The Effects of Positive Behavior Intervention and Supports System (PBIS) on the Behavior of Middle School Female Students

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Submitted in Partial Fulfillment of the Requirements for the

Degree of Master of Education

July 2016

Graduate Programs in Education

Goucher College

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**Abstract**

This study was designed to determine the impact of the Positive Behavior Intervention and Support (PBIS) system on middle school female behavior. The researcher developed a quasi-experimental study and simulated a modified pre-test post-test study to observe student behavior with and without the influence of PBIS throughout two school years at a Baltimore City charter middle school. Results were measured by a grade-wide merit and demerit system where students were awarded merits for exhibiting positive behaviors, and demerits for exhibiting negative behaviors. The data concluded that there was no a statistically significant difference in the percentage of merit awards in favor of the PBIS group over the non-PBIS students. The major difference was derived from the students who earned all merits and no demerits during the treatment school year; thus proving the impact of the PBIS program on student behavior.

**CHAPTER I**

**INTRODUCTION**

**Overview**

This study is designed to examine the impact of Positive Behavior Intervention Support system (PBIS) on the behavior of middle school female students. Within this study, the behavior of sixth grade students who participated in PBIS was compared with the behavior of similar sixth grade students who did not receive PBIS treatment.

Negative behavior is a growing concern in schools today. Teachers are spending meaningful instructional time redirecting or dealing with negative behaviors of students in classrooms. The researcher, who has taught in Baltimore City public schools for three years, has witnessed first hand the impact of this negative and disruptive behavior. Specifically, these behaviors include disrespect of self or others, disrupting classroom instruction, bullying others physically or verbally, destruction of school or peer property, and insubordination. These exhibited behaviors are detrimental to the educational climate of a classroom, even when committed by the minority of students in the classroom. A primary focus of this study, similar to the ultimate goals of many schools, is to explore means of establishing a positive classroom culture by reducing learning barriers and undesirable behaviors.

This study was conducted across five sixth grade general education classrooms using a merit and demerit system to track the effectiveness of the Positive Behavior Intervention and Supports system. Individual merit and demerit data were collected the previous school year from a sample of sixth grade students with similar demographics but without the implementation of the system. After the first school year, teachers were trained in Positive Behavior Intervention and Support system (PBIS) through professional development in order to ensure successful implementation of the program. Throughout the course of the next school year, six general education teachers of a different set of similar sixth grade participants recorded merit points for positive behavior and demerit points for negative and positive behaviors exhibited throughout the implementation of the PBIS program. The teachers collected individual student data of merits and demerits using a shared tracking system and monitored overall progress throughout the year, similar to the prior year. Data from the tracking system during and after implementation of PBIS was compared to the data collected prior to implementation of the PBIS system from the previous year. The results allowed the researcher to determine the effectiveness of the Positive Behavior Intervention and Support system. Results from the study may be skewed due to a change in the general education teachers, a change in the principal of the school, and the use of a different group of students despite the similarities in demographic, academic achievement levels, and socio-economic status.

**Statement of the Problem**

The purpose of this study was to determine if there is a relationship between Positive Behavior Intervention Support systems and appropriate classroom behavior of middle school female students as measured by a merit and demerit system across two school years.

**Hypothesis**

There is no significant impact on the behavior of middle school female students who are motivated by Positive Behavior Intervention Supports system (PBIS) implemented by general education classroom teachers as measured by a merit and demerit system.

**Operational Definitions**

The independent variable for this study was the Positive Behavior Intervention Support system (PBIS) with the use of positive reinforcements such as concrete and tangible rewards and incentives and a self-regulating color system. The dependent variables for this study were the positive and negative behaviors as measured by the number of merits and demerits observed by the general educators.

***Positive Behavior Intervention and Support system*** (PBIS) is a reward program that strives to apply behavior principles in the community in order to reduce problem behaviors and increase appropriate behaviors. The result of such a program is durable change and a rich lifestyle (Safran & Oswald, 2003). The system is designed to provide a concrete structure for students to track their own progress as far as making positive and negative decisions. Students have cards in each classroom to act as a visual reminder of how they are progressing. Every student starts on the green card. They move up to the blue color if they exhibit positive behavior, they move down to yellow color as a warning for exhibiting negative behavior or by making a bad decision, and they move down further to the red color if they continue to exhibit the same or a different negative behavior. Students are given incentives to work toward, which provides the positive motivational aspect of the system. Teachers collaