authors explained that "violence" does not have to be overt or physical but can include covert and psychologically damaging actions. Inconsistent and emotionally charged punishments can lead to persistent and increased behavioral problems. In an effort to control behaviors some educators use shame tactics, such as name-calling or drawing everyone's attention to an embarrassing situation. Curtin and Litke tell us that psychological violence damages a child's self-respect. Children start to believe they are "bad" because that is what they are told they are. When what should be taking place is instruction on what behaviors are appropriate or are not in certain situations. Curtin and Litke stated that when institutional violence becomes common place the violence itself becomes understood as justice and resistance to such violence is unjust. For example, exclusion from instruction is a form of institutional violence in that it keeps students from learning the information they would have learned if allowed access to the curriculum. Some teachers' first response to disruptive behavior or different learning abilities is to remove the student from the class. This reactionary behavior on the part of the institution is so common place that the Individuals with Disabilities in Education Act was created in 1975, and continues to need enforcement, to ensure that students identified with special needs are granted access to the curriculum (Curtin & Litke, 1999).

The Southern Poverty Law Center (SPLC) (2008) did a review of the research of the far-reaching effects of school discipline on a range of problems, from student dropout to teacher retention. The Center specifically examined student dropout and teacher retention in the State of Alabama. They found that in Alabama 29 students drop out of high school every school day. The Center also discovered that this state adds 4,000 teachers a year, only to see 50 percent leave the profession within the first five years. They state that:

A great number of our teachers and students are dropping out for the same reason: school discipline. Left with few alternatives for handling problems in the classroom, many schools employ discipline methods that research tells us are counterproductive and lead to dropping out: suspensions, expulsions, placements in alternative schools, and referrals to the criminal justice system. (The Southern Poverty Law Center, 2008, p.1)

Dropout rates in Alabama remain consistently high. The Southern Education Foundation (SEF) (2008) reported that from 1981 to 2005, an average of 40 percent of Alabama youth did not graduate from high school. Additionally, the latest federal census data from 2000 revealed that only 19.1 percent of adults in Alabama obtain a college degree. Profound effects await those individuals who lack a high school education. In 2002, high school dropouts earned 29 cents to every dollar earned by those who went to college. In 2006, 93 percent of Alabama households with a parent who did not graduate high school were considered "low income." SEF defined low income as a two-person household earning around $26,400. Furthermore, 54 percent of K-12 children in Alabama received eligibility for free or reduced lunches (Southern Education Foundation, 2008).

The Southern Education Foundation (2008) wrote that the issue of why students dropout is complex and can differ from district to district. They stated that:

To resolve the problem of school dropouts, Alabama needs to tackle a set of issues that define the needs of the entire education system: academic preparation for achievement, positive school environments, targeting effective programs, successful recovery and prevention measures, and adequate financing. (The Southern Education Foundation, 2008, p. 13)

SEF goes into detail about each contributing factor of dropouts. However, the following discussion focuses on one factor, lack of positive school environments, or rather the use of institutional violence through exclusionary discipline (The Southern Education Foundation, 2008).

The Southern Education Foundation (2008) found that Alabama schools suspended an average of one out of every 10 of their students in the 2004-2005 school year. Additionally, schools suspended 1.5 of every 10 high school students, and 1.7 of every 10 black students. More disturbingly, SEF discovered that some Alabama high schools suspended one out of every two or three students. Many times the same few students were suspended repeatedly. Taking students out of school and away from instruction only deepens their academic failures and makes it more difficult for them to achieve (The Southern Education Foundation, 2008).

Dinkes, Cataldi, Lin-Kelly and Snyder (2007) report that the problem of exclusionary discipline is not exclusive to Alabama. The School Survey on Crime and Safety reported that 48 percent of public schools took serious disciplinary action against students. Of these actions, 74 percent were suspensions that lasted 5 days or more, five percent were expulsions and 20 percent were transfers to specialized schools (Dinkes, Cataldi, Lin-Kelly, & Snyder, 2007). The Office of Civil Rights' Elementary and Secondary Survey: 2000, revealed that there were 3,053,449 student suspensions and 97,177 expulsions in 2000 (U.S. Department of Education, 2000).

Research on exclusion discipline for black students shows even grimmer data. From the 1970s to present day significantly more black students than whites received some sort of school disciplinary action (The Civil Rights Project/Advancement Project, 2000; Nichols, Ludwin, & Iadicola, 1999; Raffaele Mendez & Knoff, 2003; Skiba, Michael, Nardo, & Peterson, 2002).

While black students make up only 17% of the nation's public school population, they account for 32% of the students suspended (Raffaele Mendez & Knoff, 2003).

Revisiting the issue of zero tolerance policies, Wallace, Goodkind, Wallace, and Bachman (2008) stated that not only are these policies in widespread use, but that they are sometimes used for behaviors that do not physically endanger other students. The authors cautioned that suspensions and expulsions have serious implications for students' short-term academic performance and their longer-term social and economic well-being. When students are removed from school, they potentially increase the amount of time that they spend without supervision and with other youth who are not in school (Wallace, Goodkind, Wallace, & Bachman, 2008). Others note that removal from school has a significant correlation with serious negative outcomes including poor academic achievement, grade retention, delinquency, and substance use (American Bar Association & National Bar Association, 2001; Raffaele Mendez, 2003). In fact, the American Bar Association stated that receiving school discipline in middle school is the greatest indicator of which girls will be arrested later in adolescence (American Bar Association & National Bar Association, 2001).

What is really interesting to note is that the use of exclusionary school discipline practices, such as suspension, "does not appear to work as a deterrent to future misbehavior" (Raffaele Mendez, 2003, p. 31). On the contrary, suspensions typically lead to additional suspensions and eventually expulsion or dropping out (Brown, 2007; The Civil Rights Project/Advancement Project, 2000; Raffaele Mendez, 2003; Suh & Suh, 2007). Exclusionary discipline policies fail to improve school-wide safety, are associated with lower academic achievement, higher rates of dropout, prolonged graduation time, increased academic disengagement and further disciplinary exclusions (Achilles, Mclaughlin, & Croninger, 2007;

American Psychological Association Zero Tolerance Task Force, 2008; Arcia, 2006; Christle, Jolivette, & Nelson, 2005).

Clearly, inappropriate and pervasive behavioral issues are a major problem in education and have been linked to acute and chronic school failure (Algozzine et al., 2011; Crews et al., 2007; Lassen, Steele & Sailor, 2006; McIntosh, Horner, Chard, Boland, & Good, 2006; Stewart, Benner, Martella, & Marchand-Martella, 2007; Vanderstaay, 2006; Vaughn et al., 2009). What is also clear is that the exclusionary school discipline practices that most schools use is ineffective in changing future behavioral problems. Compounding this problem is the fact that teachers and educational leaders do not seem to have the training to cope with these issues. Educators obtained formal preparation in the science and practice of educating others. They do not have the knowledge or training to deal with severe behavioral issues - nor do they view themselves in the role of mental health provider. Therefore, they require new information and an expanded view of their role to meet the current challenges.

To address behavioral needs in schools, the Office of Special Education Programs (OSEP), a division of the United States Department of Education, created the OSEP Center on Positive Behavioral Interventions and Supports (PBIS), to guide educators in selecting scientifically-based behavioral interventions (see Appendix A for a discussion of the goals of the Center on PBIS and an extensive description of Positive Behavior Supports).

Purpose

The study discussed in Chapter 3 will compare the fourth grade 2005-2006 Alabama Reading and Math Test (ARMT) scores of 16 school districts that have implemented Positive Behavior Support (PBS) to comparable 16 non-PBS school districts. The study will also examine the ARMT scores of the 16 PBS districts, mentioned above, to see if the amount of time the

school districts implemented PBS, one to two years and three to five years, effects their scores. Demographic data will be examined at the school district level for all 16 districts in the State of Alabama that fully implemented Positive Behavior Support prior to the 2005-2006 school year. Districts that have fully implemented PBS include all those in which every school within the district implemented PBS. Then, systematically, each district will be paired with a similar non-PBS system based on seven indicators. In all there are 131 school districts in the State of Alabama. The non-PBS schools will be pulled from the 115 schools that had not implemented PBS prior to the 2005-2006 school year. The districts will be matched based on geographic category (i.e. rural, large urban city, etc.), number of schools, number of students, amount spent per student on instruction, student/teacher ratio, number of English language learners (ELL), and the racial make-up of the total population under 18. The racial categories will be white, black, Hispanic or Latino, American Indian or Alaska native, Asian, and Hawaiian or other Pacific Islander.

Therefore, the participants will be the school districts themselves: 16 PBS school districts and 16 matched non-PBS districts. Even though all the data gathered will come from public sources, each school district pair will be assigned a code, such as PBS 1 and Non-PBS 1, PBS 2 and Non-PBS 2, etc. No district will be identified by name. The systems will be matched as closely as possible so that when the academic tests scores for PBS and non-PBS systems are run, more accurate comparison conclusions can be made.

Chapter 1 provided an overview of violence in schools, the decline of student behavior, schools' responses to student behavior and the effects of these responses. This chapter also addressed the study conducted for this dissertation. Chapter 2 will present an overview of PBS

and a synopsis of the current literature about PBS related to behavioral change, academics and

contributions from higher education.

Chapter 2

Literature Review

Chapter 1 discussed the growing public attention that maladaptive behaviors, such as

bullying, cyber stalking and sexting (Butler, Kift, & Campbell, 2009; Jimerson, Swearer, &

Espelage, 2010; Ryan, 2010), gained after several highly publicized school shootings, like the

one at Columbine High School (Cawthorne, 2006).

As a reaction to the shootings, like the one at Columbine High School (Cawthorne,

2006), many school districts chose to implement an exclusionary disciple policy, like Zero

Tolerance (Newman, 2004; Wallace, Goodkind, Wallace, & Bachman, 2008). However, as

discussed in Chapter 1 exclusionary discipline, a form of institutional violence, removes students

from direct instruction and does little to change future inappropriate behavior (Achilles,

Mclaughlin, & Croninger, 2007; American Psychological Association Zero Tolerance Task

Force, 2008; Arcia, 2006; Christle, Jolivette, & Nelson, 2005; The Civil Rights

Project/Advancement Project, 2000; Raffaele Mendez, 2003).

The Office of Special Education Programs (OSEP), a division of the United States

Department of Education, chose to address the issue of maladaptive behaviors in schools by

funding the OSEP Center on Positive Behavior Interventions and Supports. An extensive body of

research suggests that positive behavior supports (PBS) decrease behavioral indicators, such as

office discipline referrals (ODRs), suspensions and expulsions (Alabama State Department of

Special Education, 2004; Barrett, Bradshaw, & Lewis-Palmer, 2008; Irvin et al., 2004; Lewis &

Sugai, 1999; Metzler et al., 2001; Sadler & Sugai, 2009; Scott, 2001; Southern Poverty Law

Center, 2008; Taylor-Greene et al., 1997). When schools implement PBS with fidelity they report a 20 to 60 percent reduction in ODRs (Champman & Hofweber, 2000; Colvin & Fernandez, 2000; Horner and Sugai, 2000; Horner, Sugai, Todd, & Lewis-Palmer, 2005; Lohrman-O'Rourke et al., 2000; Nakasato, 2000; Nersesian, Todd, Lehmann, & Watson, 2000; Sadler, 2000; Spaulding et al., 2010; Taylor-Green & Kartub, 2000). Students (Alfes, 2008; Lewis-Palmer et al., 2002), as well as, faculty and staff (Lane et al., 2009; Taylor-Green et al., 1997), feel more satisfied. School safety also increases (Schneider et al., 2000; Skiba & Sprague, 2008). Furthermore, initial reports indicated that PBS coupled with effective instruction is likely to improve academic indicators (Kellam, Mayer, Rebock, Hawkins, & Wesley, 1998; Sadler & Sugai, 2009).

However, even with all the research mentioned above, some school administrators are only interested in applying an intervention if studies already report that it yields increases in achievement test results. Subsequently, now researchers are beginning to examine the potential link between PBS and academic achievement. Many educational and behavioral researchers believe that as behavior improves, so will academic achievement (Mclntosh, Chard, Boland & Horner, 2006; Mclntosh, Horner, Chard, Boland & Good, 2006; Nelson, Martella, & Marchand-Martella, 2002). Therefore institutions of higher education have taken a leadership role to provide sustainability for PBS. Universities do so by conducting research and providing technical assistance (Sandomierski, Kincaid, & Algozzine, 2007; Dunlap, Lewis, & McCart, 2007; Carr et al., 2002).

Behavioral Effects of PBS

Teachers ask for assistance with problem behaviors more than anything else (Sugai et al., 2007). But why do teachers have a need to ask for assistance with problem behaviors? Certainly

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schools have disciplinary policies in place. Even if they have not directly experienced them, most

people are aware of the formal and informal discipline measures taken in schools, such as

detentions, repetitive writing on the board, exclusion from special school events (pep-rallies,

school dances, etc.), in-school suspensions, out-of-school suspensions, expulsions, etc. However,

each of the disciplinarian actions mentioned above is a reaction to the student's undesirable

behavior. While teachers and principals use the punishments mentioned above with the hope that

they will extinguish the problem behavior, the Center on Positive Behavioral Interventions and

Supports, Sugai et al., (2005), demonstrated that this reactive form of discipline is most likely to

be effective with those students who are already successful in school and have a history of

minimal or no behavioral offenses. Reactionary discipline is least effective with the very students

who cause the most frequent and extreme violations (Shores et al., 1993; Sugai & Horner, 1999;

Sugai et al., 2005; Sulzer-Azaroff & Mayer, 1994; Tolan, & Guerra, 1994).

Several studies show that a punitive and reactive school climate can instigate problem

behaviors (Seita, & Brendtro, 2003; Shores et al., 1993; Skiba & Sprague, 2008; Sugai & Hornor,

1999; Sulzer-Azaroff & Mayer, 1994; Tolan & Guerra, 1994). Punitive and reactive school

environments can actually provoke undesirable outcomes such as, poor student/teacher

relationships, increased antisocial behavior, a degraded atmosphere and decreased academic

achievement (Seita, & Brendtro, 2003; Skiba & Sprague, 2008; Tobin, Sugai, & Colvin, 1996).

Further, studies in child development reveal that humans do not learn why they should change

their behavior through the use of aversive consequences (Alberto & Troutman, 2001; Martina,

Hursh, & Markowitz, 2009). Walker et al. (2007) defined aversive as "noxious and sometimes

painful consequences of behavior; undesirable result of behavior the individual would normally

wish to avoid" (p. 340). Simply reacting when a student misbehaves only temporarily stops the

behavior. To truly change behavior, a school must proactively teach children appropriate forms of behavior and practice those behaviors regularly in a non-threatening environment with frequent positive reinforcement (Dunlap, Iovannone, Wilson, Kincaid, & Strain, 2010; Sugai & Hornor, 1999).

Input from educators and behavioral scientists is vital because it is research-based. However, an extremely valuable perspective to consider is that of students and their families. Henderson and Berla (1994) wrote that parent and family involvement benefit students and schools. Students benefit by improved academic performance and test scores, higher attendance, less need for special education services, better attitudes and appropriate behavior, higher graduation rates and an increase in post-secondary education. Schools benefit through an increased teacher satisfaction, higher parent ratings on teacher evaluations, greater parent support, improved student achievement and a positive community reputation (Dishion et al., 2008; Henderson & Berla, 1994; Minke & Anderson, 2005).

Unfortunately, students, families, and education agencies have not always agreed on the most appropriate educational services to provide children with disabilities. Hardman, Drew, and Egan (2006) wrote that in the early 1900s children with disabilities could not get services to meet their basic needs of medical care, social services and education. Education for students with special needs was not a guarantee. If students received an education at all, it was often in an institution separate from regular public schools. It took several lawsuits to open equal and appropriate educational services to all. Hardman et al. (2006) highlighted five influential cases. The first influential case was Brown v. Topeka, Kansas Board of Education (1954). Mainly known for its impact on race desegregation, Hardman et al. (2006) wrote that Brown v. Topeka, Kansas Board of Education (1954) ruled "education is a right that must be available to all on

equal terms" (p. 29). The second case was Hobsen v. Hansen (1969). Hardman et al. (2006) wrote that Hobsen v. Hansen (1969) ruled "The doctrine of equal educational opportunity is a part of the law of due process, and denying an equal educational opportunity is a violation of the Constitution" (p. 29). The third case was Diana v. California State Board of Education (1970). Hardman et al. (2006) wrote that Diana v. California State Board of Education (1970) ruled "Children cannot be placed in special classes on the basis of culturally biased tests" (p. 29). The forth case was Pennsylvania Association for Retarded Citizens v. Commonwealth of Pennsylvania (1971). Hardman et al. (2006) wrote that Pennsylvania Association for Retarded Citizens v. Commonwealth of Pennsylvania (1971) ruled "Pennsylvania schools must provide a free public education to all school-aged children with mental retardation" (p. 29). The fifth case was Mills v. Board of Education of the District of Columbia (1972). Hardman et al. (2006) wrote that Mills v. Board of Education of the District of Columbia (1972) ruled:

> Exclusion of individuals with disabilities from free, appropriate public education is a violation of the due-process and equal protection clauses of the Fourteenth Amendment to the Constitution. Public schools in the District of Columbia must provide a free education to all children with disabilities regardless of their functional level or ability to adapt to the educational system. (p. 29)

These cases served to open educational opportunities for people of color and those with special needs (Hardman et al., 2006).

Unfortunately, litigation usually does not lead to positive relationships between parents and education agencies. Therefore, it is significant when a parent advocacy group promotes an initiative endorsed by the Office of Special Education Programs and most State Departments of Education. Collaboration between student and parent advocacy groups and educational agencies

only helps to strengthen efforts and positive results for schools, children with disabilities, and their families.

Parent perspective on PBS.

The Association for Persons with Severe Handicaps, referred to as TASH, after its former name The Association for the Severely Handicapped (TASH, Retrieved June 24, 2007, from http://www.tash.org/IRR/positive_behavior_supports.html/), is a parent advocacy group established in 1975 in Washington, D.C. for people with disabilities. TASH promotes Positive Behavior Support. The comments retrieved from the TASH website are interesting and thought provoking, because they discussed behavior and PBS from the parent's perspective. TASH believes that all behaviors are learned reactions to a specific set of stimuli in the environment. Clearly, students at the same school lead a range of very different lives from each other. Factors such as culture, poverty, abuse, expectations of attending college, intelligence, wealth, lack of educational support at home, neglect, peer influence and many others lead children to react to situations in different ways (Chen, Seipp, & Johnson, 2008; Heaton, & Forste, 2008; Hoeve, et al., 2008). TASH believes that behaviors are not problems, but a natural reaction to stimuli based on the background of individual children. TASH praises those in the field of PBS for their understanding and treatment of children as individuals. They also like the fact that PBS does not just teach a child that a certain behavior, such as hitting to gain attention, is inappropriate, but provides an alternative behavior. TASH also applauds PBS for advocating that children have meaningful and competent inclusion in natural, community-based settings. In other words, PBS strives to keep students in the classroom, instead of being placed in a self-contained class or alternative setting (Algozzine & Algozzine, 2007; Chiu & Deldin, 2007). PBS is person-centered and focuses on self-determination. Students learn to control their own behaviors in the

least restrictive environment (LRE) (Sailor & Roger, 2005; Sailor et al., 2007). In the past, and unfortunately at current times, students with severe behavioral issues were removed from the general education classrooms or placed in an alternative setting. Through PBS, schools redesign their environment to minimize the occurrence of unwanted behaviors by increasing the quality of life of all those involved in a school setting and promoting social skills, such as communication and relationship building. With positive approaches to behavioral change, undesirable behaviors - such as self-injury, aggression towards others, and destruction of property - are less likely to occur, because PBS validates the student's self-worth and tries to respond to behaviors as communications from that student (Sprague & Golly, 2005; TASH, Retrieved June 24, 2007, from http://www.tash.org/IRR/ positive_behavior_supports.html/).

Student perspective on safety.

Horner et al., (n. d.), wrote that students associate lack of school safety with violence in schools. When they believe their school is dangerous, they are more likely to engage in problem behaviors, such as fighting or weapons violations. The students believe they must engage in this type of behavior in order to protect themselves (Horner et al., Retrieved June 17, 2007 from http://www.pbis.org/news/four/ PBISNEWSLETTER.htm/). TASH (TASH, Retrieved June 24, 2007, from http://www.tash.org/IRR/positive_behavior_ supports.html/), pointed out that children behave as a reaction to their environment (Geller et al., 2009; Moylan et al., 2010; Sprague & Walker, 2000). As PBS changes the school, the new framework will not only make a school safer, but will instill a perception of a safe environment as well (Horner et al., Retrieved June 17, 2007 from http://www.pbis.org/ news/four/ PBISNEWSLETTER.htm/).

Teacher perspective on PBS.

In addition to the perspectives of students and their families, the perspective of teachers is important as well. Gorgueiro (2008) stated that teacher support for PBS is beneficial to program success, because teachers are the front-line service providers who will be implementing PBS in the classroom (Gorgueiro, 2008). In addition to the potential influence teachers have on the success of PBS, teachers also have the opportunity to effect their students in a positive way, which will be discussed in detail over the next few pages.

Obviously, students spend the majority of their day with their teachers. Ultimately students spend more than 14,000 hours in the classroom over their K-12 career (Sugai et al., 2007). Consequently, teachers have a great opportunity to create positive interactions with their students. Unfortunately, these positive experiences may be the only ones some of these students experience all day.

Hendley (2007) provided teachers with 20 parameters of PBS, so that they could change their own classroom behavior. After all, PBS is not just about behavioral change in students, but in educators as well.

1. Kerr and Nelson (2002) believe that **teachers must first understand the purpose of PBS.** The theory behind PBS focuses on identifying and correcting maladaptive behaviors. Teachers are used to a punitive environment. With PBS educators have the freedom to collaborate creatively with their colleagues to develop and teach more appropriate forms of behavior (Kerr & Nelson, 2002; Sailor et al., 2006). PBS asserts that creating an alternative to a punitive environment is important because exclusionary school discipline, such as suspension, "does not appear to work as a deterrent to future misbehavior" (Raffaele Mendez, 2003, p. 31). In other words, punitive discipline does

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not teach students which behaviors are appropriate in a school environment, and does not yield the results educators what to see, namely extinguishing unacceptable school behaviors (Achilles, Mclaughlin, & Croninger, 2007; American Psychological Association Zero Tolerance Task Force, 2008; Arcia, 2006; Christle, Jolivette, & Nelson, 2005; The Civil Rights Project/Advancement Project, 2000).

2. Crone and Horner (2003) discussed that with PBS, **teachers have the opportunity to create a comfortable and safe environment**. PBS assumes that problem behavior may occur due to a student's inability to function optimally in an unstructured environment. Teachers can control this by arranging the room and conducting classroom interaction in an orderly fashion (Crone & Horner, 2003; Sugai & Horner, 2006). Cohen, McCabe, Michelli and Pickeral (2009) stated that a comfortable and safe environment is crucial to academic achievement, school success, effective violence prevention, students' healthy development, and teacher retention. In other words, students cannot optimally learn if they feel unsafe (Cohen, McCabe, Michelli, & Pickeral, 2009).

3. **PBS assumes emotional security is a factor in improving student achievement**. Educators should always promote emotional safety by creating an environment where children feel safe to ask questions. Glasser (1998) identified common emotional needs that children have and teachers should encourage. These emotional needs include acceptance, independence, approval, encouragement, and achievement (Glasser, 1998; Greenberg et al., 2003). Durlak et al. (2011) stated that an emotional safe environment is significant because without it students can suffer from negative affects to their academic performance, behavior and health. The authors go on to report that only 29 percent of

students felt that their school provided a caring and encouraging environment (Durlak et al., 2011).

4. **PBS presupposes intervention is most effective when data driven**. Educators should document problem behaviors to provide as much data as possible for a functional behavior assessment (FBA) (Chandler & Dahlquist, 2002; Scott, Anderson, & Spaulding, 2008). Steege and Watson (2009) informed that educators should keep note of what specific behavioral problems occur and observe the situation, time and setting. After a period of time, they should examine the log and work with colleagues to try and determine the motivation for the behaviors. The information gathered for an FBA is vital to the development an intervention plan. Attention-seeking behaviors should be treated much differently than avoidance behaviors. If educators do not understand the function of a behavior, they may implement an intervention that has the opposite effect desired (Steege & Watson, 2009).

5. **PBS asserts that understanding the reason behind a behavior can aid teachers to avoid agitating a situation and can provide insight that can lead to more appropriate responses**. Teachers sometimes struggle to understand the function of a behavior (Scheuermann & Webber, 2002; Zastrow & Kirst-Ashman, 2010). Lane, Kalberg, Parks, and Carter (2008) relayed that it is important to examine relevant information, such as a student's grades, IQ scores, an observation log of a certain behavior, medical records, results of tests conducted, an interview of the student, teacher or parent, etc, before implementing a behavioral intervention. Without the kinds of descriptive information mentioned above teachers may misinterpret the function of a

behavior and implement an inappropriate intervention, which could lead to a continuation of escalation of the problematic behavior (Lane, Kalberg, Parks, and Carter, 2008).

6. **PBS argues student self-reflection is a factor in self control.** Teachers should assist students in recognizing their own behavior. Students may need assistance in determining what behaviors are appropriate and inappropriate in different settings within a school (Handler et al., 2007; Thomas, 2009). Sailor, Dunlap, Sugai, and Horner (2009) noted that teaching behavioral skills is much like teaching academic skills. Just as educators do not expect students to arrive to school possessing the academic knowledge needed to succeed through an academic career, neither should students be expected to have the basic behavioral skills needed. Therefore, Sailor et al. (2009) recommended teaching behavioral expectations in the settings in which they occur. For example, if a behavioral expectation is that students will raise their hand before speaking in class, then that behavior must be taught, modeled and practiced in the classroom setting (Sailor, Dunlap, Sugai, & Horner, 2009).

7. **PBS promotes that students benefit from the use of visual supports** (Hamill & Everington, 2002; Orlich, Harder, Callahan, Trevisan, & Brown, 2009). Ruble and Akshoomoff (2010) wrote that teachers should clearly post expectations to be used as a teaching tool and reminder of what is expected from students (Ruble & Akshoomoff, 2010). Clearly defined and post behavioral expectations assist in the prevention of problematic school behaviors (Horner, 2007; Simonsen et al., 2011).

8. **PBS maintains that teachers should facilitate personal responsibility**. Sailor et al. (2009) explained that one prevention goal of PBS is to move students from relying on others for behavioral cues to being self-directive. Teachers should encourage students to

discuss their emotions and explore where different behavioral choices might take them. Students need to understand the potential consequences of their actions, so that they can develop a sense of responsibility for their choices. Internalizing motivations leads to greater success in whatever goal an individual wants to accomplish (Marshall, 2004; Ronen & Chiş, 2008).

9. **PBS encourages developing problem-solving skills** that not only prepares students to be better able to choose appropriate behaviors in stressful situations but also lays a foundation for logical decision making in life. Rivera and Smith (1997) suggested several components of problem solving. First, students should recognize when they are upset and identify the problem. Students should think about what they want to achieve and consider alternative actions. They should think of as many solutions as they can and what might happen as a result of each solution before they try one. If their chosen solution does not work, they should try another one (Hall, Jones, & Claxton, 2008; Rivera and Smith, 1997). The purpose of developing problem solving skills is to prevent problematic behaviors from occurring (Sailor et al., 2009). Spence, Sheffield, and Donovan (2003) conducted a study that revealed adolescents who increase their problem solving skill reduce mental health issues, such as depression, which can lead to problematic behaviors (Spence, Sheffield, & Donovan, 2003).

10. **PBS emphasizes that teachers should provide attention for positive behavior.** For some students negative attention is better than no attention. Therefore, students engage in inappropriate behavior to gain attention. Teachers should reinforce desirable behaviors through acknowledgement (Daly, Creed, Xanthopoulos, & Brown, 2007; Fisher et al., 2005). Sailor et al. (2009) stated that the acknowledgement or reinforcer should come in a

form most suited for a particular child. If the child in question does not like public attention, the student should be privately given a reward. Some children respond better to verbal praise. Some like to be singled out to help the teacher with a task. The point is to make the reinforcer special for that child. Otherwise, it is not a reinforcer, and therefore will not support the likelihood that the desired behavior will be repeated (Sailor et al., 2009).

11**. PBS stresses that teachers should be consistent.** A major premise of PBS is providing clear expectations. Students should know what is expected of them, as well as what to expect from their teacher (Crone, Hawken, & Horner, 2010; Luiselli et al., 2001). Osher, Bear, Sprague, and Doyle (2010) wrote that when behavioral expectations are clearly expressed to students engage in less antisocial behavior than would commonly be seen in schools (Osher, Bear, Sprague, & Doyle, 2010).

12. **PBS affirms that educators should encourage students to allow time for processing** (Everett et al., 2007; Knoff, 2005). When children are first learning to control their emotions and make appropriate decisions, teachers should teach them to step back and think about a solution before acting. Classrooms should have a cool-down area where a child can go and sit after an upsetting situation occurs. The goal is to get children to stop, get their emotions under control, think of an appropriate behavioral response and then act on their decision. Knoff (2001) informed that the stop and think approach can prevents students from impulsively engaging in inappropriate, reactive behaviors (Knoff, 2001).

13. **PBS suggests that teachers should validate students' feelings** (Vieno, Santinello, Pastore, & Perkins, 2007; Walker et al., 2007). Carl Rogers (1980) stated that being

understanding and empathetic is the best way to heal emotional difficultly. Feelings are not right or wrong. It is the actions that go along with them that can be problematic (Rogers, 1980). Therefore, teachers should talk to the child about the best way to handle certain emotions like anger and frustration. The method each child chooses to address his emotions will be different.

14. **PBS recommends that when addressing behavioral problems educators should ask students open-ended questions** (Fontanella, Campos, & Turato, 2006; Neenan & Dryden, 2001). Yes/no questions lead to dead ends. Open-ended questions facilitate discussion. Better yet, open-ended statements go even further and require more of the child.

15. **PBS declares that teachers should make the consequences for a behavior unambiguous** (Fairbanks, Sugai, Guardino, & Lathrop, 2007; Walker et al., 2007). Again, PBS is about clear expectations. When an undesirable behavior occurs, the teacher should tell the child that the behavior is inappropriate and why it is so. The instructor should also inform the child of the consequence should the behavior continue. Sailor et al. (2009) wrote "developing a continuum of consequences for responding to rule violations is important. Procedures for responding to problem behaviors are designed to communicate to and teach students and staff and family members which behaviors represent violations of schoolwide behavioral expectations." (p.313)

16. **PBS proclaims that teachers should use positive statements** (Hamill & Everington, 2002; Rathel, Drasgow, & Christle, 2008). Constant negative statements can frustrate a child. Positive statements tell students what to do instead of what not to do. Negative statements can be unclear as they do not tell students what is expected.

17. **PBS advises teachers should provide positive feedback to students** (Rathel, Drasgow, & Christle, 2008; Smith & Daunic, 2006). Teachers should strive to give students positive feedback when desired behaviors are demonstrated, because it reinforces those behaviors. Sailor et al. (2009) wrote: "If newly taught and acquired behaviors are to be strengthened, occur more often in the future, and maintained over time, students must receive positive feedback/acknowledgments for their displays of those behaviors." (p. 313)

18. **PBS points out that teaching behaviors plays to educators' strong suit, because educators already know how to teach.** Even so, Sugai, Horner, and McIntosh (2007) reported that teachers' number one request for assistance is in the area of behavior and classroom management (Sugai, Horner, & McIntosh, 2007). To feel more confident in dealing with student behavior teachers should think of teaching a behavioral skill like teaching a math problem. Teachers should tell students about the skill, model the skill, have them demonstrate it and practice it, if needed (Sandomierski, Kincaid, Algozzine, 2007; Sugai, & Horner, 2006).

19. **PBS advocates that classroom teachers should include others in the implementation of PBS.** Not only can parents and other teachers support positive behaviors by reinforcing those behaviors in other environments,en but they can serve as a resource as well (Dishion, et al., 2008; Henderson & Berla, 1994). Usually no one knows a child better then the parents of that child. Parents can provide insight to why certain behaviors occur. Likewise, other teachers can provide information about what the child is like in other classrooms. Typically patterns will start to emerge.

20. **PBS urges teachers should stay abreast of PBS research and evaluate their own efforts in implementing this framework** (Cohen, et al., 2007; Luiselli, Putnam, Handler, & Feinberg, 2005).

Behavioral effects of PBS in Alabama.

The Alabama State Department of Special Education's (2004) report, Alabama State Improvement Grant (SIG) Fiscal Year 2004: Final Grant Performance Report, reported that Alabama initiated a statewide PBS implementation program in the 1998-1999 academic year. The Alabama State Department of Special Education gathered descriptive data on the rate of discipline referrals per day, by grade level, for schools participating in PBS. Schools used this data to target certain grade levels with more preventative problem behavior interventions. Not surprisingly, they found relatively low referrals in grades kindergarten through five. These grades showed less than 0.5 referrals per day. Then referrals dramatically increase starting in the sixth grade. Grades 6, 7, and 8 reported 1, 2.25, and 3 referrals per day respectively. Then they saw a decrease in referrals in grades 9, 10, 11, and 12, with 1.5, 1, 0.5 and 0.5 referrals per day. Clearly from this data, junior high and middle schools need the most behavioral intervention attention (The Alabama State Department of Special Education, 2004).

Next, the Alabama State Department of Special Education's (2004) report noted that Alabama's PBS state team examined disciple referrals before and after the implementation of PBS. A pre-test revealed that these schools handled 0.72 office referrals per day. After the implementation of PBS, the post-test showed a drop to 0.62 office referrals per day (The Alabama State Department of Special Education, 2004).

The Alabama State Department of Special Education's (2004) report stated that in 2002-2003, Alabama looked at the percentage of discipline measures in PBS systems. The number of

reported behavioral incidents dropped by 12 percent. The number of suspensions only lowered

slightly by one percent. However, administrators reported suspensions as their most preferred

disciplinary action for major offenses, as opposed to expulsions or alternative placements.

Therefore, expulsions dropped by 15 percent and alternative school placements lowered by 16

percent. From these numbers, the state team saw that suspensions still held an area of concern,

even if they are a desirable alternative to expulsions and alternate placements (The Alabama

State Department of Special Education, 2004).

Lastly, the state team measured the number of short and long-term suspensions and

expulsions over a five-year period for student receiving special education services. The results

supported the previously mentioned findings. Table 1 represents the number of office referrals

between the 1998-1999 and the 2002-2003 academic years. Although schools reported a

dramatic decrease in expulsions, short-term suspensions rose rapidly (Alabama State Department

of Special Education, 2004).

Table 1

Discipline Actions for Special Education Students from 98-99 to 02-03

Type of Actions	98-99	99-00	00-01	01-02	02-03
Short-Term Suspensions	377	501	510	491	752
Long-Term Suspensions	173	202	123	104	110
Expulsions	404	556	453	601	22

Clearly, PBS focuses on changing the behaviors of students. However, the trainers of this

intervention also strive to change the behavior of educators. Obviously, Alabama still has work

to do with short-term suspensions. However, if the goal is to keep students in school for as much

time as possible, then a short-term suspension is better than a long-term suspension or worse, an

expulsion. Therefore, while the above numbers may look as if one negative is being traded for another, the mere fact that schools are seeking alternatives to expulsions is promising.

Academics and PBS

Sandomierski et al. (2007) wrote that most educators believe that it is difficult to find a student with behavioral problems who does not also have academic troubles. More specifically, in Florida 80 percent of students identified with severe behavioral problems, also experienced academic problems (Sandomierski et al., 2007). Several studies found a link between behavioral problems and academic performance (Larsen et al., 2006; McIntosh, 2005; Tobin & Sugai, 1999). Simply put, a student cannot be disruptive and engaged in the learning process at the same time. Therefore, because PBS decreases maladaptive behaviors (Alabama State Department of Special Education, 2004; Irvin et al., 2004; Metzler et al., 2001; Scott, 2001), researchers are beginning to examine the potential affects of this behavioral intervention on academic improvement.

The link between behavior and academic performance.

To explore the effects of behavioral interventions on academic progress researchers must first understand the link between behavior and academic performance (Putnam, Horner, & Algozzine, 2006). Reid, Paterson, and Synder (2002) discussed the link between behavior and academic performance in terms of a classic coercion model. Students learn that if he or she is disruptive enough, the teacher will remove them from class. The teacher becomes reactive with sending a problem student to the office, because if this happens, there will be at least 20 minutes of peace. In trainings conducted by the Alabama Positive Behavior Support Center, some teachers openly confess that this is their solution to irritation (D. Kirkendoll, personal communication, May 14, 2011). According to the authors, it is not that the teacher actually wants

the student to be punished. The desired outcome is simply a break from the frustrating behavior of the child. Unknowingly though, the teacher has taught the student that if a task becomes too difficult, escape is possible through disruptive behavior. Unfortunately, time away from instruction means less opportunities to learn skills. Consequently, grades and other academic indicators, such as achievement tests, suffer. On the other hand, there are students who are intellectually capable of performing academically, but do not, because they engage in attention seeking behaviors to fulfill psychosocial needs. While the motives for students with behavioral problems may differ, the results are the same (Reid, Paterson, & Synder, 2002).

Middle and high school.

Researchers also focused on behavioral/academic predictors at the middle and high schools levels (Fleming, Harachi, Cortes, Abbott & Catalano, 2004; Larsen, Steele, & Sailor 2006; Morrison, Anthony, Storino, & Dillon, 2001; Roeser, Eccles & Sameroff, 2000). Larsen et al., (2006) examined the number of ODRs and suspensions, and the test scores of a standardized reading and math test in an urban middle school. The number of ODRs and suspensions predicted scores on the standardized test (Larsen et al., 2006).

Morrison et al., (2001) reviewed students' records who were referred to an in-school suspension program. They discovered that students who had never received an office discipline referral earned higher grade point averages (GPA) than those with one or more ODRs (Morrison et al., 2001).

Tobin and Sugai (1999) found that three or more suspensions in ninth grade correlated with academic failure in high school. They also found a correlation between certain types of behaviors (such as nonviolent misbehavior, harassing and threats of violence and fighting, with GPA for sixth grade boys) (Tobin & Sugai, 1999).

Murdock, Anderman, and Hodge (2000) studied the link between the frequency of discipline events and grades. They used a five-point-Likert-scale where one indicated a student never received a disciplinary action and five denoted four or more disciplinary actions over a year. The authors defined discipline events as being sent to the office, getting detention, being placed in in-school suspension and receiving out of school suspensions. The discipline score had a negative correlation with grades (Murdock, Anderman, & Hodge, 2000).

Academic effects of PBS.

As seen from the above section, time spent away from the classroom due to ODRs, suspensions and expulsions means time away from instruction and the learning processes, which highly correlates with poor academic achievement (Bodovski & Farkas, 2007; Canady & Rettig, 2008). Therefore, researchers began to examine the effects of PBS on instructions time and academic achievement.

PBS and instructional time.

Scott and Barrett (2004) implemented school-wide positive behavior support in an urban elementary school. During the next two years, ODRs decreased by 562 and suspensions by 55 annually. This is linked to instruction time, because the authors estimated that ODRs took the student away from 20 minutes of instruction and suspension removed them from school one day. After the implementation PBS, school-wide instruction increased an average of 29.5 days for ODRs and 50 days for suspensions (Scott & Barrett, 2004).

Putnam, Handler, and O'Leary-Zonarich (2003) did a similar pre-and-post PBS implementation study in a low-performing urban school. The researchers hypothesized the amount of instructional time gained, if any, would be due to less time out of the classroom with discipline consequences. Their results revealed a 169 day increase, school-wide, in instructional

time over a semester verses a similar semester prior to PBS implementation (Putnam, Handler, & O'Leary-Zonarich, 2003).

Loss of instruction time includes more than time outside of the classroom. The time teachers spend on discipline inside the classroom also detracts from instruction. Putnam, Handler, Ray and O'Leary-Zonarich (2002) implemented PBS in a classroom, and observed a 57 percent increase in instruction time over pre-intervention results.

With a clear understanding of the impact ODRs have on instruction time, Barrett and Scott (2007) emphasized the importance of tracking the amount of time spent on ODRs. They created a four-step system to record time spent on ODRs, with the intent that it be used to compare semesters or years to truly evaluate the impact of PBS. First, Barrett and Scott suggest that schools should keep up with the time spent on each referral. Keeping up with the time spent on each referral can be done easily by adding student time in and out to the referral form. Also, there should be a place on the form to record the time the administrator spends dealing with the proper paperwork after the student returns to the classroom. Second, schools should track the total number of ODRs processed. Tracking the total number of ODRs processed allows school administrators to compare ODRs by semester from year to year to determine if improvement occurred. Third, schools should average the student time and administrator time spent on ODRs in minutes, hours and days. The amount of time spent on ODRs is good information to have when reporting to outside interests. Fourth, school administrators should share the information learned with key stakeholders, such as their faculty and staff, parents and district level administrators. The amount of time taken by processing ODRs is crucial when information to have when evaluating if a PBS program should stay the course or potentially make changes (Barrett & Scott, 2007).

PBS and academic achievement.

Larsen, Steele, and Sailor (2006) conducted a three-year study, which looked at ODRs, suspensions and the standardized reading and math test scores of an inner city urban school pre and post PBS implementation. The study revealed that ODRs and suspensions decreased after the implementation of PBS. While reading test scores did not change, math scores increased from baseline to year three (Larsen, Steele, & Sailor, 2006).

Luiselli et al., (2005) completed a similar study to that of Larsen et al. (2006). They implemented PBS in an urban school and found decreases in ODRs and suspensions. They also found an increase in students' reading and mathematics achievement tests. Reading scores increased 18 percent, while math scores increased 25 percent (Luiselli, Putnam, Handler, & Feinberg, 2005).

Horner et al., (2004) analyzed academic achievement scores for schools in Illinois that implemented PBS versus those schools that had not. The researchers determined a school to be a PBS implementer if they scored 80 percent on the School Evaluation Tool (SET) (Sugai, Lewis-Palmer, Todd, & Horner, 2001) and if 80 percent of their students could state their school-wide expectations. The Center on Positive Behavioral Interventions and Supports defines the SET as the following:

> The School-wide Evaluation Tool (SET) is designed to assess and evaluate the critical features of school-wide effective behavior support across each academic school year. The SET results are used to: 1) assess features that are in place, 2) determine annual goals for school-wide effective behavior support, 3) evaluate on-going efforts toward school-wide behavior support, 4) design and revise procedures as needed, and 5) compare efforts toward school-wide effective behavior support from year to year. Information necessary

for this assessment tool is gathered through multiple sources including review of permanent products, observations, and staff (minimum of 10) and student (minimum of 15) interviews or surveys (Retrieved from http://www.pbis.org/pbis_resource_detail _page.aspx?Type=4&PBIS_ResourceID=222).

Horner et al., (2004) examined scores from the Illinois State Achievement Test Reading Standard for the third grade. The results showed that 62 percent of third graders met the state standard for reading in the 52 schools studied that fully implemented school-wide positive behavior support. In contrast, 47 percent of third graders met the state standard for reading in the 69 schools studied that had not implemented school-wide PBS (Horner, Sugai, Eber, and Lewandowski, 2004).

Horner et al., (2005) executed a district-wide study of 19 elementary schools. Of these schools, 13 implemented school-wide PBS between the 1997-1998 and 2001-2002 school years. The researchers compared 1997-1998 and 2001-2002 state reading tests for third graders in all 19 schools. Ten of the PBS schools, or 77 percent, showed an improvement in reading test scores from 1997-1998 to 2001-2002. The improvements were from 2 to 15 percent. Only one of the non-PBS schools, or 16 percent, showed improvement in their reading test scores over the same period of time. The researchers also noted that the improvement for the PBS schools was significant, because most were low-performing schools before they implemented the intervention.

Most educators would agree that academic achievement for students is an important part of education. The studies about reveal a link between PBS and academic achievement. Therefore, it stands to reason that institutions of higher education would play a role in the development, exploration and sustainability of PBS.

Higher Education's Contribution to PBS

Higher education plays a vital role in the success of the K-12 school system. After all, universities train the teachers and administrators who make up the faculty of elementary and secondary schools. PBS has a much greater chance of implementation integrity and sustainability if higher education supports this initiative.

In an interview with Dr. Jennifer Brown (personal communication, August 5, 2007), Dean of Education at Auburn University Montgomery, she revealed 11 ways colleges and universities impact or could impact PBS:

1. Pre-service is higher education's opportunity to give new teachers the knowledge and skills required to provide positive behavior supports to their students. Teacher preparation programs can instill in their students an assumption that behaviors are to be taught, just like math or reading. This new generation of teacher and administrator will not have to struggle with integrating social skills into the curriculum. They will understand the advantages to providing such instruction.

2. In-service is another avenue higher education has to contribute to the sustainability of PBS. Although some State Departments of Education train schools or school districts in PBS, new faculty comes in annually. Universities can provide continuing education to those who are unfamiliar with the intervention. They can also open classes to local agencies, such as hospitals, mental health facilities and juvenile justice centers to strengthen a community of positive behavioral support for children.

3. Research and publications from creditable universities contribute to any field. Universities may have the time to closely examine an intervention that those providing direct service may not have available. Research highlights the successes

and failures of a program and can provide information that providers can use in restructuring services.

4. Collaboration between faculty in higher education and K-12 can reveal rich sources of local education agency (LEA) data. Schools, that so often lack the resources to conduct complex or long-term research, could partner with a local university in research studies. This can prove to be a mutually beneficial situation where the schools gain specific information about the success of their PBS program and the university gains access to data from a real program.

5. Another partnership to be forged is between universities and State Departments of Education. Each institution can be a resource to the other in state-wide implementation, continuing education and research on results. Administrators from this collaboration can also pool financial resources and personnel to work toward the expansion and improvement of the state, district and local PBS systems.

6. University faculty and students can write newsletters to disseminate the latest PBS news to field providers. These materials may be used to enhance the knowledge of those already participating in PBS and bring those in who might have a need for the intervention. If the newsletters are open to authors from multiple sources, this shared information can create and support a community of PBS learners.

7. Evaluation of implementation integrity is another way higher education can assist with the reliability and sustainability of PBS. State departments are invested in state-wide PBS

implementation and ongoing efforts, as are schools in their own school-wide endeavors. Therefore, universities can serve as an outside evaluator to provide objective information.

8. Universities can establish PBS websites and technical assistance and research centers. Many universities already have such centers in place, such as Office of Special Education Programs' Center on Positive Behavioral Interventions and Supports at the University of Oregon and the University of Connecticut (Retrieved August 8, 2007, from http://www.pbis.org/), the Institute on Violence and Destructive Behavior at the University of Oregon (Retrieved August 9, 2007, from http://darkwing.uoregon.edu/%7Eivdb/index.htm), the Center on School-wide Positive Behavior Support at University of Missouri–Columbia (Retrieved August 8, 2007, from http://meta.missouri.edu/MUPBIS/contact.html), Florida's Positive Behavior Support Project at the University of South Florida (Retrieved August 8, 2007, from http://flpbs.fmhi.usf.edu/), the Beach Center and the Kansas Institute for PBS at the University of Kansas (Retrieved August 8, 2007, from http://www.beachcenter.org/pbs/default.aspx; Retrieved August 9, 2007, from http://www.kipbs.org/), the Behavior and Reading Improvement Center at the University of North Carolina (Retrieved August 9, 2007, from http://education.uncc.edu/bric/), the Institute for Human Development at Northern Arizona University (Retrieved August 8, 2007, from http://www.nau.edu/ihd/positive/), University of Kentucky's tutorial website, Understanding Problem Behaviors (Retrieved August 8, 2007, from http://serc.gws.uky.edu/pbis/), and The Alabama Positive Behavior Support Center at Auburn University Montgomery (Retrieved April 15, 2010, from http://www.alabamapbs.aum.edu).

9. Independent from ongoing PBS training, universities can host workshops and conferences to present the results of their research and collaborative work with their partners in K-12, the State Department of Education and local agencies. Researchers from around the country can provide the latest information to services providers at conferences. Workshops can take place at the universities or at LEAs to accommodate remote districts with limited funds for travel and professional development.

10. Another resource colleges and universities possess is their students. These institutions of higher education can provide course credit and assistantships in return for research assistance. Furthermore, professors can encourage graduate students to present posters and papers at conferences and write theses and dissertations on PBS.

11. Universities and LEAs can also partner to pursue state and federal grants. Many elementary and secondary schools, especially impoverished ones, do not have the resources to hire grant writers. Universities can lead their expertise in this area as most have experience writing for, competing for and running state and federal grants. This also means LEAs are more likely to receive and maintain this type of highly competitive funding (J. B., personal communication, August 5, 2007).

Obviously from the above list of university PBS centers and programs, higher education is making major contributions to the field. In addition, university faculty conduct a great deal of research and author numerous articles, which adds to and enriches the field.

Example of universities' contributions to the PBS field.

There are many examples of the contributions universities make to the field of Positive Behavior Supports (Cohen et al., 2007; Knoff, 2005; Sugai et al., 2005, 2010;). One model example came from Ed Carr, Carr et al. (2002). Carr brought together ten faculty members from

six different universities to explain nine critical features of PBS. These nine features consist of comprehensive lifestyle change, a lifespan perspective, ecological validity, stakeholder participation, social validity, systems change/multi component intervention, emphasis on prevention, flexibility in scientific practices and multiple theoretical perspectives.

Feature One addresses the ultimate goal of PBS, which focuses on supporting students to gain a comprehensive lifestyle change. This change not only improves the life of individuals who suffer with behavioral issues but also those who serve them in a supportive role. As discussed earlier, when PBS is applied to a unit, such as a school system, environmental changes are made, which positively affect everyone involved in the intervention. Therefore, the reduction of undesirable behaviors is a byproduct of the larger sustainable change in lifestyle and school culture.

Hughes, Hwang, Kim, Eisenman, & Killian (1995) think that a true move toward a positive lifestyle change addresses the aspects of quality of life. These aspects include improvements in social relationships, personal satisfaction, employment, self-determination, recreation and leisure, community adjustment and community integration (Hughes, Hwang, Kim, Eisenman, & Killian, 1995). It is not surprising that the above issues are a major focus of special educators when addressing the transition of special needs students from high school to adult life. This transition is difficult for students who received no special services in their K-12 education. It is of a critical concern to special needs students and their families, as the quality of preparation for transition often determines what type of post-secondary education or training an individual can succeed at and if that person will be able to live independently.

Feature Two of PBS attends to the lifespan perspective. A comprehensive lifestyle change does not usually occur within a short time frame. Efforts to affect significant change

often occur over years (Gleeson-Kreig, 2006; Horner et al., 2005). To successfully assist in the transitions from preschool to elementary, to middle or junior high school, to high school, to post secondary education and to work and supportive living, PBS cannot be applied as a short-term intervention over a few years. It must not be a separate invention at all, but a way of doing business within a school. It must be a never-ending systemic process that provides a model of behavior, which can evolve through the changes and challenges of the different stages of life (Blacher, Neece, & Paczkowski, 2005; Dunlap & Carr, 2007). In short, the lessons from PBS are not just expected to be used for a couple of years and then discarded upon graduation. Like many aspects of education, such as reading or math, PBS is meant to be utilized through an individual's lifetime.

Feature Three of PBS tackles ecological validity. A great deal of scientific research focused on the microanalysis of correlational responses to measurable situations (Lusk, Pruitt, & Norwood, 2006; Nastasi, & Schensul, 2005; Walach, Falkenberg, Fønnebø, Lewith, & Jonas, 2006). The value of internal validity in a study, such as one conducted in a lab, is unquestionable. In these situations researchers are better able to control and manipulate stimuli to test for effects. However, there can be little practical use without the testing of external validity in natural settings, such as a school. Consequently, a major feature of PBS research is its setting in real-world environments.

Feature Four of PBS emphasizes stakeholder participation. Historically, the field of education used expert-driven, rather than consumer-driven, behavioral interventions and assessments. An expert, such as a behavioral analyst, identified the issues, selected or designed an intervention and then enlisted the help of consumers, such as parents or teachers, in implementing the intervention. PBS, on the other hand, places consumers in the role of

collaborator (Muscott, Mann, & LeBrun, 2008; Sugai & Horner, 2006). As a matter of fact, stakeholders - such as students, parents, siblings, teachers, staff, administrators, etc - are invited to be partners in a team, which defines the goals, methods and success criteria. While school personnel have occupied a place at the table for some time, parents and families have not always shared such equal footing. However, educators now understand that families possess a wealth of knowledge about students' strengths, needs and challenges and serve as a major support. Thus, families enrich and strengthen the planning process (Dunlap, Carr, Horner, Zarcone, & Schwartz, 2008; Minke & Anderson, 2005). In addition to family involvement in PBS planning, educators encourage the participation of other individuals who impact students' lives. Job coaches and other worksite employees became part of planning teams (Dunlap et al., 2008; Kincaid, George, & Childs, 2006).

Feature Five of PBS deals with social validity. Thirty years ago behavioral researchers espoused the idea that interventions should not solely hold a value through quantitative measurement, but ought to possess social validity (Wolf, 1978). Without the philosophical support of its implementers, an intervention has little hope of success. As such, a growing number of PBS supporters emphasize the importance of implementers finding value, or social validity, in the interventions they are asked to design, set into motion and sustain (Horner et al., 2005; Luiselli, Putnam, Handler, & Feinberg, 2005).

Feature Six of PBS concentrates on systems change and multi component intervention. One important aspect of PBS systems change is a focus on fixing problem contexts, not problem behavior. Sustainable behavioral change does not occur because a specific technique is applied to an identified undesired behavior. It takes place due to an organized and cooperative effort to change an environment for the better (Sailor et al., 2006; Sugai & Horner, 2006).

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Behavior is a symptom that alters when systems change. For systems change to occur, several components must be in place. Stakeholders should hold a common vision. Support personnel should be competently trained. Incentives should be put in place to motivate people to alter the way they approach challenging behavior. Adequate resources should be available to support and maintain change. Finally, an action plan should be created to clearly define roles, responsibilities, monitoring, and correction and recorrection of aspects of the plan that do not work for a particular environment at a particular time (Knoster, Villa, & Thousand, 2000).

Multi component intervention is the other component to Feature Six of PBS. Behavior is not one-dimensional. Therefore, individuals use PBS in the home (Cambridge & Carnaby, 2005; Horner et al., 2005), school (Sadler, 2000; Putnam, Horner, & Algozzine, 2006), the workplace (Carr & Horner, 2007; Horner et al., 2005), and the community (Horner et al., 2005; Horner et al., 2005). For that reason, an effective behavioral intervention must rely on a multi component remediation plan, formed by an informational assessment in different settings (Sugai, 2005, 2010; Sugai & Horner, 2006).

Feature Seven of PBS is the emphasis placed on prevention. PBS strives to accomplish a most unusual goal - to intervene on a problem behavior when it is absent. The intervention occurs at this time to prevent it from happening again. PBS is proactive and differs from traditional behavior management strategies in that they address problem behaviors in a reactive, crisis-driven way (Domitrovich et al., 2010; Osher, Bear, Sprague, & Doyle, 2010).

Feature Eight of PBS focuses on flexibility with respect to scientific practices. Researchers have traditionally accepted experimental study and data gathered by direct observations as a superior way of conducting research. However, the need for PBS always lies in natural environments, such as homes or schools (Cambridge & Carnaby, 2005; Putnam et al.,

2006). Therefore, PBS has developed into a science that fulfills the needs of conducting research in complex community settings, while respecting and incorporating lessons learned from formal experimentation. Thus, PBS research methodology encourages experiments, correlational analyses, naturalistic observations and studies. In addition, PBS researchers are flexible in the type of data they use and how it is gathered. While they do still employ direct observation of data collection, they also use qualitative data, ratings, interviews, questionnaires, logs and self-reports (Barnett et al., 2006; Stichter & Hudson, 2005).

It must be noted that flexibility does not mean a departure from quality of research or data collection. Additionally, PBS researchers understand that regardless of the measurement, a systematic data source must be used to evaluate and guide the intervention.

Feature Nine of PBS adopts multiple theoretical perspectives. The evolution of PBS has drawn upon several different fields, which include systems analysis, ecological psychology, environmental psychology and community psychology (Algozzine & Algozzine, 2007; Blacher et al., 2005; Chen et al., 2008). These fields have had a tremendous influence on PBS and served as a guide in how to work with a large unit, instead of focusing solely on the individual. They have also encouraged work to take place in natural environments, outside the labs and institutions (Carr et al., 2002).

Carr et al. (2002) not only provided a historical and analytical view of PBS, they gave an example of how university faculty can work together on the issue of Positive Behavior Support. For this article, ten university faculty and staff from all over the country collaborated. Their universities included California State University at Hayward, State University of New York at Stony Brook, the University of California at Santa Barbara, the University of Kansas, the University of Oregon, and the University of South Florida (Carr et al., 2002).

The purpose of the study in Chapter 3 is to answer the question, "Do school districts that use positive behavior support yield higher reading and math achievement scores than school districts that do not use this intervention?" A second question will be, "Do the number of years of PBS implementation effect reading and math achievement scores among PBS districts?"

Chapter 3

Method

Chapter 2 addressed the literature on Positive Behavior Supports in the areas of behavioral change, effects on academics, and the involvement of higher education through technical assistance and research. Chapter 3 will discuss a study that examined the potential effects of Positive Behavior Supports on the performance scores of fourth grade students on a standardized reading and math test in the State of Alabama.

Participants

The researcher for this study used the National Center for Education Statistics (n.d.) website to examine the demographic data, at the school district level, for all 131 districts in the State of Alabama, then systematically paired each of the 16 PBS districts with a similar non-PBS district, based on seven indicators. The researcher matched districts based on geographic category (i.e. rural, large urban city, etc.), number of schools, number of students, number of positions that are full-time or part-time positions that equal full-time positions (i.e. two half-time positions equal one full-time position) [Full-time Equivalent] (FTE), student/teacher ratio, number of English language learners (ELL), and the racial make-up of the total population under 18. The racial categories included white, black, Hispanic or Latino, American Indian or Alaska native, Asian, and Hawaiian or other Pacific Islander, (Retrieved November 7, 2006, from http://nces.ed.gov/ccd/districtsearch/). Therefore, the participants were the school districts themselves. These participants consisted of 16 PBS school systems (D. Kirkendoll, personal communication, July 5, 2006) and 16 matched non-PBS districts. Even though all the data

gathered came from public sources, the researcher gave each school district pair a code, such as PBS 1 and Non-PBS 1, PBS 2 and Non-PBS 2, etc. Therefore, no district was identified.

The school districts were matched as closely as possible, so that when the academic tests scores for PBS and non-PBS districts were analyzed, more accurate comparison conclusions were made. Please note that in some cases the matched districts may differ greatly on one or two indicators. However, most of the indicators between matches are similar, and each district was matched as closely as possible.

PBS 1 demographics were small town locale, 5 total schools, 3,496 total students, 259.4 FTE, 13.5 student/teacher ratio, and 33 ELL. The total community population under 18 included 2,653 whites, 1,529 blacks, 32 Hispanic or Latino, 7 American Indian or Alaska native, 15 Asian, and 0 Hawaiian or other Pacific Islander. Non-PBS 1 demographics were small town locale, 8 total schools, 3,548 total students, 247.0 FTE, 14.4 student/teacher ratio, and 8 ELL. The total community population under 18 included 2,799 whites, 2,894 blacks, 32 Hispanic or Latino, 6 American Indian or Alaska native, 10 Asian, and 0 Hawaiian or other Pacific Islander.

Table 2 represents the above PBS 1 and Non-PBS 1 demographic data.

Table 2

PBS 1 and Non-PBS 1 Demographics

Demographic Indicator	PBS 1	Non-PBS 1
Locale	Small Town	Small Town
Total Schools	5	8
Total Students	3,496	3,548
FTE	259.4	247.0
Student/teacher Ratio	13.5	14.4

English Language Learners (ELL)	33	8
Whites*	2,653	2,799
Blacks*	1,529	2,894
Hispanic or Latino*	32	32
American Indian or Alaska Native*	7	6
Asian*	15	10
Hawaiian or other Pacific Islander*	0	0

* Total population under 18

PBS 2 demographics were small town locale, 47 total schools, 24,443 total students, 1,743.0 FTE, 14.0 student/teacher ratio, and 410 ELL. The total community population under 18 included 28,445 whites, 4,756 blacks, 763 Hispanic or Latino, 207 American Indian or Alaska native, 154 Asian, and 15 Hawaiian or other Pacific Islander. Non-PBS 2 demographics were mid-sized central city locale, 52 total schools, 22,405 total students, 1,609.1 FTE, 13.9 student/teacher ratio, and 371 ELL. The total community population under 18 included 20,483 whites, 14,211 blacks, 1,097 Hispanic or Latino, 218 American Indian or Alaska native, 802 Asian, and 22 Hawaiian or other Pacific Islander.

Table 3 represents the above PBS 2 and Non-PBS 2 demographic data.

Table 3

PBS 2 and Non-PBS 2 Demographics

Demographic Indicator	PBS 2	Non-PBS 2
Locale	Small Town	Mid-sized Central City
Total Schools	47	52

Total Students	24,443	22,405
FTE	1,743.0	1,609.1
Student/teacher Ratio	14.0	13.9
English Language Learners (ELL)	410	371
Whites*	28,445	20,483
Blacks*	4,756	14,211
Hispanic or Latino*	763	1,097
American Indian or Alaska Native*	207	218
Asian*	154	802
Hawaiian or other Pacific Islander*	15	22

* Total community population under 18

PBS 3 demographics were rural locale, 6 total schools, 2,999 total students, 207.0 FTE, 14.5 student/teacher ratio, and 24 ELL. The total community population under 18 included 1,887 whites, 2,015 blacks, 45 Hispanic or Latino, 9 American Indian or Alaska native, 14 Asian, and 2 Hawaiian or other Pacific Islander. Non-PBS 3 demographics were rural locale, 10 total schools, 3,242 total students, 259.0 FTE, 12.5 student/teacher ratio, and 3 ELL. The total community population under 18 included 2,563 whites, 3,071 blacks, 52 Hispanic or Latino, 4 American Indian or Alaska native, 5 Asian, and 0 Hawaiian or other Pacific Islander.

Table 4 represents the above PBS 3 and Non-PBS 3 demographic data.

Table 4

PBS 3 and Non-PBS 3 Demographics

Demographic Indicator	PBS 3	Non-PBS 3
Locale	Rural	Rural

Total Schools	6	10
Total Students	2,999	3,242
FTE	207.0	259.0
Student/teacher Ratio	14.5	12.5
English Language Learners (ELL)	24	3
Whites*	1,887	2,563
Blacks*	2,015	3,071
Hispanic or Latino*	45	52
American Indian or Alaska Native*	9	4
Asian*	14	5
Hawaiian or other Pacific Islander*	2	0

* Total community population under 18

PBS 4 demographics were rural locale, 19 total schools, 5,987 total students, 478.0 FTE, 12.5 student/teacher ratio, and 53 ELL. The total community population under 18 included 8,714 whites, 362 blacks, 136 Hispanic or Latino, 227 American Indian or Alaska native, 14 Asian, and 1 Hawaiian or other Pacific Islander. Non-PBS 4 demographics were rural locale, 17 total schools, 5,652 total students, 429.2 FTE, 13.2 student/teacher ratio, and 57 ELL. The total community population under 18 included 6,455 whites, 1,388 blacks, 120 Hispanic or Latino, 660 American Indian or Alaska native, 6 Asian, and 0 Hawaiian or other Pacific Islander.

Table 5 represents the above PBS 4 and Non-PBS 4 demographic data.

Table 5

PBS 4 and Non-PBS 4 Demographics

Demographic Indicator	PBS 4	Non-PBS 4
Locale	Rural	Rural
Total Schools	19	17
Total Students	5,987	5,652
FTE	478.0	429.2
Student/teacher Ratio	12.5	13.2
English Language Learners (ELL)	53	57
Whites*	8,714	6,455
Blacks*	362	1,388
Hispanic or Latino*	136	120
American Indian or Alaska Native*	227	660
Asian*	14	6
Hawaiian or other Pacific Islander*	1	0

* Total community population under 18

PBS 5 demographics were urban fringe of large city locale, 6 total schools, 2,696 total students, 184.0 FTE, 14.7 student/teacher ratio, and 25 ELL. The total community population under 18 included 2,385 whites, 600 blacks, 76 Hispanic or Latino, 8 American Indian or Alaska native, 28 Asian, and 1 Hawaiian or other Pacific Islander. Non-PBS 5 demographics were urban fringe of mid-size city locale, 7 total schools, 2,758 total students, 216.2 FTE, 12.8 student/teacher ratio, and 218 ELL. The total community population under 18 included 3,225

whites, 1,032 blacks, 363 Hispanic or Latino, 27 American Indian or Alaska native, 30 Asian, and 0 Hawaiian or other Pacific Islander.

Table 6 represents the above PBS 5 and Non-PBS 5 demographic data.

Table 6

PBS 5 and Non-PBS 5 Demographics

Demographic Indicator	PBS 5	Non-PBS 5
Locale	Urban Fringe of Large City	Urban Fringe of Mid-Size City
Total Schools	6	7
Total Students	2,696	2,758
FTE	184.0	216.2
Student/teacher Ratio	14.7	12.8
English Language Learners (ELL)	25	218
Whites*	2,385	3,225
Blacks*	600	1,032
Hispanic or Latino*	76	363
American Indian or Alaska Native*	8	27
Asian*	28	30
Hawaiian or other Pacific Islander*	1	0

* Total community population under 18

PBS 6 demographics were rural locale, 13 total schools, 8,869 total students, 649.1 FTE, 13.7 student/teacher ratio, and 30 ELL. The total community population under 18 included 11,864 whites, 411 blacks, 148 Hispanic or Latino, 27 American Indian or Alaska native, 25

Asian, and 1 Hawaiian or other Pacific Islander. Non-PBS 6 demographics were rural locale, 23

total schools, 8,860 total students, 632.1 FTE, 14.0 student/teacher ratio, and 106 ELL. The total

community population under 18 included 13,404 whites, 364 blacks, 213 Hispanic or Latino, 38

American Indian or Alaska native, 63 Asian, and 1 Hawaiian or other Pacific Islander.

Table 7 represents the above PBS 6 and Non-PBS 6 demographic data.

Table 7

PBS 6 and Non-PBS 6 Demographics

Demographic Indicator	PBS 6	Non-PBS 6
Locale	Rural	Rural
Total Schools	13	23
Total Students	8,869	8,860
FTE	649.1	632.1
Student/teacher Ratio	13.7	14.0
English Language Learners (ELL)	30	106
Whites*	11,864	13,404
Blacks*	411	364
Hispanic or Latino*	148	213
American Indian or Alaska Native*	27	38
Asian*	25	63
Hawaiian or other Pacific Islander*	1	1

* Total community population under 18

PBS 7 demographics were urban fringe of mid-size city locale, 9 total schools, 7,162 total

students, 484.8 FTE, 14.8 student/teacher ratio, and 108 ELL. The total community population

under 18 included 6,867 whites, 1,278 blacks, 262 Hispanic or Latino, 62 American Indian or

Alaska native, 285 Asian, and 4 Hawaiian or other Pacific Islander. Non-PBS 7 demographics

were urban fringe of mid-size city locale, 19 total schools, 8,916 total students, 685.0 FTE, 13.0

student/teacher ratio, and 47 ELL. The total community population under 18 included 12,761

whites, 1,402 blacks, 251 Hispanic or Latino, 62 American Indian or Alaska native, 49 Asian,

and 11 Hawaiian or other Pacific Islander.

Table 8 represents the above PBS 7 and Non-PBS 7 demographic data.

Table 8

PBS 7 and Non-PBS 7 Demographics

Demographic Indicator	PBS 7	Non-PBS 7
Locale	Urban Fringe of Mid-size City	Urban Fringe of Mid-size City
Total Schools	9	19
Total Students	7,162	8,916
FTE	484.8	685.0
Student/teacher Ratio	14.8	13.0
English Language Learners (ELL)	108	47
Whites*	6,867	12,761
Blacks*	1,278	1,402
Hispanic or Latino*	262	251
American Indian or Alaska Native*	62	62
Asian*	285	49
Hawaiian or other Pacific Islander*	4	11

* Total community population under 18

PBS 8 demographics were rural locale, 19 total schools, 7,662 total students, 561.7 FTE, 13.6 student/teacher ratio, and 19 ELL. The total community population under 18 included 7,901 whites, 4,262 blacks, 112 Hispanic or Latino, 22 American Indian or Alaska native, 9 Asian, and 2 Hawaiian or other Pacific Islander. Non-PBS 8 demographics were urban fringe of mid-size city locale, 10 total schools, 5,198 total students, 349.0 FTE, 14.9 student/teacher ratio, and 0 ELL. The total community population under 18 included 3,127 whites, 4,108 blacks, 136 Hispanic or Latino, 11 American Indian or Alaska native, 24 Asian, and 1 Hawaiian or other Pacific Islander.

Table 9 represents the above PBS 8 and Non-PBS 8 demographic data.

Table 9

PBS 8 and Non-PBS 8 Demographics

Demographic Indicator	PBS 8	Non-PBS 8
Locale	Rural	Urban Fringe of Mid-size City
Total Schools	19	10
Total Students	7,662	5,198
FTE	561.7	349.0
Student/teacher Ratio	13.6	14.9
English Language Learners (ELL)	19	0
Whites*	7,901	3,127
Blacks*	4,262	4,108
Hispanic or Latino*	112	136

American Indian or Alaska Native*	22	11
Asian*	9	24
Hawaiian or other Pacific Islander*	2	1

* Total community population under 18

PBS 9 demographics were rural locale, 5 total schools, 1,266 total students, 82.5 FTE, 15.3 student/teacher ratio, and 66 ELL. The total community population under 18 included 1,238 whites, 2,096 blacks, 49 Hispanic or Latino, 17 American Indian or Alaska native, 3 Asian, and 0 Hawaiian or other Pacific Islander. Non-PBS 9 demographics were small town locale, 5 total schools, 1,781 total students, 124.0 FTE, 14.4 student/teacher ratio, and 49 ELL. The total community population under 18 included 423 whites, 2,595 blacks, 54 Hispanic or Latino, 4 American Indian or Alaska native, 9 Asian, and 0 Hawaiian or other Pacific Islander.

Table 10 represents the above PBS 9 and Non-PBS 9 demographic data.

Table 10

PBS 9 and Non-PBS 9 Demographics

Demographic Indicator	PBS 9	Non-PBS 9
Locale	Rural	Small Town
Total Schools	5	5
Total Students	1,266	1,781
FTE	82.5	124.0
Student/teacher Ratio	15.3	14.4
English Language Learners (ELL)	66	49
Whites*	1,238	423
Blacks*	2,096	2,595

Hispanic or Latino*	49	54
American Indian or Alaska Native*	17	4
Asian*	3	9
Hawaiian or other Pacific Islander*	0	0

* Total community population under 18

PBS 10 demographics were small town locale, 11 total schools, 4,329 total students, 294.0 FTE, 14.7 student/teacher ratio, and 12 ELL. The total community population under 18 included 4,053 whites, 2.839 blacks, 68 Hispanic or Latino, 3 American Indian or Alaska native, 12 Asian, and 0 Hawaiian or other Pacific Islander. Non-PBS 10 demographics were rural locale, 8 total schools, 3,702 total students, 243.6 FTE, 15.2 student/teacher ratio, and 1 ELL. The total community population under 18 included 3,804 whites, 2,236 blacks, 134 Hispanic or Latino, 30 American Indian or Alaska native, 12 Asian, and 10 Hawaiian or other Pacific Islander.

Table 11 represents the above PBS 10 and Non-PBS 10 demographic data.

Table 11

PBS 10 and Non-PBS 10 Demographics

Demographic Indicator	PBS 10	Non-PBS 10
Locale	Small Town	Rural
Total Schools	11	8
Total Students	4,329	3,702
FTE	294.0	243.6
Student/teacher Ratio	14.7	15.2
English Language Learners (ELL)	12	1
Whites*	4,053	3,804

Blacks*	2.839	2,236
Hispanic or Latino*	68	134
American Indian or Alaska Native*	3	30
Asian*	12	12
Hawaiian or other Pacific Islander*	0	10

* Total community population under 18

PBS 11 demographics were small town locale, 14 total schools, 4,511 total students, 310.3 FTE, 14.5 student/teacher ratio, and 7 ELL. The total community population under 18 included 4,781 whites, 2,622 blacks, 102 Hispanic or Latino, 360 American Indian or Alaska native, 15 Asian, and 0 Hawaiian or other Pacific Islander. Non-PBS 11 demographics were rural locale, 12 total schools, 4,297 total students, 322.2 FTE, 13.3 student/teacher ratio, and 4 ELL. The total community population under 18 included 3,415 whites, 3,280 blacks, 62 Hispanic or Latino, 69 American Indian or Alaska native, 20 Asian, and 0 Hawaiian or other Pacific Islander.

Table 12 represents the above PBS 11 and Non-PBS 11 demographic data.

Table 12

PBS 11 and Non-PBS 11 Demographics

Demographic Indicator	PBS 11	Non-PBS 11
Locale	Small Town	Rural
Total Schools	14	12
Total Students	4,511	4,297
FTE	310.3	322.2
Student/teacher Ratio	14.5	13.3
English Language Learners (ELL)	7	4

Whites*	4,781	3,415
Blacks*	2,622	3,280
Hispanic or Latino*	102	62
American Indian or Alaska Native*	360	69
Asian*	15	20
Hawaiian or other Pacific Islander*	0	0

* Total community population under 18

PBS 12 demographics were rural locale, 6 total schools, 2,602 total students, 192.7 FTE, 13.5 student/teacher ratio, and 0 ELL. The total community population under 18 included 3,367 whites, 617 blacks, 47 Hispanic or Latino, 8 American Indian or Alaska native, 9 Asian, and 0 Hawaiian or other Pacific Islander. Non-PBS 12 demographics were rural locale, 7 total schools, 2,852 total students, 191.5 FTE, 14.9 student/teacher ratio, and 4 ELL. The total community population under 18 included 2,921 whites, 683 blacks, 52 Hispanic or Latino, 12 American Indian or Alaska native, 7 Asian, and 0 Hawaiian or other Pacific Islander.

Table 13 represents the above PBS 12 and Non-PBS 12 demographic data.

Table 13

PBS 12 and Non-PBS 12 Demographics

Demographic Indicator	PBS 12	Non-PBS 12
Locale	Rural	Rural
Total Schools	6	7
Total Students	2,602	2,852
FTE	192.7	191.5
Student/teacher Ratio	13.5	14.9

English Language Learners (ELL)	0	4
Whites*	3,367	2,921
Blacks*	617	683
Hispanic or Latino*	47	52
American Indian or Alaska Native*	8	12
Asian*	9	7
Hawaiian or other Pacific Islander*	0	0

* Total community population under 18

PBS 13 demographics were rural locale, 5 total schools, 1,612 total students, 110.0 FTE, 14.7 student/teacher ratio, and 0 ELL. The total community population under 18 included 327 whites, 2,568 blacks, 26 Hispanic or Latino, 2 American Indian or Alaska native, 2 Asian, and 0 Hawaiian or other Pacific Islander Non-PBS 13 demographics were small town locale, 4 total schools, 2,334 total students, 165.0 FTE, 14.1 student/teacher ratio, and 9 ELL. The total community population under 18 included 847 whites, 1,311 blacks, 27 Hispanic or Latino, 1 American Indian or Alaska native, 5 Asian, and 0 Hawaiian or other Pacific Islander.

Table 14 represents the above PBS 13 and Non-PBS 13 demographic data.

Table 14

PBS 13 and Non-PBS 13 Demographics

Demographic Indicator	PBS 13	Non-PBS 13
Locale	Rural	Small Town
Total Schools	5	4
Total Students	1,612	2,334
FTE	110.0	165.0

Student/teacher Ratio	14.7	14.1
English Language Learners (ELL)	0	9
Whites*	327	847
Blacks*	2,568	1,311
Hispanic or Latino*	26	27
American Indian or Alaska Native*	2	1
Asian*	2	5
Hawaiian or other Pacific Islander*	0	0

* Total community population under 18

PBS 14 demographics were rural locale, 7 total schools, 2,713 total students, 181.0 FTE, 15.0 student/teacher ratio, and 12 ELL. The total community population under 18 included 2,226 whites, 1,576 blacks, 77 Hispanic or Latino, 12 American Indian or Alaska native, 1 Asian, and 1 Hawaiian or other Pacific Islander. Non-PBS 14 demographics were rural locale, 4 total schools, 2,485 total students, 192.5 FTE, 12.9 student/teacher ratio, and 21 ELL. The total community population under 18 included 2,334 whites, 952 blacks, 33 Hispanic or Latino, 24 American Indian or Alaska native, 2 Asian, and 0 Hawaiian or other Pacific Islander.

Table 15 represents the above PBS 14 and Non-PBS 14 demographic data.

Table 15

PBS 14 and Non-PBS 14 Demographics

Demographic Indicator	PBS 14	Non-PBS 14
Locale	Rural	Rural
Total Schools	7	4
Total Students	2,713	2,485

FTE	181.0	192.5
Student/teacher Ratio	15.0	12.9
English Language Learners (ELL)	12	21
Whites*	2,226	2,334
Blacks*	1,576	952
Hispanic or Latino*	77	33
American Indian or Alaska Native*	12	24
Asian*	1	2
Hawaiian or other Pacific Islander*	1	0

* Total community population under 18

PBS 15 demographics were small town locale, 3 total schools, 988 total students, 76.0 FTE, 13.0 student/teacher ratio, and 1 ELL. The total community population under 18 included 669 whites, 1,349 blacks, 16 Hispanic or Latino, 4 American Indian or Alaska native, 5 Asian, and 0 Hawaiian or other Pacific Islander. Non-PBS 15 demographics were rural locale, 5 total schools, 1,615 total students, 162.5 FTE, 9.9 student/teacher ratio, and 0 ELL. The total community population under 18 included 946 whites, 1,827 blacks, 32 Hispanic or Latino, 4 American Indian or Alaska native, 5 Asian, and 0 Hawaiian or other Pacific Islander.

Table 16 represents the above PBS 15 and Non-PBS 15 demographic data.

Table 16

PBS 15 and Non-PBS 15 Demographics

Demographic Indicator	PBS 15	Non-PBS 15
Locale	Small Town	Rural
Total Schools	3	5

Total Students	988	1,615
FTE	76.0	162.5
Student/teacher Ratio	13.0	9.9
English Language Learners (ELL)	1	0
Whites*	669	946
Blacks*	1,349	1,827
Hispanic or Latino*	16	32
American Indian or Alaska Native*	4	4
Asian*	5	5
Hawaiian or other Pacific Islander*	0	0

* Total community population under 18

PBS 16 demographics were rural locale, 11 total schools, 3,658 total students, 285.7 FTE, 12.8 student/teacher ratio, and 30 ELL. The total community population under 18 included 5,393 whites, 201 blacks, 99 Hispanic or Latino, 19 American Indian or Alaska native, 13 Asian, and 3 Hawaiian or other Pacific Islander. Non- PBS 16 demographics were rural locale, 10 total schools, 3,559 total students, 226.0 FTE, 15.7 student/teacher ratio, and 15 ELL. The total community population under 18 included 3,858 whites, 1,355 blacks, 62 Hispanic or Latino, 8 American Indian or Alaska native, 4 Asian, and 0 Hawaiian or other Pacific Islander.

Table 17 represents the above PBS 16 and Non-PBS 16 demographic data.

Table 17

PBS 16 and Non-PBS 16 Demographics

Demographic Indicator	PBS 16	Non-PBS 16
Locale	Rural	Rural

Total Schools	11	10
Total Students	3,658	3,559
FTE	285.7	226.0
Student/teacher Ratio	12.8	15.7
English Language Learners (ELL)	30	15
Whites*	5,393	3,559
Blacks*	201	1,355
Hispanic or Latino*	99	62
American Indian or Alaska Native*	19	8
Asian*	13	4
Hawaiian or other Pacific Islander*	3	0

* Total community population under 18

Measures

The researcher for this study used Alabama's reading and mathematics test to gauge academic achievement of the 32 school systems examined for comparison. The State uses the Alabama Reading and Mathematics Test (ARMT) to assess academic achievement in reading and math in grades three through eight. This study focused on the ARMT specifications and scores for grade four, because this is the grade level that the State focuses on for risk to future academic achievement.

The reading portion of the ARMT.

The Alabama Reading and Math Test: Specifications for Reading, Grade 4 or Bulletin 2005, No. 83, Morton (2005), provided information about the reading portion of the ARMT. The document focused on the two item types and five content standards.

The two types of items on the reading test are multiple-choice questions and open-ended items. The four-option multiple-choice items are worth one point and the open-ended items are valued at three points.

There are five content standards for the fourth grade reading portion of the ARMT. These standards are expectations of a successful reader in grade four. The following is a list and discussion of each standard:

1. Students must demonstrate word recognition skills, including structural analysis. Examples of structural analysis are root words, prefixes, and suffixes. Students must be able to produce common word parts, read multi syllable words, and read compound words, contractions, possessives, and inflectional endings.

2. Students must demonstrate reading vocabulary knowledge, including recognition of a variety of synonyms and antonyms. Students must use context clues, read multiple-meaning words, and increase the number of sight words.

3. Students must use a wide range of strategies, including distinguishing fiction from nonfiction, and making inferences to comprehend fourth-grade literary/recreational materials in a variety of genres. Examples include novels, short stories, poetry, and trade books. Students must be able to skim passages, summarize, compare and contrast, use sentence structure and context, self-monitor for understanding (i.e., rereading, using context clues, adjusting speed, and accessing prior knowledge and experiences), use vocabulary knowledge, read fluently with expression and attention to punctuation, use prior knowledge and experience, draw conclusions, ask and answer questions, and relate events, ideas, and characters to specific life experiences.

4. Students must identify literary elements and devices, including characters, important details, and similes in literary and recreational materials, and identify important details in textual and informational materials. Students must be able to identify the main idea and identify the author's purpose.

5. Students must use a wide range of strategies and skills, including using sentence structure, locating information, and distinguishing fact from fiction, to comprehend fourth-grade functional, textual, and informational reading materials. Students must be able to determine a sequence of events, distinguish fact from opinion, summarize passages, compare and contrast, self-monitor text understanding (i.e., rereading, using context clues, adjusting speed, accessing prior knowledge and experiences), use text features to gain meaning (i.e., titles, headings, glossary, boldface print, index, table of contents, tables, charts, graphs), preview and predict, highlight, take notes and outline, detect obvious bias, and recognize persuasive techniques (i.e., advertisements, Internet, speeches, newspaper and editorials) (Morton, 2005).

The mathematics portion of the ARMT.

In the Alabama Reading and Math Test: Specifications for Mathematics, Grade 4 or Bulletin 2005, No. 84, Morton (2005) supplied information about the math segment of the ARMT. This bulletin highlighted the three item types and 17 content standards.

The item types on the math test were multiple-choice, gridded, and open-ended. The four option multiple-choice items and gridded items counted as one point, and the open-ended items were worth three points. (One example of an item that was gridded can be found in number 12 from the list below).

There were 17 fourth grade math content standards on the ARMT, under five categories. Standards 1 through 8 related to number and operations. Standards 9 and 10 were under algebra. Standards 11 and 12 addressed geometry. Standards 13 and 14 dealt with measurement. The final category, data analysis and probability, measured standards 15 through 17. The following is a list of the 17 standards, which determine success in fourth grade math:

1. Students must demonstrate number sense by comparing and ordering decimals to hundredths and whole numbers to 999,999.

2. Students must write money amounts in words and dollar-and-cent notation.

3. Students must rename improper fractions as mixed numbers and mixed numbers as improper fractions.

4. Students must demonstrate addition and subtraction of fractions with common denominators.

5. Students must round whole numbers to the nearest ten, hundred, or thousand, and decimals to the nearest tenth.

6. Students must solve problems, including word problems that involve addition and subtraction of four-digit numbers with and without regrouping.

7. Students must solve problems, including word problems, involving the basic operations of multiplication and division on whole numbers through two-digit multipliers and one-digit divisors.

8. Students must recognize equivalent forms of commonly used fractions and decimals.

9. Students must write number sentences for word problems that involve multiplication or division.

10. Students must complete addition and subtraction number sentences with a missing addend or subtrahend.

11. Students must identify triangles, quadrilaterals, pentagons, hexagons, or octagons based on the number of sides, angles, and vertices.

12. Students must find locations on a map or a grid using ordered pairs.

13. Students must calculate elapsed time in hours and minutes.

14. Students must measure length, width, weight, and capacity using metric and customary units, and temperature in degrees Fahrenheit and degrees Celsius.

15. Students must represent categorical data using tables and graphs, including bar graphs, line graphs, and line plots.

16. Students must determine if outcomes of simple events are likely, unlikely, certain, equally likely, or impossible.

17. Students must represent numerical data using tables and graphs including bar graphs and line graphs (Morton, 2005).

Reporting data on the ARMT.

The 2005 Interpretive Guide: Alabama Accountability System, Morton (2005) stated that when reporting the results of the test, percentages of scores are placed in four levels for each school district. Each level indicates the percentage of students in a district that met or did not meet a certain criteria set by the Alabama Department of Education (Morton, 2005). The Alabama Reading and Math Test: Specifications for Reading, Grade 4 or Bulletin 2005, No. 83 (Morton, 2005) and the Alabama Reading and Math Test: Specifications for Mathematics, Grade 4 or Bulletin 2005, No. 84 (Morton, 2005) reported the cut scores for each level of the ARMT

were determined by committees comprised of educators from throughout the state (Morton, 2005, 2005).

The 2005 Interpretive Guide: Alabama Accountability System (Morton, 2005) also provided a definition for each achievement level. Level I indicated the percentage of students who did not meet the state academic content standards. Level II indicated the percentage of students who partially met the academic content standards. Level III indicated the percentage of students who met the academic content standards. Finally, Level IV indicated the percentage of students who exceeded academic content standards (Morton, 2005). Therefore, the State and the researcher of this study determined academic success as those student percentages in Levels III and IV who met or exceeded the state academic content standards.

The researcher examined each PBS school district with its matched non-PBS district to see if PBS districts obtained higher academic achievement scores on the ARMT. As previously stated, cut scores in Levels III and IV indicated the percentage of students who met or exceeded the state academic content standards, hence achieving academic success on the ARMT. Therefore, to obtain the variables for the analysis between PBS and non-PBS school districts the researcher added the Level III and Level IV percentage scores in reading and math, in grade four, for the 32 selected districts.

Validity.

Validity for the instrument used in this study, the Alabama Reading and Mathematics Test (ARMT), was established by the Alabama State Board of Education. The validity of a test refers to the extent of which a test measures what it is intended to measure. Therefore, it is a basis element of test development and evaluation.

The Alabama State Department of Special Education (2004, Fall) discussed the construct validation procedures for the ARMT. Construct validity occurs when the attribute presumed to be measured is confirmed in test performance. This type of validity can be tested through exploratory/confirmatory factor analysis, criterion-group difference, item analysis, and expert panels (The Alabama State Department of Special Education, 2004, Fall).

The first validity measure taken for the ARMT was the use of expert panels or committees. The Alabama Reading and Math Test: Specifications for Reading, Grade 4 or Bulletin 2005, No. 83 (Morton, 2005), and the Alabama Reading and Math Test: Specifications for Mathematics, Grade 4 or Bulletin 2005, No. 84 (Morton, 2005), reported that the Board formed committees of educators from each city and county school district in the state (131 districts) and each district board of education to determine the content standards of the ARMT. In addition, these committees reviewed the content of the tests, selected specific reading passages, reviewed specific test items, and determined achievement levels (Morton, 2005, 2005).

The 2005 Interpretive Guide: Alabama Accountability System (Morton, 2005) further discussed the validity of the ARMT. According to this guide, the Board also established a panel of experts to form the Accountability Advisory Committee. Based on their recommendations, the State Board adopted the use of the ARMT on June 2003 for implementation beginning in the 2003-2004 school year (Morton, 2005).

The Alabama State Department of Special Education (2004, Fall) also tested the ARMT's validity with a correlational analysis. Tables 18 and 19 show the intercorrelations of the Reading and Mathematics domains and sub-domains and the aggression of domain scores for the totals. Testing the ARMT's validity with a correlational analysis examined the likelihood that the items in Table 18 and 19 were assessed as the test developers claimed.

There are a few items to be noted from Table 18. Reading Total (RT) consists of RV, RC, S1, S2, S3, and S4. Reading Vocabulary (RV), and Reading Comprehension (RC) are Stanford 10 subtests. However, Standard 1 (S1), Standard 2 (S2), Standard 3 (S3), and Standard 4 (S4) are ARMT content standards.

In Table 18 the intercorrelation between RT and S4, which measures identification skills of literary elements and devices, was 0.92. This was the highest comparison with other standards intercorrelations with RT. Nevertheless, the intercorrelation between RT and S1, which measures word recognition skills, was 0.70. This was the lowest comparison with other standards intercorrelations with RT.

Table 18

Reading: Intercorrelations of Domains, Standards, and Total Scores

Reading 4	RT	RV	RC	S1	S2	S3	S4	S5
Reading Total (RT)	1.00							
Reading Vocabulary (RV)	0.78	1.00						
Reading Comprehension (RC)	1.00	0.71	1.00					
Standard 1 (S1)	0.70	0.53	0.70	1.00				
Standard 2 (S2)	0.85	0.87	0.82	0.57	1.00			
Standard 3 (S3)	0.89	0.65	0.89	0.55	0.72	1.00		
Standard 4 (S4)	0.92	0.70	0.92	0.55	0.73	0.75	1.00	
Standard 5 (S5)	0.89	0.63	0.90	0.57	0.70	0.73	0.77	1.00

There are a few items to be noted from Table 19. Math Total (MT) consists of PR, PS, NSO, PRA, GMY, MST and DSP. Procedure (PR) and Problem Solving (PS) are Stanford 10

subtests. Where as, Number Sense and Operations (NSO), Algebra (PRA), Geometry (GMY), Measurement (MST), and Data Analysis and Probability (DSO) are ARMT content standards.

In Table 19 the intercorrelation between MT and NSO, which measures Standards one through 7, was 0.95. This was the highest comparison with other cluster intercorrelations with MT. Where as, the intercorrelation between MT and GMY, which measures Standards 11 and 12, was 0.69. This was the lowest comparison with other cluster intercorrelations with MT (The Alabama State Department of Special Education, 2004).

Table 19

Mathematics: Intercorralations of Domains, Sub-Domains, and Total Scores

Mathematics 4	MT	PR	PS	NSO	PRA	GMY	MST	DSP
Math Total (MT)	1.00							
Procedure (PR)	0.80	1.00						
Problem Solving (PS)	0.99	0.73	1.00					
Number Sense & Operations (NSO)	0.95	0.84	0.93	1.00				
Algebra (PRA)	0.83	0.63	0.83	0.75	1.00			
Geometry (GMY)	0.69	0.48	0.70	0.54	0.48	1.00		
Measurement (MST)	0.78	0.55	0.79	0.66	0.60	0.57	1.00	
Data Analysis & Probability (DSO)	0.81	0.57	0.81	0.69	0.61	0.52	0.57	1.00

Reliability.

The Alabama State Department of Special Education (2004) hired Harcourt to test the reliability of the Alabama Reading and Mathematics Test (ARMT) for grades four, six, and eight. Harcourt measured internal consistency using Cronbach's coefficient alpha to test reliability on the ARMT. However, the item level data was not available, and therefore the

researcher did not run sample specific reliabilities. The coefficient alpha is the average split-half correlation of all possible two-part divisions of the test.

The split-half estimate of reliability is an approach, which separates all test questions into two groups. The statisticians correlate student scores on the two half-tests. This method avoids any changes in an individual by giving a single test. Researchers can deduce that that the test questions measure similar concepts, and have a low error measurement, if the scores have a high correlation rate between the two half tests. However, the split-half method can have an effect on the resulting correlations. Therefore, Cronbach's coefficient alpha statistic was used to avoid this issue with the spilt-half method.

As mentioned, the coefficient alpha is the average split-half correlation of all possible two-part divisions of the test. The coefficient alpha measures the internal consistency among items of a test. It can be used to predict the internal consistency of both dichotomously and polytomously scored test items. The former are right or wrong, or score values of zero or one. The later are score values with a wide range.

The reliability measures for the ARMT are depicted in Tables 20 through 24, which all came from the Alabama Reading and Math Test, Grades 4, 6, and 8, Technical Manual (2004). For this study only grade 4 was reported.

Inter-rater agreement measures.

Table 20 provides statistics on the reliability coefficient of the ARMT with the inter-rater agreement measures. The inter-rater agreement simply calculates the amount of agreement among readers of the open-ended items with a check score procedure. Examiners randomly selected ten percent of tests, with valid scores on the prompts, for a second independent review. A team leader created a check score, and used it as a reference when calculating the agreement

coefficients. The rater and team leader then discussed the involved prompt to settle any rating disagreements.

The ARMT Technical Manual provides two definitions related to the inter-rater agreement. The following is direct discussion from the manual:

Data from the check score procedure was analyzed under two definitions of inter-rater agreement. The first definition (% Perfect) addressed the percent perfect agreement between the first and second ratings. Under this definition, agreement is present as long as the score arising from the first matches exactly the score from the second rating. The second definition ($\pm$ 1) Adjacent) addressed the percent agreement between adjacent score categories. For this definition, agreement is present when discrepancies between the first and second ratings are within $\pm$ 1 score point (Alabama State Department of Special Education, 2004, pp. 48-49).

Table 20 demonstrates the inter-rater coefficients for the open-ended items of the ARMT.

Table 20

Inter-Rater Agreement Coefficients for ARMT

	Inter-Rater Agreement	
Subject and Grade	% Perfect	+/- Adjacent
Reading 4	73	94
Mathematics 4	91	99

Table 20 shows the percent perfect agreement coefficient between fourth grade reading and fourth grade math. These scores are not surprising as reading rating is more subjective than math. However, when small amounts of disagreement were allowed, discrepancies between

subjects decreased. As a matter of fact, when researchers apply the inter-rater agreement of $\pm$ 1 there is only a three percent difference between reading and math.

Standard error of measurement.

Tables 21 through 24 address the standard error of measurement (SEM), which is the standard deviation of errors of measurements of test scores from a particular group of examinees. SEM is also another index of reliability. A measurement error is the discrepancy between an observed score and the true score. A student's observed score is an estimate of their true score. Due to the fact that the SEM is inversely related to reliability, the lower the standard error, the higher the reliability. The measurement error is most commonly expressed as standard deviation units, because the standard error of measurement is the standard deviation of the measurement error distribution.

Tables 21 through 24 report the reliability coefficients, among other measures for subject, gender and ethnicity, limited English proficient and special education students, and schools.

Table 21

Means, Standard Deviations, Number of Items, Reliability Coefficients, and Standard Error of Measure (SEM) for Reading and Mathematics

Subject and Grade	Mean	SD	MC	GR	OE	Item Number	Points	Reliability	SEM
Reading 4	44.12	14.06	60	.	4	64	72	0.93	3.72
Mathematics 4	41.11	14.33	56	4	4	64	72	0.93	3.79

In Table 21, MC refers to the number of multiple-choice items. GR refers to the number of gridded-response items. OE refers to the number of open-ended items.

Table 22

Reliability Coefficients for Gender and Ethnicity

Subject and Grade	Female	Male
Reading 4	0.93 (46)	0.94 (42)
Math 4	0.92 (41)	0.94 (41)

Black	Native American	Asian	White	Hispanic
0.92 (38)	0.93 (46)	0.93 (50)	0.93 (48)	0.93 (38)
0.92 (35)	0.93 (42)	0.93 (51)	0.93 (45)	0.93 (37)

In Table 22, the values in parentheses are raw score means.

Table 23

Reliability Coefficients for Limited English Proficient (LEP) and Special Education

Subject and Grade	LEP				Special Education			
	N	Mean	SD	Reliability Coefficients	N	Mean	SD	Reliability Coefficients
Reading 4	837	32.93	12.89	0.91	5983	27.21	12.73	0.91
Math 4	900	33.11	12.99	0.92	6050	25.90	12.68	0.92

Students in Special Education, referred to in Table 23, receive services related to the disability categories identified in the Individual with Disabilities in Education Act, 2004. These categories include specific learning disability, mental retardation, autism, emotional disturbance, deaf-blindness, hearing impairment, visual impairment, speech or language impairment, orthopedic impairment, traumatic brain injury, multiple disabilities, and other health impairment.

Table 24

Number of Schools, Means, Standard Deviations, and Reliability Coefficients for Schools

Subject and Grade	Number of Schools	Means	SD	Reliability of School Means
Reading 4	143	45.30	13.97	0.96
Mathematics 4	142	42.10	14.32	0.96

Note that some of the schools in Table 24 with less than 100 students were removed from the analysis. Therefore, raw score means and SDs do not represent the total population of Alabama students (The Alabama State Department of Special Education, 2004).

Data collection.

All school district demographic data collected came the National Center for Education Statistics (NCES) website (Retrieved November 7, 2006, from http://nces.ed.gov/ccd/ districtsearch/).

All data collected from the Alabama Reading and Mathematics Test (ARMT), came from the Alabama Department of Education's website. The site has a link to Alabama's Accountability Reporting System (Retrieved April 2, 2006, from http://www.alsde.edu/ Accountability/preAccountability.asp).

Design and Procedures

The 16 school districts in the State of Alabama that implemented PBS prior to the 2005-2006 school year were each matched with a similar non-PBS school district based on seven characteristics, which include geographic category (i.e. rural, large urban city, etc.), number of schools, number of students, number of positions that are full-time or part-time positions that equal full-time positions (i.e. two half-time positions equal one full-time position) [Full-time Equivalent] (FTE), student/teacher ratio, number of English language learners (ELL), and the

racial make-up of the total population under 18. The racial categories included white, black, Hispanic or Latino, American Indian or Alaska native, Asian, and Hawaiian or other Pacific Islander.

The researcher examined the fourth grade reading and math results from the 2005-2006 ARMT for each of these school districts. Following the State of Alabama's lead, student academic success was determined by a placement in Level III and IV on the ARMT, which indicates the percentage of students who met or exceeded the State's standards. The researcher then added the percentages for Levels III and IV for each of the chosen 32 school districts for a one-way analysis of variance (ANOVA).

Four ANOVAs were run. The first analysis examined if there was a correlation between the reading portion of the ARMT and whether or not a school district had implemented PBS. The second analysis examined if there was a correlation between the math portion of the ARMT and whether or not a school district had implemented PBS. The third analysis examined if there was a correlation between the reading portion of the ARMT and how long a school district had implemented PBS, either from one to two years or three to five years. The fourth analysis examined if there was a correlation between the math portion of the ARMT and how long a school district had implemented PBS, either from one to two years or three to five years. Therefore, the dependent variable for all four analyses, or those variables that are observed to change in response to the independent variables, is the ARMT scores. However, the independent variable, or those variables that are deliberately manipulated to invoke a change in the dependent variables, must be different in each analysis. The independent variable in the first and second analyses is whether or not the school district implemented PBS. For the third and fourth

analyses, the independent variable is the amount of time districts implemented PBS, which was placed into categories for one to two years, and three to five years.

The rational for splitting the years into segments of one to two and three to five was because the National Center on Positive Behavioral Interventions and Supports asks districts for a three to five year commitment to PBS implementation to allow time for sustainable change to occur. It should be noted though that they also say that PBS should be in pace five to 10 years for maximum effectiveness (Sugai et al., 2005).

Chapter 3 discussed the method of the current study, which examined the potential effects of Positive Behavior Support on the performance scores of fourth grade students on a standardized reading and math test in the State of Alabama. Under Method, this chapter looked at the participants, measures, and design and procedures for this study.

The participants consisted of 32 school districts in the State of Alabama. Sixteen districts implemented PBS prior to the 2005-2006 school year, and 16 systems had not implemented this behavioral intervention. The districts that implanted PBS had done so between one to five years prior to the 2005-2006 school year. Each PBS system was matched with a non-PBS system based on seven different indicators.

The study used the Alabama Math and Reading Test as a measure to examine academic achievement between the participant school districts. Therefore, the Measures section explained the different facets of the ARMT. This section addressed the reading portion of the ARMT, the mathematics portion of the ARMT, reporting data, validity, reliability, and how the researcher collected data on the ARMT. In addition, the researcher examined inter-rater agreement measures and standard error of measurement under reliability.

Lastly, Chapter 3 describes the design and procedures of the study. This section reiterates information previously given in the chapter about the selection process for the participants, and the aspects of the ARMT data used. This section also describes the data analysis conducted for this study.

The next chapter will report the results of the study described in Chapter 3. Chapter 4 will give an account of the Level III and IV scores of the 32 school systems in this study. It will also provide the outcomes of analyses between the 32 PBS and non-PBS school districts.

Chapter 4

Results

The study completed for this dissertation examined the potential effects of Positive

Behavior Support on the academic performance scores of fourth grade students on a standardized

reading and math test in the State of Alabama. Chapter 3 discussed the methodology of the study

by describing participants, measures, and design and procedures, including a description of the

data analysis. Chapter 4 will report the fourth grade Alabama Reading and Math Test scores for

the 32 school districts in this study and account the results of four comparison analyses among

these districts.

The Alabama Reading and Math Test

As discussed in Chapter 3 the Alabama Reading and Math Test (ARMT) is a statewide

achievement test in reading and math. The state reports the score in percentages at four levels.

Level I indicates the percentage of students who did not meet the state academic content

standards. Level II indicates the percentage of students who partially met the academic content

standards. Level III indicates the percentage of students who met the academic content standards.

Lastly, Level IV indicates the percentage of students who exceeded academic content standards

(Morton, 2005). The data gathered for this study were the percentages in Levels III and IV of

fourth grade students who met or exceeded the state academic content standards for the 32

school districts participating in this study.

Of the 32 districts, 16 implemented Positive Behavior Support prior to the 2005-2006

school year, and 16 systems had not implemented the intervention. The 16 PBS districts are

identified by number only and paired with their matched non-PBS district. Therefore, PBS 1 is matched and reported with non-PBS 1. PBS 2 is matched and reported with non-PBS 2 and so on through PBS 16 and non-PBS 16. Once data were collected from the participating school districts for Levels III and IV in reading and math, the percentages for both levels, in each content area, were added to get the overall percentage of students that met or exceeded state standards in reading and math (see tables 25 and 26).

Descriptive Results

Reading ARMT scores.

PBS 1 scored 26 percent on Level III reading and 58 percent on Level IV reading. Non-PBS 1 scored 33 percent on Level III reading and 46 percent on Level IV reading. Therefore, 84 percent of fourth grade students from PBS 1 met or exceeded state reading expectations. In comparison, 79 percent of fourth grade students from non-PBS 1 met or exceeded state reading expectations.

PBS 2 scored 28 percent on Level III reading and 59 percent on Level IV reading. Non-PBS 2 scored 29 percent on Level III reading and 54 percent on Level IV reading. Therefore, 87 percent of fourth grade students from PBS 2 met or exceeded state reading expectations. In comparison, 83 percent of fourth grade students from non-PBS 2 met or exceeded state reading expectations.

PBS 3 scored 41 percent on Level III reading and 40 percent on Level IV reading. Non-PBS 3 scored 44 percent on Level III reading and 38 percent on Level IV reading. Therefore, 81 percent of fourth grade students from PBS 3 met or exceeded state reading expectations. In comparison, 82 percent of fourth grade students from non-PBS 3 met or exceeded state reading expectations.

PBS 4 scored 31 percent on Level III reading and 59 percent on Level IV reading. Non-PBS 4 scored 27 percent on Level III reading and 62 percent on Level IV reading. Therefore, 90 percent of fourth grade students from PBS 4 met or exceeded state reading expectations. In comparison, 89 percent of fourth grade students from non-PBS 4 met or exceeded state reading expectations.

PBS 5 scored 21 percent on Level III reading and 71 percent on Level IV reading. Non-PBS 5 scored 30 percent on Level III reading and 55 percent on Level IV reading. Therefore, 92 percent of fourth grade students from PBS 5 met or exceeded state reading expectations. In comparison, 85 percent of fourth grade students from non-PBS 5 met or exceeded state reading expectations.

PBS 6 scored 28 percent on Level III reading and 61 percent on Level IV reading. Non-PBS 6 scored 25 percent on Level III reading and 61 percent on Level IV reading. Therefore, 89 percent of fourth grade students from PBS 6 met or exceeded state reading expectations. In comparison, 86 percent of fourth grade students from non-PBS 6 met or exceeded state reading expectations.

PBS 7 scored 21 percent on Level III reading and 73 percent on Level IV reading. Non-PBS 7 scored 31 percent on Level III reading and 60 percent on Level IV reading. Therefore, 94 percent of fourth grade students from PBS 7 met or exceeded state reading expectations. In comparison, 91 percent of fourth grade students from non-PBS 7 met or exceeded state reading expectations.

PBS 8 scored 34 percent on Level III reading and 46 percent on Level IV reading. Non-PBS 8 scored 38 percent on Level III reading and 49 percent on Level IV reading. Therefore, 80 percent of fourth grade students from PBS 8 met or exceeded state reading expectations. In

comparison, 87 percent of fourth grade students from non-PBS 8 met or exceeded state reading expectations.

PBS 9 scored 38 percent on Level III reading and 21 percent on Level IV reading. Non-PBS 9 scored 38 percent on Level III reading and 21 percent on Level IV reading. Therefore, 59 percent of fourth grade students from PBS 9 met or exceeded state reading expectations. In comparison, 59 percent of fourth grade students from non-PBS 9 met or exceeded state reading expectations.

PBS 10 scored 37 percent on Level III reading and 44 percent on Level IV reading. Non-PBS 10 scored 41 percent on Level III reading and 35 percent on Level IV reading. Therefore, 81 percent of fourth grade students from PBS 10 met or exceeded state reading expectations. In comparison, 76 percent of fourth grade students from non-PBS 10 met or exceeded state reading expectations.

PBS 11 scored 32 percent on Level III reading and 53 percent on Level IV reading. Non-PBS 11 scored 32 percent on Level III reading and 52 percent on Level IV reading. Therefore, 85 percent of fourth grade students from PBS 11 met or exceeded state reading expectations. In comparison, 84 percent of fourth grade students from non-PBS 11 met or exceeded state reading expectations.

PBS 12 scored 41 percent on Level III reading and 46 percent on Level IV reading. Non-PBS 12 scored 39 percent on Level III reading and 47 percent on Level IV reading. Therefore, 87 percent of fourth grade students from PBS 12 met or exceeded state reading expectations. In comparison, 86 percent of fourth grade students from non-PBS 12 met or exceeded state reading expectations.

PBS 13 scored 51 percent on Level III reading and 33 percent on Level IV reading. Non-PBS 13 scored 38 percent on Level III reading and 37 percent on Level IV reading. Therefore, 84 percent of fourth grade students from PBS 13 met or exceeded state reading expectations. In comparison, 75 percent of fourth grade students from non-PBS 13 met or exceeded state reading expectations.

PBS 14 scored 38 percent on Level III reading and 36 percent on Level IV reading. Non-PBS 14 scored 36 percent on Level III reading and 37 percent on Level IV reading. Therefore, 74 percent of fourth grade students from PBS 14 met or exceeded state reading expectations. In comparison, 73 percent of fourth grade students from non-PBS 14 met or exceeded state reading expectations.

PBS 15 scored 44 percent on Level III reading and 24 percent on Level IV reading. Non-PBS 15 scored 46 percent on Level III reading and 19 percent on Level IV reading. Therefore, 68 percent of fourth grade students from PBS 15 met or exceeded state reading expectations. In comparison, 65 percent of fourth grade students from non-PBS 15 met or exceeded state reading expectations.

PBS 16 scored 34 percent on Level III reading and 60 percent on Level IV reading. Non-PBS 16 scored 34 percent on Level III reading and 47 percent on Level IV reading. Therefore, 94 percent of fourth grade students from PBS 16 met or exceeded state reading expectations. In comparison, 81 percent of fourth grade students from non-PBS 16 met or exceeded state reading expectations.

Math ARMT scores.

PBS 1 scored 21 percent on Level III math and 59 percent on Level IV math. Non-PBS 1 scored 25 percent on Level III math and 45 percent on Level IV math. Therefore, 80 percent of

fourth grade students from PBS 1 met or exceeded state math expectations. In comparison, 70 percent of fourth grade students from non-PBS 1 met or exceeded state math expectations.

PBS 2 scored 24 percent on Level III math and 57 percent on Level IV math. Non-PBS 2 scored 25 percent on Level III math and 52 percent on Level IV math. Therefore, 81 percent of fourth grade students from PBS 2 met or exceeded state math expectations. In comparison, 77 percent of fourth grade students from non-PBS 2 met or exceeded state math expectations.

PBS 3 scored 37 percent on Level III math and 37 percent on Level IV math. Non-PBS 3 scored 34 percent on Level III math and 41 percent on Level IV math. Therefore, 74 percent of fourth grade students from PBS 3 met or exceeded state math expectations. In comparison, 75 percent of fourth grade students from non-PBS 3 met or exceeded state math expectations.

PBS 4 scored 25 percent on Level III math and 63 percent on Level IV math. Non-PBS 4 scored 30 percent on Level III math and 54 percent on Level IV math. Therefore, 88 percent of fourth grade students from PBS 4 met or exceeded state math expectations. In comparison, 84 percent of fourth grade students from non-PBS 4 met or exceeded state math expectations.

PBS 5 scored 19 percent on Level III math and 74 percent on Level IV math. Non-PBS 5 scored 26 percent on Level III math and 57 percent on Level IV math. Therefore, 93 percent of fourth grade students from PBS 5 met or exceeded state math expectations. In comparison, 83 percent of fourth grade students from non-PBS 5 met or exceeded state math expectations.

PBS 6 scored 25 percent on Level III math and 57 percent on Level IV math. Non-PBS 6 scored 25 percent on Level III math and 64 percent on Level IV math. Therefore, 82 percent of fourth grade students from PBS 6 met or exceeded state math expectations. In comparison, 89 percent of fourth grade students from non-PBS 6 met or exceeded state math expectations.

PBS 7 scored 22 percent on Level III math and 65 percent on Level IV math. Non-PBS 7 scored 30 percent on Level III math and 57 percent on Level IV math. Therefore, 87 percent of fourth grade students from PBS 7 met or exceeded state math expectations. In comparison, 87 percent of fourth grade students from non-PBS 7 met or exceeded state math expectations.

PBS 8 scored 30 percent on Level III math and 44 percent on Level IV math. Non-PBS 8 scored 30 percent on Level III math and 42 percent on Level IV math. Therefore, 74 percent of fourth grade students from PBS 8 met or exceeded state math expectations. In comparison, 72 percent of fourth grade students from non-PBS 8 met or exceeded state math expectations.

PBS 9 scored 20 percent on Level III math and 37 percent on Level IV math. Non-PBS 9 scored 20 percent on Level III math and 37 percent on Level IV math. Therefore, 57 percent of fourth grade students from PBS 9 met or exceeded state math expectations. In comparison, 57 percent of fourth grade students from non-PBS 9 met or exceeded state math expectations.

PBS 10 scored 32 percent on Level III math and 34 percent on Level IV math. Non-PBS 10 scored 30 percent on Level III math and 29 percent on Level IV math. Therefore, 66 percent of fourth grade students from PBS 10 met or exceeded state math expectations. In comparison, 59 percent of fourth grade students from non-PBS 10 met or exceeded state math expectations.

PBS 11 scored 25 percent on Level III math and 52 percent on Level IV math. Non-PBS 11 scored 30 percent on Level III math and 44 percent on Level IV math. Therefore, 77 percent of fourth grade students from PBS 11 met or exceeded state math expectations. In comparison, 74 percent of fourth grade students from non-PBS 11 met or exceeded state math expectations.

PBS 12 scored 41 percent on Level III math and 41 percent on Level IV math. Non-PBS 12 scored 36 percent on Level III math and 38 percent on Level IV math. Therefore, 82 percent

of fourth grade students from PBS 12 met or exceeded state math expectations. In comparison, 74 percent of fourth grade students from non-PBS 12 met or exceeded state math expectations.

PBS 13 scored 31 percent on Level III math and 36 percent on Level IV math. Non-PBS scored 30 percent on Level III math and 31 percent on Level IV math. Therefore, 67 percent of fourth grade students from PBS 13 met or exceeded state math expectations. In comparison, 61 percent of fourth grade students from non-PBS 13 met or exceeded state math expectations.

PBS 14 scored 27 percent on Level III math and 44 percent on Level IV math. Non-PBS 14 scored 32 percent on Level III math and 36 percent on Level IV math. Therefore, 71 percent of fourth grade students from PBS 14 met or exceeded state math expectations. In comparison, 68 percent of fourth grade students from non-PBS 14 met or exceeded state math expectations.

PBS 15 scored 38 percent on Level III math and 18 percent on Level IV math. Non-PBS 15 scored 26 percent on Level III math and 17 percent on Level IV math. Therefore, 56 percent of fourth grade students from PBS 15 met or exceeded state math expectations. In comparison, 43 percent of fourth grade students from non-PBS 15 met or exceeded state math expectations.

PBS 16 scored 24 percent on Level III math and 66 percent on Level IV math. Non-PBS 16 scored 32 percent on Level III math and 39 percent on Level IV math. Therefore, 90 percent of fourth grade students from PBS 16 met or exceeded state math expectations. In comparison, 71 percent of fourth grade students from non-PBS 16 met or exceeded state math expectations.

Summary of Demographic Statistics

Thirteen PBS school districts out of the 16-paired systems examined scored higher on the reading portion of the ARMT than their matched non-PBS counterpart. Of the three-paired districts where the PBS district did not score higher on the reading portion of the ARMT than

their matched non-PBS counterpart, one pair earned the same score and two had been implementing PBS less than two years ago.

  Twelve PBS school districts out of the 16-paired districts examined scored higher on the math portion of the ARMT than their matched non-PBS counterpart. Of the four-paired systems where the PBS system did not score higher on the math portion of the ARMT than their matched non-PBS counterpart, one pair earned the same score, and three had been implementing PBS less than two years ago.

Table 25

Percentage of Fourth Grade Students that Met or Exceeded ARMT Reading Scores for PBS and Non-PBS Districts

PBS District	Percentage Score	Non-PBS District	Percentage Scores	Difference
1*	84	1	79	+5
2*	87	2	83	+4
3	81	3	82	-1
4*	90	4	89	+1
5*	92	5	85	+7
6*	89	6	86	+3
7*	94	7	91	+3
8	80	8	87	-7
9	59	9	59	0
10*	81	10	76	+5
11*	85	11	84	+1
12*	87	12	86	+1
13*	84	13	75	+9

14*	74	14	73	+1
15*	68	15	65	+3
16*	94	16	81	+13

* PBS school districts that scored higher than their non-PBS matched system on the reading portion of the ARM

Table 26

Percentage of Fourth Grade Students that Met or Exceeded ARMT Math Scores for PBS and Non-PBS Districts

PBS District	Percentage Score	Non-PBS District	Percentage Scores	Difference
1*	80	1	70	+10
2*	81	2	77	+4
3	74	3	75	-1
4*	88	4	84	+4
5*	93	5	83	+10
6	82	6	89	-6
7	87	7	87	0
8*	74	8	72	+2
9	57	9	57	0
10*	66	10	59	+7
11*	77	11	74	+3
12*	82	12	74	+8
13*	67	13	61	+6
14*	71	14	68	+3
15*	56	15	43	+13

| 16* | 90 | 16 | 71 | +19 |

* PBS school districts that scored higher than their non-PBS matched system on the math portion of the ARM

Inferential Statistics

As mentioned in Chapter 3, a one-way analysis of variance (ANOVA) was preformed to determine if there was a statistically significant difference of the reading and math scores on the ARMT between districts that had implemented PBS and those that had not implemented the behavioral framework. An analysis was also conducted to determine if there was a statistically significant difference of reading and math scores on the ARMT between districts that had implemented PBS for one to two years and those that had implemented the behavioral intervention for three to five years. Therefore, the dependent variable for the first and second analysis, or those variables that are observed to change in response to the independent variables, is the ARMT scores. However, the independent variable, or those variables that are deliberately manipulated to invoke a change in the dependent variables, must be different in each analysis. The independent variable in the first and second analyses is whether or not the school system implemented PBS. For the third and fourth analyses, the independent variable is the amount of time districts implemented PBS, which was placed into categories for one to two years, and three to five years.

As discussed in Chapter 3, the 16 districts that implemented Positive Behavior Support were individually paired with comparable districts based on seven indicators. The researcher matched districts based on geographic category (i.e. rural, large urban city, etc.), number of schools, number of students, number of positions that are full-time or part-time positions that equal full-time positions (i.e. two half-time positions equal one full-time position) [Full-time

Equivalent] (FTE), student/teacher ratio, number of English language learners (ELL), and the racial make-up of the total population under 18. The racial categories were white, black, Hispanic or Latino, American Indian or Alaska native, Asian, and Hawaiian or other Pacific Islander. (Retrieved November 7, 2006, from http://nces.ed.gov/ccd/districtsearch/). Therefore, the researcher analyzed data from 16 PBS school districts and 16-paired non-PBS districts.

The first analysis of data placed the 32 districts into a category by PBS and non-PBS, to see if the implementation of PBS affected their reading scores on the ARMT. The second category in this analysis examined reading scores that fell into the passing levels, which were III and IV. As with all the analyses run for this study, this first analysis of data did not violate the assumption of equal variance. The dependent variable was reading test scores or levels of the ARMT, and the independent variable was PBS and non-PBS.

The ANOVA in the first analysis indicated that there was not a statistically significant difference between the reading test scores of the PBS districts and non-PBS districts, $\underline{F}$ (1, 30) = .71, $\underline{p}$ = .41. The partial eta squared was .023.

The second analysis of data placed the 32 districts into a category by PBS and non-PBS to see if the implementation of PBS affected their math scores on the ARMT. The second category in this analysis examined math scores that fell into the passing levels, which were III and IV. The dependent variable was math test scores or levels of the ARMT, and the independent variable was PBS and non-PBS.

The ANOVA in the second analysis indicated that there was not a statistically significant difference between the math test scores of the PBS districts and non-PBS districts, $\underline{F}$ (1, 30) = 1.53, $\underline{p}$ = .23. The partial eta squared was .048.

The third analysis of data placed the 16 PBS and 16 non-PBS districts into a category by year status to see if the amount of time a system implemented PBS affected their reading scores on the ARMT. Eleven systems fell into 1 to 2 year status, while 5 systems had implemented PBS for 3 to 5 years. The second category in this analysis examined reading scores that fell into the passing levels, which were III and IV. The dependent variable was reading test scores or levels of the ARMT, and the independent variable was year status.

The ANOVA in the third analysis indicated that there was not a statistically significant difference between the reading test scores of the number of years districts had implemented PBS, F (1, 14) = 1.69, p = .22. The partial eta squared was .108.

The fourth and final analysis of data placed the 16 PBS and 16 non-PBS districts into a category by year status to see if the amount of time a system implemented PBS affected their math scores on the ARMT. Eleven systems fell into 1 to 2 year status, while 5 systems had implemented PBS for 3 to 5 years. The second category in this analysis examined math scores that fell into the passing levels, which were III and IV. The dependent variable was math test scores or levels of the ARMT, and the independent variable was year status.

The ANOVA in the fourth analysis indicated that there was not a statistically significant difference between the math test scores of the number of years districts had implemented PBS, F (1, 14) = 2.75, p = .12. The partial eta squared was .164.

The above four analyses showed that there was no statistically significant difference between the ARMT scores of school systems that implemented or did not implement PBS, nor those that implemented PBS for one to two years verses three to five years. However, earlier in the chapter results did indicate higher test scores for 13 PBS school systems out 16 on the reading portion of the ARMT, and 12 PBS systems out of 16 on the math portion of the ARMT.

Chapter 4 reported the fourth grade Alabama Reading and Math Test scores for the 32 school districts in this study and relayed the results of four comparison analyses between these systems. The dependent variable examined in the comparison analyses was test scores or levels of the ARMT. The independent variables included implementation of PBS and non-implementation and years implementing PBS.

Chapter 5 will provide an overview of the current study's research findings. It will offer information through the following sections: Restatement of Purpose, Statement of Effectiveness of Intervention, Statement of Importance of Findings, Participant Performance, Discussion of Interplay of Components, Social Importance, Summary of the Success of Study, Statement of Alternatives, Limitations, and Implications for Future Research.

Chapter 5

Discussion

Restatement of Purpose

The study in this dissertation set out to answer two questions. The first was to find if there was a difference in the achievement scores of fourth grade students in the State of Alabama on the 2005-2006 Alabama Reading and Math Test if they attended a school district that fully implemented PBS, versus those fourth grade students who attended a school district that had not fully implemented PBS. Full implementation included any district in which all schools participated in PBS. The second question explored the difference in scores on the ARMT, if any, among school districts that implemented PBS for one to two years versus those that implemented this intervention for three to five years.

Statement of Effectiveness of Intervention

The effectiveness of the intervention, PBS, received a mix result. Though there was a difference in the percentage scores of students who passed or excelled the state standards on the ARMT for districts that implemented PBS verses districts that had not (see next section for detail), there was not a statistically significant difference.

Statement of Importance of Findings

The findings of this study were important because anything that has a potential positive effect on achievement scores is of high value to education administrators. Ever since No Child Left Behind, educators have been working in the high-pressure world of "accountability". With

funding tied to Adequate Yearly Progress (AYP), education administrators want to know if programs and interventions affect academic test scores.

Even though this study did not yield a statistically significant difference in the ARMT scores between districts that implemented PBS and those that did not, there were differences between the scores that lead to practical applications. When training districts in PBS the trainers from the Alabama PBS Center talk with school leaders about academic and behavioral goals for the up-coming year. When these administrators talk about improving ARMT scores, they typically set goals to change the scores by only a few percentage points. Changing ARMT scores is difficult. Improving an ARMT score by a couple of percentage points is an ambitious but realistic goal. Therefore, seeing the differences in test scores between PBS districts and non-PBS districts, observed in Tables 25 and 26, is of great interest to them.

When looking back at Tables 25 and 26 one can see that there are several PBS districts that scored five or more percentage points higher than their non-PBS counterparts. In Table 25, which reports the differences in the reading portion of the ARMT between districts, one can see that PBS 1 scored 5 percentage points higher than non-PBS 1. PBS 5 scored 7 percentage points higher than non-PBS 5. PBS 10 scored 5 percentage points higher than non-PBS 10. PBS 13 scored 9 percentage points higher than non-PBS 13. And PBS 16 scored 13 percentage points higher than non-PBS 16. Greater differences were seen in Table 26, which reports the differences in the math portion of the ARMT between districts. PBS 1 scored 10 percentage points higher than non-PBS 1. PBS 5 also scored 10 percentage points higher than non-PBS 5. PBS 10 scored 7 percentage points higher than non-PBS 10. PBS 12 scored 8 percentage points higher than non-PBS 12. PBS 13 scored 6 percentage points higher than non-PBS 13. PBS 15 scored 13

percentage points higher than non-PBS 15. And PBS 16 scored 19 percentage points higher than non-PBS 16.

When training the Alabama PBS Center trainers use these tables to illustrate the potential positive effects PBS has on academic indicators beyond behavior indicators. The practical implications of using this data in training is that it can lead to school leadership "buy-in" of PBS, which can lead to better fidelity of implantation of PBS.

Connections to Previous Research

The results of the study conducted for this dissertation was similar and different from the research results discussed in Chapter 2. In the Literature Review four studies were examined that had similar research goals. Each study looked at standardized test scores after schools implemented PBS.

Larsen, Steele, and Sailor (2006) conducted a three-year study, which looked at ODRs, suspensions and the standardized reading and math test scores of an inner city urban school pre and post PBS implementation. The study revealed that ODRs and suspensions decreased after the implementation of PBS. While reading test scores did not change, math scores increased from baseline to year three (Larsen, Steele, & Sailor, 2006).

The above study was similar to the current study in that it examined the standardized reading and math test scores of a school that had implemented PBS. However, it was different in that the study was conducted pre and post PBS implementation, and did not compare the school to a matched non-PBS school. The results of the study above reported that reading test scores did not change, but that math scores increased from baseline to year three. The current study showed a positive difference between both reading and math scores for PBS verses non-PBS districts (even though the difference was not statistically significant).

Luiselli et al., (2005) completed a similar study to that of Larsen et al. (2006). They implemented PBS in an urban school and found decreases in ODRs and suspensions. They also found an increase in students' reading and mathematics achievement tests. Reading scores increased 18 percent, while math scores increased 25 percent (Luiselli, Putnam, Handler, & Feinberg, 2005).

Like the Larsen, Steele, and Sailor (2006) study, the above study was similar to the current study in that it examined the standardized reading and math test scores of a school that had implemented PBS. However, it was different in that the study was conducted pre and post PBS implementation, and did not compare the school to a matched non-PBS school. The results of the study above reported that both reading and math scores increased from the baseline data. The current study also showed a positive difference between both reading and math scores for PBS verses non-PBS districts (even though the difference was not statistically significant).

The Horner et al., (2004) study was more like the current study, because both analyzed reading academic achievement scores for schools within a state (for the above study it was Illinois) that implemented PBS versus those schools that had not. The researchers determined a school to be a PBS implementer if they scored 80 percent on the School Evaluation Tool (SET) (Sugai, Lewis-Palmer, Todd, & Horner, 2001) and if 80 percent of their students could state their school-wide expectations. The Horner et al., (2004) study differed from the current study, because it examined scores from the Illinois State Achievement Test Reading Standard for the third grade instead of the fourth grade. However, the results were similar because both studies showed a positive difference between schools that had implemented PBS verses those that had not implemented it (Horner, Sugai, Eber, and Lewandowski, 2004).

The Horner et al., (2005) study was also similar to the current study in that they both compared PBS schools against non-PBS schools. The Horner et al., (2005) study executed a district-wide study of 19 elementary schools. Of these schools, 13 implemented school-wide PBS between the 1997-1998 and 2001-2002 school years. The researchers compared 1997-1998 and 2001-2002 state reading tests for third graders in all 19 schools. Ten of the PBS schools, or 77 percent, showed an improvement in reading test scores from 1997-1998 to 2001-2002. The improvements were from 2 to 15 percent. Only one of the non-PBS schools, or 16 percent, showed improvement in their reading test scores over the same period of time.

Participant Performance

Thirteen of 16 PBS school systems scored higher on the reading portion of the ARMT than their matched non-PBS counterpart. Of the three paired systems where the PBS system did not score higher, one pair earned the same score and two had implemented PBS less than two years.

Twelve of 16 PBS school systems scored higher on the math portion of the ARMT than their matched non-PBS counterpart. Of the four paired systems where the PBS system did not score higher, one pair earned the same score and three had implemented PBS less than two years.

Discussion of Interplay of Components

The State of Alabama employs a statewide reading program called the Alabama Reading Initiative (ARI). ARI is a K-12 initiative implemented by the Alabama Department of Education. Even though reading scores maybe affected by this program, every school, regardless of PBS status, participates in ARI. Therefore, all schools have an equal likelihood of increased test scores, and should not interfere with the current study.

Social Importance

The social importance of this study is the "so what" aspect of the dissertation. The question to be asked is – what is the point of conducting this study at all? The answer is that PBS has the potential to change the lives of students for the better. Chapter 1 discussed how exclusionary discipline, such as, ODRs, suspensions and expulsions can lead to poor academic and social outcomes for students. Lower grades, dropouts, lower wages and even incarceration have been tied to some forms of exclusionary discipline. As discussed earlier in this chapter, educational leaders are more likely to implement a new program if it affects achievement test scores. Therefore, providing a study that can link PBS to academic achievement makes it easier for PBS advocates to promote PBS for school implementation.

Summary of the Success of Study

The study was successful because the results supported previously conducted research. As discussed earlier in this chapter, like similar studies, there was a difference in the reading and math scores of the PBS districts verses their non-PBS counterparts, (even though it was not a statically significant difference). In addition, the fact that there was not a difference between districts that had implemented PBS for one to two years verses districts that had implemented PBS for three to five years supports the National Center for PBIS' claim that it takes between five to ten years to see the maximum results of PBS.

Statement of Alternatives

An alternative variable, which might improve this study, would be to examine trend data for the 32 districts analyzed. At the time data was gathered for this dissertation, the 2005-2006 ARMT scores were the latest data available. As of the writing of this Chapter, data is available

for the 2009-2010 school year. The ARMT was created in the 2003-2004 school year for the fourth grade. Therefore, at this time six years of trend data is available.

Limitations

Even though PBS districts faired better on the ARMT than their non-PBS counterparts, the data did not yield a statistically significant difference under an analysis of variance (ANOVA). This could be due to the low number of school districts studied. There are 131 districts in the state of Alabama. However, as of the 2005-2006 school year, only 16 districts in the State of Alabama had fully implemented PBS with fidelity. To yield more accurate results, more districts need to implement PBS.

Another limitation of this study is that the data available was aggregate data. Specifically, ARMT scores are presented as percentage scores at the district level. Results may a have been statistically significant if the raw data, at the school level were available for analysis.

Implications for Future Research

Experts, trainers, and developers of PBS seem to be saying that further research needs to occur to explore the effects of PBS on academic achievement. It can be seen in the literature (Putnam et al, 2006.) and heard in the sessions and conversations of major PBS conferences. Even one of the leading experts and researchers of PBS, and the co-founder of the OSEP Center for Positive Behavioral Interventions and Supports, George Sugai, spoke of this need in Boston at the 2006 International Conference of the Association of Positive Behavior Support. At the end of a session he spoke directly to the graduate students in the audience. He encouraged them to conduct their theses and dissertations on three aspects of PBS. One of which was the effect of PBS on academic achievement.

Putnam et al. (2006) discussed several needs in the area of PBS research. Putnam et al. first pointed out that most of the studies conducted were a pre-post comparison, with few, if any, experimental controls for outside factors. Therefore, the authors suggested that studies should be conducted with more rigorous controls. Secondly, PBS research historically focused on the behavioral impact of PBS. However, now that researchers have recently begun exploring the potential effects of PBS and academics, further study should be conducted. In addition, the authors suggested that the studies that indicated a link between PBS and academic achievement should be replicated. Third, the authors suggested isolating aspects of PBS to discover which mechanisms had the greatest impact on academic improvement. For example, the following factors lead to greater academic achievement: increased instruction time, prompting and feedback for academic skill performance and less peer support for academic failure. The authors believed a greater analysis of the factors above, and other PBS aspects, would aid in creating stronger supports for academics. Fourth, research should be conducted to see if certain schools benefit more academically from PBS. Researchers should examine what characteristics make model PBS performer schools different from those that show lesser effects. Lastly, studies should be replicated when they find behavioral indicators that predicted academic problems. Early PBS interventions are the key to lessening or preventing behavioral and academic problems as students get older (Putnam et al., 2006).

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Appendix A

PBS Overview

As stated in Chapter 1, the Office of Special Education Programs (OSEP), a division of

the United States Department of Education, created the OSEP Center on Positive Behavioral

Interventions and Supports (PBIS), to guide educators in selecting scientifically-based behavioral

interventions. However, before discussing the Center on PBIS and Positive Behavior Support

(PBS) itself, this author will briefly discuss what OSEP is and what laws it is charged with

enforcing.

OSEP, housed under the United States Department of Education, has a primary

responsibility for addressing all national issues of special education. Among many other duties,

this department serves two major functions. First, OSEP promotes scientifically based practices

in special education. Second, it allocates congressionally appropriated funds intended to provide

for the implementation of special educational laws, such as the Reauthorization of the

Individuals with Disabilities in Education Act of 2007 (IDEA), and court mandates. No Child

Left Behind (NCLB) is another major law OSEP addresses on a national scale. While NCLB is

not a special education law per say, it does have a major impact on special education.

IDEA and NCLB deal with many different aspects of education. However, in general,

IDEA mandates accessibility to special education services, and NCLB calls for accountability of

services provided to all students. Inappropriate behavior linked with a disability can greatly

affect both accessibility and accountability. Specifically, Congress discusses the use of Positive

Behavior Supports (PBS) in the Reauthorization of IDEA in 2007. IDEA requires:

- The [Individualized Education Plans] IEP team to consider the use of Positive Behavioral Interventions and Supports for any student whose behavior impedes his or her learning or the learning of others (20 U.S.C. §1414(d)(3)(B)(i)).

- A functional behavioral assessment when a child who does not have a behavior intervention plan is removed from their current placement for more than 10 school days (e.g. suspension) for behavior that turns out to be a manifestation of the child's disability (20 U.S.C. §1415(k)(1)(F)(i)).

- A functional behavioral assessment, when appropriate, to address any behavior that results in a long-term removal (20 U.S.C. §1415(k)(1)(D)) (Retrieved April 27, 2010, from http://www.pbis.org/school/pbis_and_the_law/default.aspx).

Congress also recognized the need to fund PBS. IDEA authorizes states to use professional development funds to "provide training in methods of . . . positive behavioral interventions and supports to improve student behavior in the classroom" (20 U.S.C. §1454(a)(3)(B)(iii)(I)). Congress allocated grant funds to be used to:

- Ensure that pre-service and in-service training, to general as well as special educators, include positive behavior interventions and supports (20 U.S.C. §1464 (a)(6)(D) & (f)(2)(A)(iv)(I)).

- Develop and disseminate PBS models for addressing conduct that impedes learning (20 U.S.C. §1464(b)(2)(H)).

- Provide training and joint training to the entire spectrum of school personnel in the use of whole school positive behavioral interventions and supports (20 U.S.C. §1483(1)(C & D)) (Retrieved April 27, 2010, from http://www.pbis.org/school/pbis_and_the_law/default.aspx).

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To serve the behavioral needs of states, OSEP funds the Center on Positive Behavioral Interventions and Supports (PBIS). The PBIS Center is a national organization leading the way in both PBS research and state implementation training. This center provides technical assistance (TA) to other national, regional, and state TA centers, State Departments of Special Education, school districts, and local education agencies (LEA) in the area of PBS. PBS has such a strong national reputation that in September of 2007, Barack Obama, then a US Senator, introduced the Positive Behavior for Effective Schools Act in the US Senate, which specifically names Positive Behavior Support. More recently, in May of 2009 U.S. Representative Phil Hare (D-IL), a member of the Illinois PBIS Network Statewide Leadership Team, re-introduced the Act (Retrieved April 8, 2010, from www.pbisillinois.org/legislative.htm).

The PBIS Center has provided assistance to over 8,000 schools in more than 45 states (Simonsen et al., 2011; Spaulding, Horner, May, & Vincent, 2008; Sugai et al, 2007), with every school forming its own PBS team. The Center, Sugai et al. (2005), explained that School-wide Positive Behavior Support (SWPBS) systematically promotes positive social and learning goals, while decreasing undesirable behaviors. The Center, Sugai et al. (2010), further defined PBS as " a framework or approach comprised of intervention practices and organizational systems for establishing the social culture, learning and teaching environment, and individual behavior supports needed to achieve academic and social success for all students" (p.12). PBS is not a specific, one-size-fits-all model. Rather, it includes a collection of strategies, used mostly in school settings, which were developed over decades of empirical research and practical application (Alabama State Department of Special Education, 2004; Irvin, Tobin, Sprague, Sugai & Vincent, 2004; Lewis & Sugai, 1999; Metzler, Biglan, Rusby, & Sprague, 2001; Scott, 2001; Sugai et al., 2005; Sugai et al., 2010; Taylor-Greene et al., 1997). This "empirical evidence

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indicates that SWPBS creates an effective school context in which proactive behavioral practices can be successfully implemented to achieve desired student and staff outcomes" (Simonsen et al., 2011, p. 31) (Bradshaw, Reinke, Brown, Bevans, & Leaf, 2008; Horner et al., 2009).

PBS Theory

Research indicates that punitive and exclusionary discipline does not deter future problematic behavior and is associated with many negative outcomes (Achilles, Mclaughlin, & Croninger, 2007; American Psychological Association Zero Tolerance Task Force, 2008; Arcia, 2006; Christle, Jolivette, & Nelson, 2005; The Civil Rights Project/Advancement Project, 2000; Raffaele Mendez, 2003). "An alternative approach is to arrange learning environments so that students are directly taught, given frequent opportunities to practice, and receive regular and contingent acknowledgments of prosocial skills" (Sugai, & Horner, 2006, p. 2). In other words, instead of waiting for students to stumble upon school expectations and using punishment when a known or unknown rule is broken, educators should be clear from the first day of school what is expected by teaching and practicing appropriate behaviors. When those behaviors are displayed, teachers should positively reinforce those behaviors with the expectation that they will see them again.

To accomplish this alternative approach Sugai and Horner (2006) suggested the implementation of school-wide positive behavior support (SWPBS) to establish educational environments that address problem behavior in a positive and preventative way. "SWPBS is firmly rooted in an applied behavior analytic tradition and in a solid body of research in which the focus is on the behavior of the individual and the contexts or environments in which the individual's behaviors are observed" (p. 2). (Sugai & Horner, 2006).

The focus of this dissertation is not on applied behavior analysis (ABA) but rather on PBS itself. However, for clarity this author will provide a brief explaination of ABA as given by Ringdahl, Kopelman and Falcomata (2009). These authors wrote:

Applied behavior analysis (ABA) as a science was established in the early second half of the twentieth century as an approach to the evaluation and selection of change of human behavior based on the operant conditioning principles most famously championed by B. F. Skinner. Operant conditioning can be defined as the process through which the environment and behavior interact to shape the behavioral repertoire of an organism or individual (Skinner, 1953). (p. 15)

Therefore, to make the connection between ABA and PBS, the later promotes altering the school environment, mainly by changing adult behavior, to effect change in student behavior.

In addition to teaching appropriate expectations and positively reinforcing them, PBS also emphasizes the collection and use of data in all behavioral and academic decision-making and the use of a multi-tiered approach to behavioral support (Sugai & Horner, 2006). Both data collection and the multi-tiered approach will be covered in more detail later in this appendix.

Four Elements of PBS

The Implementation Blueprint and Self-Assessment has been called the bible of PBS. Sugai et al. (2010) explained the four elements of PBS to help educators and behavioral experts better understand the foundation of PBS. These four elements, seen in Figure 1, that make up PBS include operationally defined and valued outcomes, behavioral and biomedical science, research-validated practices and systems change. PBS researchers use each element when designing interventions and systems.

Figure 1. The four elements of Positive Behavior Support.
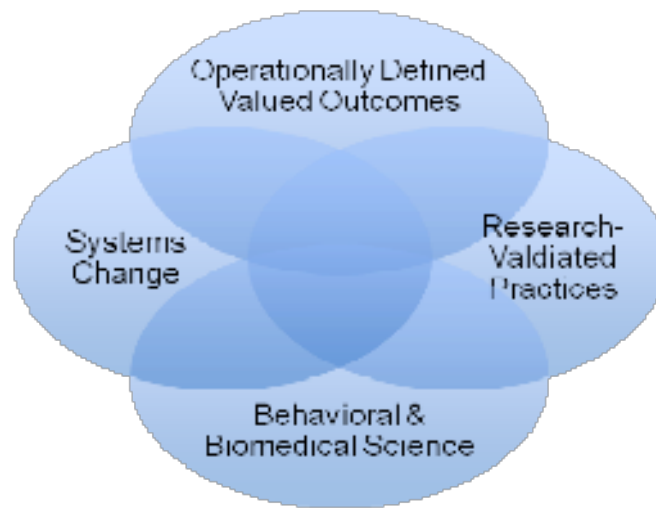
The first PBS element, operationally defined and valued outcomes, gives educators, students and parents clear expectations to enable them to form appropriate, goal-driven behaviors. These specific academic and behavioral expectations link with individual student goals, with school improvement objectives and with both local and state initiatives. Schools then collect and use goal-driven data to evaluate and change their PBS system when needed (Cohen, Kincaid, & Childs, 2007; Horner et al., 2004; Irvin et al., 2006; Irvin et al., 2004; Safran, 2006). In other words, the behaviors that schools choose to teach their students have clear and acknowledged outcomes in mind. For example, a high school's PBS team may choose to reduce tardies between classes, because they have a high number of office referrals associated with this problem. With that goal in mind they should take the students out into the hall during the first week of school to practice using their locker combinations. Signs should be posted about the behavioral expectations in the halls. One good expectation to include is "move with a purpose." Teachers should be out in the halls between classes to model appropriate behavior and discourage behavior that would keep students from being on time (i.e. standing around talking

with peers, horse play, etc.). Once implemented, school administers along with the PBS team should examine their data on tardies to see is their intervention is effective. Data should be shared with the entire faculty and staff. If it is working, plans should be made to continue. If it is not working, plans should be made to modify the intervention.

The second PBS element addresses research in the fields of behavioral and biomedical science. From this research, the designers of PBS systems learned the following major relevant factors of behavior (see Figure 2):

1. Humans learn behaviors. Therefore, behaviors can be taught and reshaped (Lane et al., 2003; Lee Chang-Hun, 1010; Sailor & Paul, 2004). This is clearly a very simplistic statement. The point the authors are making here is that children are not intrinsically "bad". People learn behaviors from their environment that assist them in getting what they want or to get them out of situations they do not like. The idea is to inform educators that behavior is not as mysterious as they might think. It pulls behavior into a light in which educators are experts. If they think of teaching behavior the way they would math or reading, it might not seem so overwhelming.

2. Behavior follows laws, which makes it predictable. Therefore, it can be anticipated with reasonable accuracy (Chandler & Dahlquist, 2002; McLaren & Nelson, 2009; Scott & Caron, 2006). Again, this is a simple statement. The authors want educators to know that they have the ability to anticipate the behaviors of their students if they recognize the patterns. For example, if they have observed a student balling up their paper and throwing it to the ground whenever they receive a math worksheet, they can anticipate that this behavior will continue unless a different action is taken (i.e. student receive one-on-one instruction when a math assignment is given).

3. The biophysical characteristics of an individual influence how that person reacts to environmental events. (Carr et al. 2002; Chandler & Dahlquist, 2002; Turnbull, Stowe, & Huerta, 2007). Someone with Attention Deficit Hyperactivity Disorder (ADHD) will most likely react differently to a stimulus than someone

without this disorder. Therefore, creating an appropriate classroom environment, or working with a student to cope with environments they cannot change would constitute an appropriate accommodation and service intervention.

4. Understandably then, school environmental variables play a vast role in supporting all students, especially those with mental health issues (Carter & Horner, 2009; McLaren & Nelson, 2009; Turnbull et al., 2007). The key to this statement is drilling down to understand how the environment affects students. For example, a common behavioral technique that teachers use is to move the "class clown" to the front of the room to be closer. The idea is that the teacher will be able to keep an eye on that student to correct undesirable behavior. The problem with this intervention is that is does not take into account the motivation for the disruptive behavior. If the student is using his behavior to gain attention from his classmates, then moving him from the back to the front gives him the entire class as an audience. However, if a student is misbehaving because she is easily distracted, then sitting her in the back of the class gives her an entire room of classmates to draw her attention away from the task at hand. Again the key is to know the student's motivation.

5. Therefore, evaluating and shaping environments can affect behavioral reactions (Carr & Sailor, 1994; Sailor et al., 2007). The use of data is important here. School administrators should break-up their office referral data by area. In other words, they

should look to see if there are certain physical locations where more behavioral incidents occur. If so, the PBS team should gather information to see what might be done to make a positive change. For example, if a school faces a park and the data show that there are more office referrals from the classrooms that face that park, the teachers in those classrooms might want to try covering the windows. After a predestinated time period the data should be examined again to see if the intervention had a positive effect.

6. Gathering and using behavioral data for decision making is crucial to continuous improvement in the PBS interventions, programs and systems abilities (Chandler & Dahlquist, 2002; Hirsch, Lewis-Palmer, Sugai, & Schnacker, 2004; Winkel, Saegert, & Evans, 2009). Based on the examples already given, this statement goes without saying. However, in the example above the situation called for analysis of area office referrals, but many schools choose to go farther. They look at referrals by grade, time of the day, day of the week, month, year, type of behavior, individual student, individual teacher and so on. Decisions and changes to an intervention should be made with the information provided by the data gathered.

Figure 2. Behavioral and Biomedical Sciences.
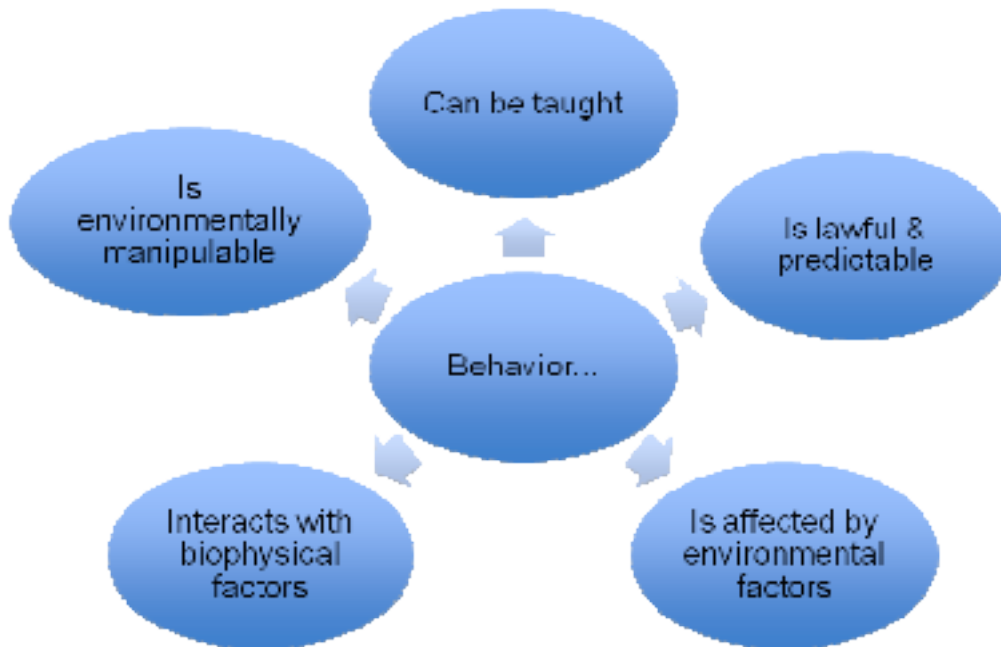
The third PBS element, research-validated practices, further emphasizes the importance of attention towards research. Researchers use data from different PBS implementation practices to see which should be promoted, adapted, and discontinued. At this point a significant amount of practical application has occurred to be able to examine and evaluate what does and does not work in different circumstances (Cohen et al., 2007; Horner et al., 2004; Irvin et al., 2006; Irvin, et al., 2004; Safran, 2006). As in any field, state implementers of PBS are expected to stay abreast with current research by reading professional journals and information disseminated by the National Center of PBIS, attending professional conferences and interacting with their assigned PBIS Center Resource Agent to discuss current practices within their state.

The fourth, and final, PBS element deals with systems change. Successful large-scale implementation of PBS creates major change within the classroom, school, school district and at the state level. Additionally, PBS allows administrators and internal personnel to shape their behavioral interventions to address their specific needs; this reduces the amount of professional

resistance that can occur. After all, the PBS system in an inter-city high school of 3,000 students will look different than the system working at a rural elementary school of 300 students (Edmonson & Sailor, 2000; Larsen et al., 2006; Lawson & Sailor, 2000; Sugai et al., 2010; Sailoret al., 2007; Utley & Sailor, 2002). This is not to say that school administrators have a menu of interventions to choose from, in which everyone will work. Just as with academics, behavioral interventions are chosen by an expert to fit individual school environments and students. For example, math instruction looks different at an elementary than a high school. Each school has a PBS team, which will be discussed later. Each school district has a designated person to oversee the implementation of PBS in their schools. Each district is assigned a PBS contact from the state. These individuals are experts in their field. Once the PBS basics are in place, which again include teaching appropriate expectations, positive reinforcing those expectations, collecting and using data in all behavioral and academic decision-making and using of a multi-tiered approach to behavioral support, then the state's expert provides training and guidance to help the schools decide which interventions will work for their set of needs.

Four Philosophical Ideals of PBS

The Center on PBIS, Sugai et al. (2005), stated that there are four philosophical ideals that influence the formation of PBS implementation practices. These include the Three-tiered Approach to Prevention or continuum of support, Instructional Emphasis, Functional Perspective, and Sustainability Priority (Sugai et al., 2005).

Three-tiered approach to prevention.

"The triangle" stands as the most recognizable figure associated with Positive Behavior Support. Figure 3, provided by the Alabama Positive Behavior Support Center, represents the connection and similarity that bind behavioral and academic issues (Retrieved April 10, 2010,

from http://www.alabamapbs.aum.edu). A comprehensive amount of research contributed to the formation of this three-tiered approach (Lewis & Sugai, 1999; Sugai et al., 2000; Walker et al., 1996). Each tier represents a level of services available to students as the need arises. Educators should understand that a single child typically does not fall within one tier, but more likely will need a range of services. At the 2010 Association of Positive Behavior Support International Conference, George Sugai and Rob Horner, the Co-Founders and Directors of the PBIS Center, expanded the continuum of services using the example needs of one child. That child may only need Tier One supports with their peer interactions, reading, basketball and history. The student may need Tier Two supports in Spanish and adult interaction. Whereas that same child may need Tier Three supports with anger management and math (Sugai, 2010; Horner & Goodman, 2010).

Figure 3. The Three-tiered approach to prevention.

1-5% Intensive, Individual Interventions
• Individual students
• Assessment-based
• High Intensity

5-10% Targeted Group Interventions
• Some students (at-risk)
• High efficiency
• Rapid response

80-90% Universal Interventions
• All students
• Preventive, proactive

Academic Systems

1-5% Intensive, Individual Interventions
• Individual students
• Assessment-based
• Intense, durable procedures

5-10% Targeted Group Interventions
• Some students (at-risk)
• High efficiency
• Rapid response

80-90% Universal Interventions
• All settings, all students
• Preventive, proactive

Behavioral Systems

Tier One, or the Primary Tier, focuses on universal interventions. This first level of services focuses on the prevention of problem behaviors for all students. Schools focus on prevention by creating an environment that promotes desirable behavior, teaching social skills,

rewarding positive behavior and responding to undesirable behavior (Horner, 2007; Simonsen et al., 2011). At this first level of support students learn about their school's behavioral expectations, the reward system for appropriate behavior and the continuum of consequences for problem behavior. Also at this first level, educators collect and use data for decision-making (Retrieved April 10, 2010, from http://www.pbis.org/research/default.aspx). As seen in Figure 3, 80 to 90 percent of students respond to this first level of prevention.

Tier Two, or the Secondary Tier, focuses on targeted group interventions (Horner, 2007; Simonsen et al., 2011). At this second level of services school personnel reduce existing problem behaviors with immediate and effective responses. Tier Two components include universal screening, collecting and using data for decision-making and progress monitoring for at risk students. This second level of interventions serves to increase structure and predictability by increasing contingent adult feedback, linking academic and behavioral performance and increasing home/school communication (Retrieved April 10, 2010, from http://www.pbis.org/research/default.aspx).

One commonly used Tier Two intervention is check-in/checkout (CICO) (Simonsen et al., 2011). Todd, Campbell, Meyer, and Horner (2008) wrote that with CICO the student typically checks-in with a school faculty or staff member in the morning. The faculty or staff member would be someone the student likes and trusts. The faculty or staff member and student would then discuss personal goals for the day. Then, as the student goes through his day, he would receive written feedback from each of his teachers. At the end of the day, the student would checks-out with his designated person by looking over and discussing the feedback he received that day. The benefits of this program are that:

…it can provide (a) structure and prompts that students need through the day, (b) adult written feedback through the day, (c) visual reminders of personal goals for the day, (d) data collection, and (e) communication between adults at school and home (Todd, Campbell, Meyer, & Horner, 2008, p. 47).

Single-subject experiments revealed decreases the in the frequency of problem behaviors with students who participated in CICO (Fairbanks et al., 2007; Hawken, 2006; Hawken, MacLeod, & Rawlings, 2007; Todd et al., 2008), especially students whose behavior functioned to gain positive attention (McIntosh, Campbell, Carter, & Dickey, 2009).

 Figure 3 shows that five to ten percent of students redirect with Tier Two preventions.

Tier Three, or the Tertiary Tier, focuses on individualized wraparound interventions that integrate school, family and community resources (Simonsen et al., 2011) for one to five percent of students. Tier Three interventions focus on individual students. Their behavior many be intense, such as acts of violence or aggression towards other students or teachers, (Chen & Astor, 2009; Jones et al., 2009; Henry, 2009), or frequent. The PBIS Center developed a list of Tier Three components, which include:

1. Functional Behavioral Assessments

2. Team based comprehensive assessments

3. Linking of academic and behavior supports, individualized intervention based on assessment information focusing on (a) prevention of problem contexts, (b) instruction on functionally equivalent skills, and instruction on desired performance skills, (c) strategies for placing problem behavior on extinction, (d) strategies for enhancing contingence reward of desired behavior, and (e) use of negative or safety consequences if needed

4. Collection and use of data for decision-making (Retrieved April 10, 2010, from

http://www.pbis.org/research/default.aspx).

Of the above four Tier Three components, Functional Behavioral Assessments, team based

comprehensive assessments and the collection and use of data for decision-making need further

explanation.

Before defining a Functional Behavioral Assessment, this author will examine the need to

functionally assess behaviors. B. F. Skinner (1938) wrote:

> Once in possession of a set of terms we may proceed to a kind of description of behavior
>
> by giving a running account of a sample of behaviors as it unfolds itself in some frame of
>
> reference. This is a typical method in natural history…It may be classified as a
>
> narration…From data obtained in this way it is possible to classify different kinds of
>
> behavior and to determine relative frequencies of occurrence. But although this is,
>
> properly speaking, a description of behavior, it is not a science in the accepted sense. We
>
> need to go beyond mere observation to a study of functional relationships. We need to
>
> establish laws by virtue of which we may predict behavior, and we may do this only by
>
> finding variables of which behavior is a function. (p. 8)

From Skinner's quote we learn that it is inadequate to simply describe and classify a behavior.

To effect positive and significant change, one must understand the functional relationship

between the environment and behavior.

Steege and Watson (2009) defined a Functional Behavioral Assessment (FBA) as:

> …an investigative process that results in an understanding of why behaviors occur. More
>
> formally, FBA is a set of assessment procedures that results in the identification and
>
> description of the relationships between the unique characteristics of the individual and

the contextual variables that trigger, motivate, and reinforce behavior. The FBA is used

as the basis for designing individually tailored interventions. (p. 7)

The above definition states that conducting a FBA is an investigative process. Therefore, school personnel would not be expected to conduct a FBA without proper training and guidance. With that understood, FBAs are simply a collection of data on an individual student's behavior that may include when the behavior occurred, where it occurred, duration of behavior, what precipitated the behavior, the staff's response, the student's response to the staff's response and so on. The decision of when to conduct an FBA, based on the severity or frequency of a behavior, is up to the team in charge of FBAs. This team may be the PBS Team, the Problem Solving Team, etc. The team should have some sort of criteria in place to trigger an FBA, like a certain number of incidents of the same behavior or a behavior that they have put in category they deem to be more severe. The actual person doing an FBA would be someone involved in the behavior, such as a classroom teacher, or someone sent in to observe the behavior, like a school counselor (Steege and Watson, 2009) (see Appendix B for a sample FBA tool, entitled Behavior and Observation Key).

Team based comprehensive assessments and the collection and use of data for decision-making refers to the evaluation of a student using multiple sources of relevant information (Steege and Watson, 2009). Lane, Kalberg, Parks, and Carter (2008) stated that the team, as in the case of a PBS team, is made up members that the principal has put together. These usually include the principal, assistant principal in charge of disciple, a counselor, a general education teacher, a special education teacher and a staff member. The team decides what data is relevant. For example, depending on the issue, the team may choose to look at a student's grades, IQ scores, an observation log of a certain behavior, medical records, results of certain tests

conducted, an interview of the student, teacher or parent, etc. They use the information to get a clear picture of the needs of the student (Lane, Kalberg, Parks, & Carter, 2008).

Some educators may feel overwhelmed with all that is involved in providing services at Tier Two and Three. However, 50 percent of a school's office discipline referrals are created because of six to nine percent of the same students (Barrett, Katsiyannis, & Zhang, 2009; Sprague, Golly, Bernstein, Munrkes, & March, 1999; Sugai et al, 2000). Therefore, providing services to these students not only benefits the student, but also reduces the amount of time teachers and administrators spend on disciplinary actions.

Generally, the preventive approach of the three-tiered model above requires specific actions to be effective. Schools must remove and add certain practices, change their environment and teach social skills.

Schools must remove factors, such as certain teacher behaviors, that provoke problem behaviors and undesirable intervention practices. An example is a teacher who sits at her desk, while students work on an assignment, and only pays attention to those misbehaving. Though difficult to believe, some children prefer negative attention, as opposed to no attention at all (Hendley, 2007).

Subsequently, schools must add factors, again such as certain teacher behaviors, that provoke appropriate behaviors and desirable intervention practices (Glasser, 1998; Sutherland, Lewis-Palmer, Stichter, & Morgan, 2008). In a similar example, a teacher walks among rows and verbally praises students who are on-task. This example demonstrates a practice, which encourages the continuation of a desired behavior - being on-task, with the positive reinforcer of verbal praise.

Removing consequences that maintain and strengthen the frequency of inappropriate behaviors and undesirable intervention practices can be difficult. Many teachers fall into the trap of a verbal back-and-forth with a student after a disruptive behavior, which continues to disrupt the class. A better solution, if possible, is to address the student after class when he has no audience (Hendley, 2007; Kerr & Nelson, 2002).

Adding positive consequences that maintain and strengthen the frequency of appropriate behaviors and desirable intervention practices is ideal. If a student is helpful to a classmate without being asked, public verbal praise and extra computer time increase the likelihood she, and others, will demonstrate similar behaviors (Hendley, 2007; Kerr & Nelson; Sailor & Roger, 2005; Utley & Sailor, 2002).

Positive Behavior Support clearly promotes positive interactions between school personnel and students. However, that does not mean that there are no consequences when an inappropriate behavior occurs. Hendley (2007) cautions that educators must set consequences. She stated that in addition to clearly understanding what behaviors are expected of them, students must also be completely aware of the consequences when an infraction does occur. Unfortunately, the inappropriate use of consequences can result in negative outcomes. Consequences must be consistent. Students should not earn a timeout for talking out of turn, and the next month receive an office discipline referral for the same infraction. Consequences should also promote emotional safety (Glasser, 1998). Teachers should avoid the use sarcasm or humiliation tactics when imposing consequences (Hendley, 2007).

The ideal PBS school strives to create an environment that maximizes opportunities to teach and practice appropriate behaviors and desirable intervention practices. An example of this is clear displays of expected behaviors throughout the school, such as written rules. Another

example is the system some call "Caught You Being Good." In this system school personnel give rewards randomly when they see a student demonstrating a desirable behavior (Hendley, 2007; Sailor et al., 2007).

Teaching social skills and behavioral expectations that lead to wanted behaviors is also a preventive approach. Just as educators teach academic skills, such as the ability to read and write, they must also teach students appropriate behavioral skills, such as social skills. If children misbehave they are sometimes seen as "bad", instead of lacking a skill that must be taught. For that reason, educators must reexamine their notions about behaviors, and then teach what they want to see from their students (Dunlap et al., 2010; Knoff, 2001).

Instructional emphasis.

The second philosophical ideal that influences the formation of PBS implementation practices is Instructional Emphasis, which is teaching social skills and functional replacement behaviors; this practice will reduce problematic behaviors (Dunlap et al., 2010; Kame'enui & Darch, 2004; Kerr & Nelson, 2002; Knoff, 2001). Part of this Instructional Emphasis relies on schools defining, teaching and encouraging behavioral expectations. At-risk students are targeted for active, often pre-defined curricula of core skills, whereas, high-risk students receive specific individualized social skill instruction based on their functional behavioral assessment.

Functional perspective.

The third philosophical ideal that influences the formation of PBS implementation practices is Functional Perspective (Dunlap et al., 2010; Ruble & Akshoomoff, 2010). Sugai and Horner (n.d) warned that while function-based behavior support planning may seem simple, the intensity and complexity of a student's behavior may call for intricate planning on the part of

experts who truly know the child and want to serve their best interest. Examples of these behaviors, taken directly from the National PBIS Center's website, include:

1. Behaviors that are low frequency but high intensity (e.g., vandalism, fighting, running away).

2. Behaviors that have multiple functions (e.g. profanity is used in one situation for accessing attention and in another situation to avoid attention).

3. Large and multiple response classes of problem behaviors (e.g. profanity, hitting, stealing, crying, and biting hand are used to access peer attention).

4. Behaviors that are "covert" and difficult to observe (e.g. drug/tobacco use, stealing, cheating, lying).

5. Behaviors that are situation-specific (e.g. profanity is observed when a particular teacher corrects the student, but not with other teachers, or in other situations).

6. Behaviors that have a long history (e.g. early antisocial behaviors) (Sugai & Horner (n.d)., Retrieved June 17, 2007, from http://www.pbis.org/news/v1i1/PBISNEWSLETTER.htm/).

Figure 4. Individualized behavior support elements.
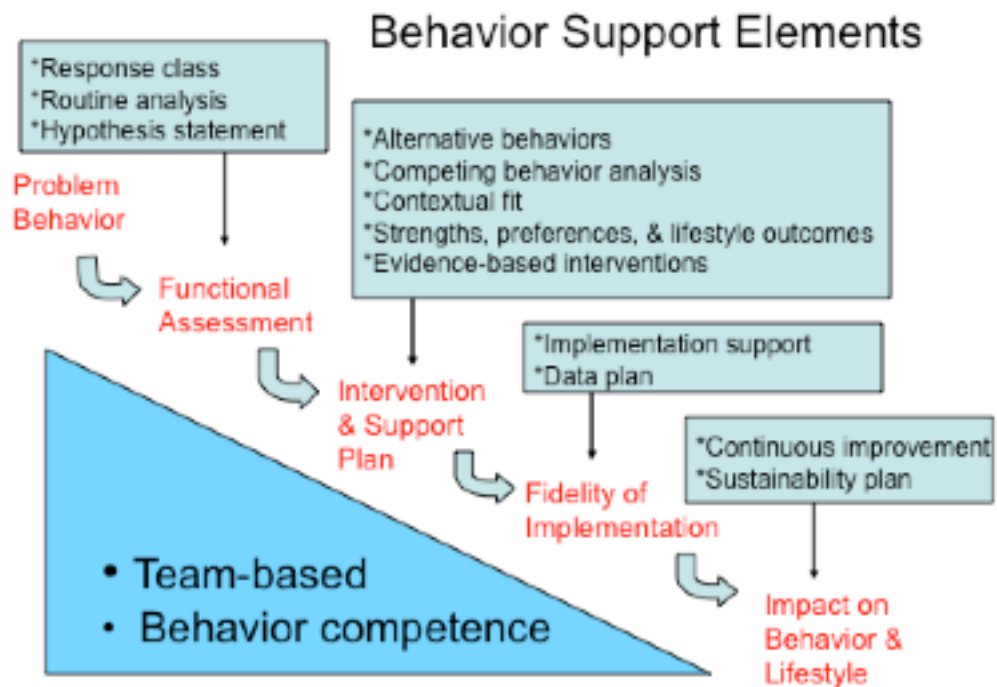
The Functional Perspective approach uses positive and negative reinforcers to promote changes in both behavior and individual student behavioral intervention plans. Crone and Horner (2003) discussed the principles behind positive and negative reinforcers (see Figure 3). Positive reinforcers increase the likelihood of a certain behavior by adding a stimulus (Chiu, & Deldin, 2007; Deiana, et al., 2007; Hayward & Low, 2007). Walker, Shea, and Bauer (2007) define positive reinforcement as the "presentation of a desirable reinforcer after the behavior has been exhibited." It is the "process of reinforcing a target behavior in order to increase the probability that the behavior will recur" (p. 342). An example is the token system. A child demonstrates a desirable behavior and he receives some type of token that can be exchanged for something the child wants. Negative reinforcers increase the likelihood of a certain behavior by subtracting a stimulus (Fisher et al., 2005; Kobayashi, et al., 2006; Sitaraman, Zars, & Zars, 2007). Walker et al. (2007) defined negative reinforcement as "the strengthening of a behavior as a consequence of the removal of an already operating aversive stimulus" (p. 342). An example would be

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decreasing the number of math problems in a homework assignment for staying on-task through the math lesson.

Figure 5. Positive and negative reinforces.
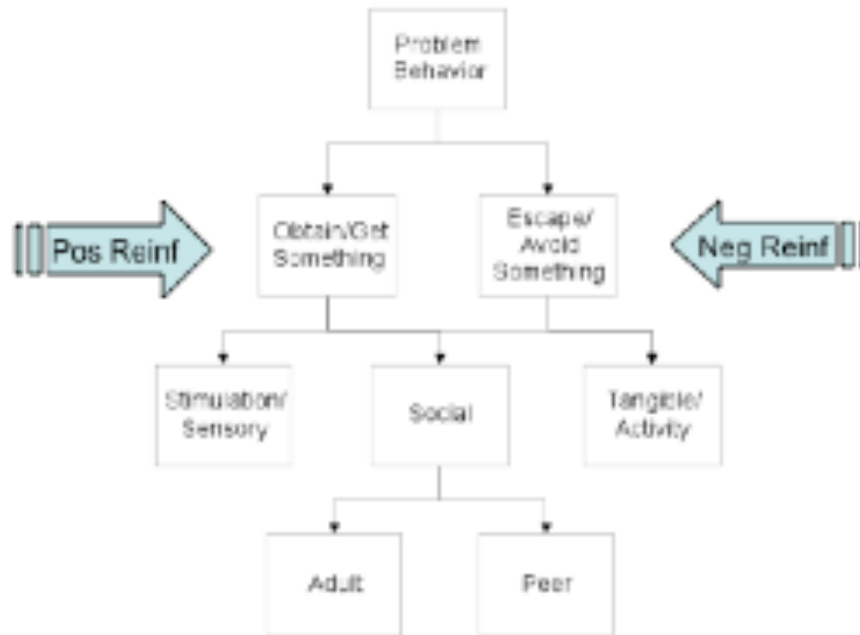
Sustainability priority.

The fourth and final philosophical ideal that influences the formation of PBS implementation practices is Sustainability Priority (McIntosh, Filter, Bennett, Ryan, & Sugai, 2010; Stormont, Reinke, & Herman, 2010; Sugai et al., 2000). The Sustainability Priority emphasizes small change, multiple approaches, and use of data.

Sustainability of any new intervention greatly increases when a school enacts the smallest amount of change possible to still obtain maximum effects. As some people are resistant to change, this will most likely lead to cooperation in implementation (Sugai et al., 2007).

Sustainability also increases when multiple approaches are considered to solving a specific problem. Taylor (2003) discussed the need to examine certain factors when considering

different interventions to solve a problem like maladaptive behaviors. School administrators should (a) conduct a formal assessment to ensure a new intervention will not overlap or interfere with current initiatives, (b) gain evidence that an intervention is relevant and effective, (c) insure that an intervention is well defined and the outcome indicators are relevant and (d) implement mechanisms that will assess and evaluate the fidelity of an intervention (Taylor, 2003).

New programs can lack sustainability, because conditions in education constantly change due to alterations in priorities and resources (Coburn, 2003). Latham (1988) stated that school reforms have 24 to 49 months before a new initiative is added or replaces that reform. Therefore, collecting and using data to make informed decisions increase the likelihood that a successful program will last (McIntosh et. al, 2010; McIntosh, Horner, & Sugai, 2009). Additionally, PBS must be implemented with fidelity to ensure successful sustainability (Sugai et al. 2005; Sugai et al., 2010).

To further the discussion on sustainability, Datnow (2005) discussed the sustainability of school-level comprehensive school reform (CSR) models. Like PBS, CSR models target whole-school change, focus on student achievement, require a new understanding about the expectations educators have of their students and emphasize prevention as opposed to remediation. CSR models are particularly vulnerable due to the state's involvement in educational policy connected to standards and accountability, and the high turnover rate among district-level superintendents. Therefore, Datnow conducted a study to examine 13 schools that were implementing CSR models. She found several indicators, which assisted or hindered the sustainability of their initiatives. They are as followed:

1. Initiatives were sustained if they "helped educators meet new local district and state demands, or at least did not conflict with them." (p. 146)

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2. Initiatives were sustained if they had the "ability to adapt to local circumstances." (p. 146)

3. Initiatives were not sustained if they "require substantial funding to initiate, implement, and sustain over time." (p. 147)

4. Initiatives were sustained if they established "a stable resource base that could last through leadership and political changes…" (p. 147)

5. Initiatives were not sustained when low performing schools faced high state accountability demands. In these cases the schools abandoned the reform "in favor of test preparation." (p. 147)

Datnow also stressed the need for policy makers to be aware of how their decisions affect CSR models before implementation (Datnow, 2005).

Successful Implementation Assumptions and Solutions

Before sustainability can take place, successful implementations must occur. To achieve successful large-scale implementation of Positive Behavior Support, the PBIS Center, Sugai et al. (2005), stated that there are seven important assumptions and solutions that must be addressed. They include the following:

1. PBS must be implemented with high accuracy for maximum effectiveness. In other words, school personnel must be trained in the evidence-based practices of this behavioral framework and implement PBS with fidelity.

2. The PBS system put in place must be sustainable to affect meaningful change and improvement in behavior.

3. PBS must be in place at a school for five to 10 years for maximum effectiveness to be observed.

4. Implementation must be delivered by trained personnel.

5. Outcome data must be used to make decisions, changes and continuation of PBS.

6. Implementation will require consideration and modification for individual school and community needs.

7. PBS systems must be created so that they are achievable and sustainable (Sugai et al., 2005).

Systems Approach

Even though one would think educators to be ideal students of training and completely capable of implementing or teaching an intervention, many school systems employ a train-and-hope or spray-and-pray approach - even though Stokes and Baer (1977) condemned this type of training over three decades ago.

Figure 6. Train and hope.
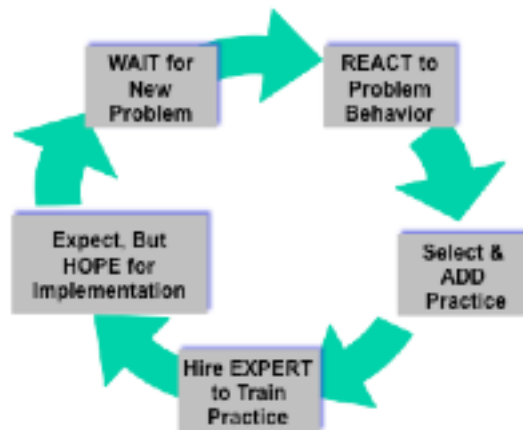
The authors stated that a school starts with a problem that is difficult to solve. Then they identify an expert in the area of their quandary. The expert comes to provide training to the administration and faculty and leaves with the hope that they will now have the expertise to solve their own problem. However, because the school personnel lack supports and capacity, the intervention is not implemented correctly. Additionally, there are no further training, resources

or policies put in place to support change. The truly interesting aspect of this phenomenon is that when the next challenge arises that the school cannot solve on their own, they employ the same train-and-hope method as before (Horner, 2003; Stokes & Baer, 1977; Sugai et al., 2005; Sugai et al., 2010).

Horner (2003) explained that the fundamental problem with the train-and-hope approach is that the individuals of the school are left to their on devices to implement the intervention in question. The systems approach, an essential aspect of PBS, considers the school as a unit. Horner believes the collective actions of each member of the school, characterize that institution. However, he does recognize that the institution does not engage in behaviors. Individuals within the organization produce behaviors. With that said, to achieve successful implementation, the individuals within a school must act together to achieve a common goal (Horner, 2003).

The Center on PBIS, Sugai et al. (2005) and Sugai et al. (2010), stated that the systems approach relies on four different elements. These elements encourage an interactive and self-monitoring process that leads to correction and improvement. These elements include outcomes, practices, data, and systems (see Figure 7). Outcomes consist of academic and behavioral targets sanctioned by students and their families and school personnel. The practices put into place are evidence-based strategies. Data provides information to identify progress, or lack thereof, needed for an alteration of the system and the overall effects of the intervention. Lastly, systems are the policies and procedures developed to support accurate and sustainable implementation of PBS (Sugai et al., 2005; Sugai et al., 2010).

Figure 7. Social competence and academic achievement.
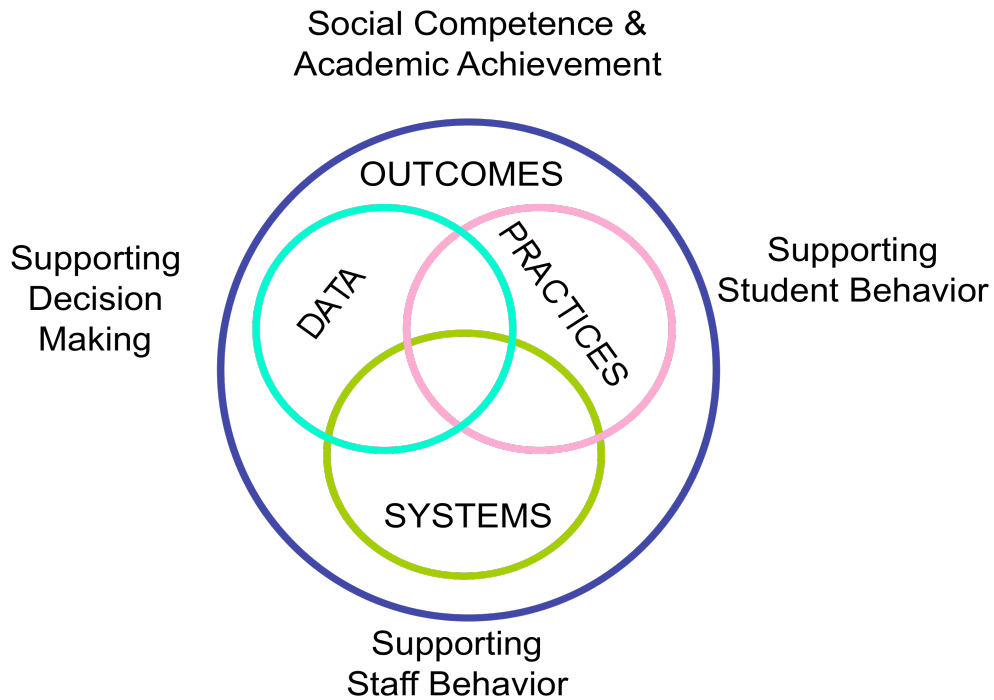
Implementation Levels

The systems approach of PBS, Sugai et al. (2005) and Sugai et al. (2010), relies on several implementation levels of support. These levels include individual student, classroom, school-wide, district, community and state (Sugai et al., 2005; Sugai et al., 2010).

Figure 8. Positive Behavior Support implementation levels.
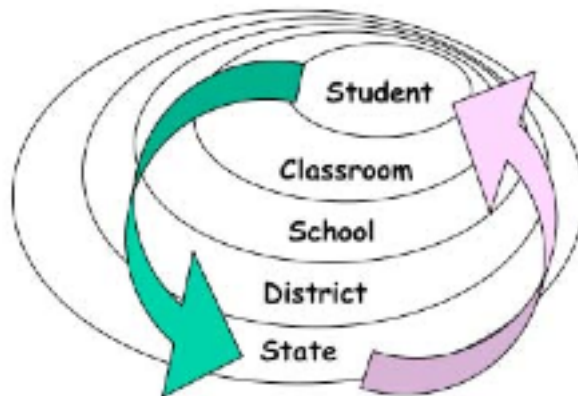
Individual students.

As stated earlier, individual students who do not respond to the primary and secondary school-wide positive behavior support (SWPBS) interventions receive individualized and intensive behavioral plans created from their functional-based behavior assessment results. These plans are based on individual students' behavioral data, which is most often observational data collected by their teachers (Chandler & Dahlquist, 2002).

Classrooms.

Classrooms provide support by giving students clear expectations on routines, structures and appropriate behaviors. Routines, such as a repetitive daily schedule, allow students the comfort of knowing what subject to prepare for at the conclusion of an activity. For example, students know to get their math materials out once science lessons are over. Structures can address classroom management problems (Crone & Horner, 2003), such as leaving personal items in inappropriate places around the room. For young children, each student may have their own cubby so they know exactly where coats, hats, and backpacks go upon entering their room. PBS also provides clear expectations on appropriate behaviors. The Alabama PBS State Coordinator, Donna Kirkendoll (personal communication, June-August 2004), trains school administrators, faculty and staff to create classroom rules and post them at the beginning of the year. These rules can even be created with students to engender their cooperation. Then teachers should discuss each rule so that students have a clear understanding of classroom expectations (D. Kirkendoll, personal communication, June-August 2004).

School-wide.

As in the classroom, students and staff are made aware of school-wide behavioral expectations across all school settings through a proactive approach from the beginning and

throughout each school year. Being proactive with PBS means that students are taught expected

behaviors initially and consistently, instead of being punished as behaviors occur. Many

behavioral problems occur outside the classrooms, such as in the halls, playground, lunchroom,

gymnasium, etc. Students need to know what behaviors are expected of them in these settings as

well. Transition periods, such as moving from one class to another, produce a great deal of

problem behaviors. These behaviors can be lessened with clear expectations (Edmonson &

Sailor, 2000). Therefore, students should be taught what to do during transitions in the hall. One

example familiar to many is to line up in single file upon hearing a prompt, walk quietly behind a

predetermined leader and enter their designation as previously instructed. Like hallway

transitions, outdoor activities such as recess can promote many behavioral problems (Crone &

Horner, 2003). Knoff (2005) teaches social skills to support appropriate behaviors. One such

skill is waiting for a turn. Children cannot be expected to just automatically know how to be

patient. Students must be taught this skill (Knoff, 2005).

Districts.

Districts support their individual schools with leadership and implementation resources.

Leadership support is very important to the success of a new intervention (Larrabee, 2007;

Moran, 2007). The district superintendent serves as the leader at this level. Consequently, PBS

technical assistance providers greatly encourage superintendent support before trainers enter

schools in a district (Handler, et al., 2007; D. Kirkendoll, personal communication, June-August

2004).

As mentioned, districts also support their individual schools with implementation

resources. These resources are outlined in the PBS Implementation Self-Assessment and

Planning Tool document, developed by the Center on PBIS, Sugai et al. (2005) and Sugai et al.

(2010) and used at the state level. The 36 features in this document are similar at the district and state level and will be discussed in the next section on state implementation.

States.

The Center on PBIS, Sugai et al. (2010), developed a checklist of items that educational leaders at the state and district level need to implement, support and sustain PBS. This checklist is called the PBS Implementation Self-Assessment and Planning Tool. This document is split into ten categories: leadership team, funding, visibility, political support, policy, training capacity, coaching capacity, evaluation capacity, behavioral expertise and school/district demonstrations. These categories also make-up the PBS Organizational Logic Model (see Figure 9). The 36 features under these ten categories outline what educational administrators should put in place.

Figure 9. Positive Behavior Support Organizational Logic Model.
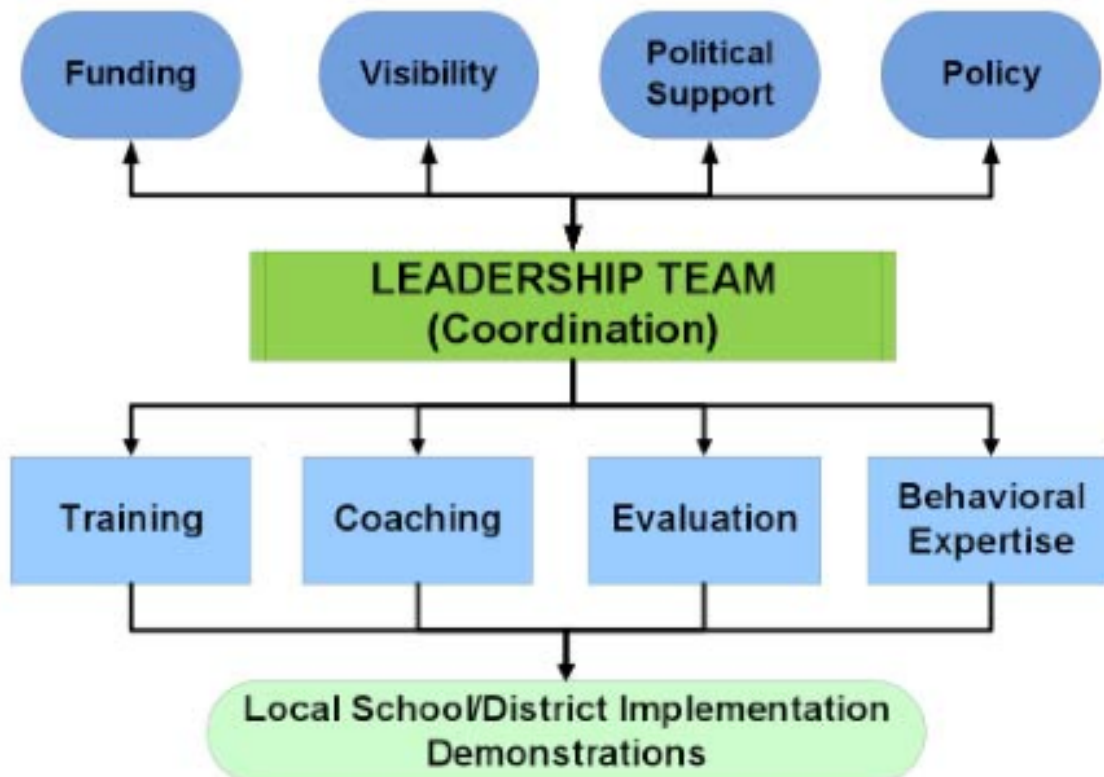
A summary of the features of the PBS Implementation Self-Assessment and Planning Tool are as followed:

Leadership Team (Coordination)

1. Leadership Team is configured to address multi-school (district) and/or multi-district (region, state) leadership and coordination.

2. Leadership Team is established with representation from appropriate range of stakeholders (e.g., special education, general education, families, mental health, administration, higher education, professional development, evaluation and accountability).

3. Leadership Team completes PBS Implementation Blueprint self-assessment at least annually.

4. Leadership Team completes a 3-5 year prevention-based action plan that delineates actions linked to each feather of the Implementation Blueprint.

5. Leadership Team establishes regular meeting schedule (at least quarterly) and meeting process (agenda, minutes, dissemination).

6. Leadership Team has established individual(s) who have adequate and designated time to manage day-to-day operations.

7. Leadership Team has established individuals who put policy and action planning into practice.

8. Leadership Team has established individuals who inform leadership team on implementation outcomes.

Funding

9. Recurring/stable state funding sources are established to support operating structures and capacity activities for at least three years.

10. Funding & organizational resources across related initiatives are assessed & integrated.

Visibility

11. Dissemination strategies are identified and implemented to ensure that stakeholders are informed about activities and accomplishments (e.g., website, newsletter, conferences, TV).

12. Procedures are established for quarterly and public acknowledgement of implementation activities that meet criteria.

Political Support

13. Student social behavior is one of the top three to five goals for the political unit (state, district, region).

14. Leadership Team reports to the political unit at least annually on the activities and outcomes related to student behavior goal and SWPBD implementation.

15. Participation and support by administrator from state chief or equivalent administrator are agreed upon and secured.

Policy

16. SWPBS policy statement developed and endorsed

17. Procedural guidelines and working agreements have been written and referenced for implementation decision making.

18. Implementation data and outcomes are reviewed semi- annually to refine policy.

19. Audit of effectiveness, relevance, and implementation integrity of existing related (similar outcomes) initiatives, programs, etc. is conducted annually to refine policy.

Training Capacity

20. Leadership Team gives priority to identification & adoption of evidence-based training curriculum and professional development practices.

21. Leadership Team has established local training capacity to build & sustain SWPBS practices.

22. Leadership Team has established plan for continuous regeneration and updating of training capacity.

Coaching Capacity

23. Leadership Team has developed a coaching network that establishes and sustains SWPBS.

24. Individuals are available to provide coaching & facilitation supports at least monthly with each emerging school teams (in training and not at implementation criteria), and at least quarterly with established teams.

25. Coaching functions are identified and established for internal (school level) and external (district/regional level) coaching supports.

Evaluation Capacity

26. Leadership Team has developed an evaluation process and schedule for assessing (a) extent to which teams are using SWPBS, (b) impact of SWPBS on student outcomes, and (c) extent to which the leadership team's action plan is implemented.

27. School-based data information systems (e.g., data collection tools and evaluation processes) are in place.

28. District and/or state level procedures and supports are in place for system level evaluation.

29. Annual report of implementation integrity and outcomes is disseminated.

30. At least quarterly dissemination, celebration, and acknowledgement of outcomes and accomplishments.

Behavioral Expertise

31. At least two individuals on leadership team have behavioral expertise and experience to ensure implementation integrity of SWPBS practices and systems at three capacity levels (a) training, (b) coaching, and (c) evaluation.

32. Individuals with behavioral expertise have SWPBS content competence.

33. The interaction and relationship between effective academic instruction and school-wide behavior support are visible and promoted.

34. SWPBS behavioral expertise includes fluency with the process and organizational strategies that support and enhance the use of evidence-based behavioral practices.

School/ District Demonstrations

35. At least 10 schools have adopted SWPBS, and can be used as local demonstrations of process and outcomes.

36. At least 2 districts/regions have established demonstrations of system-level leadership teams to coordinate SWPBS implementation in 25% (3 schools) or more of their schools (Sugai et al., 2010, pp 65-68).

Academics and PBS

As mentioned previously, No Child Left Behind and a high stakes accountability climate are forcing school administrators to improve academic achievement indicators, thus effecting the

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sustainability of school-wide initiative like PBS. Therefore, PBS researchers have conducted a great deal of research to see if there is a connection between PBS and academic improvement (Algozzine et al., 2011; Horner, Sugai, Eder, and Lewandowski, 2004; Larsen et al., 2006; Luiselli, Putnam, Handler, & Feinberg, 2005; Putnam, Handler, & O'Leary-Zonarich, 2003; Putnam, Handler, Ray and O'Leary-Zonarich, 2002; Scott & Barrett, 2004; Sugai, Lewis-Palmer, Todd, and Horner, 2001). If educational leaders find that there is a link between PBS and academic achievement, they will be more likely to implement the framework with fidelity and work toward sustainability. A full discussion of this type of research was addressed in Chapter 2.

Appendix B

Student Name: _____ Observation days recorded: 0
0:00 h:m Observed

Behavior and Observation Key

	Context or Activity	Antecedent Event	Identified Target Behaviors (up to 3)	Consequence / Interaction	Student Reaction	
A	recess	Corrective Feedback		Choice Given	Stopped	A
B	Individual Time	Denied Access		Redirection	Continued	B
C	Reading	Transition		Discussion of Behavior	Intensified	C
D	Math	Routine Task		Personal Space Given	Slept	D
E	Spelling	Teacher Attention to other		Changed activity	Apologized	E
F	Social Studies	Told NO	ClickDropbox Fields to select or to change values. Use A - L Letter codes for data entry.	Peer Attention	Cried	F
G	Science	Choice Given		Verbal reprimand	Verbal Outburst	G
H	Free Choice	Redirection		Physical prompt	Moved away/Left room	H
I	Hallway	Routine Task		Time Out	Self Stimulation	I
J	Lunch	Waiting		Modeling	Denied the activity	J
K	Centers	Attention Seeking		Natural consequence	Profanity	K
L	Gym/PE	Attempt to communicate		Ignored	Self Abuse	L

Time A/PM begin-end	Indicate a primary general Context or Setting	Indicate first or strongest Antecedent	Identified Target Behaviors	Staff directive or Consequence	Indicate a first or strongest Student Reaction	Staff Initials	Event Duration

							Start	End
	Observation Date			**Attendance:**	**Full Day**	**Observation Period**		
								0:00:00
								0:00:00
								0:00:00
								0:00:00
								0:00:00
								0:00:00
								0:00:00
								0:00:00

							Start	End
	Observation Date			**Attendance:**	**Part Day**	**Observation Period**		
								0:00:00
								0:00:00
								0:00:00
								0:00:00
								0:00:00
								0:00:00
								0:00:00
								0:00:00

							Start	End
	Observation Date			**Attendance:**	**Full Day**	**Observation Period**		
								0:00:00
								0:00:00
								0:00:00
								0:00:00
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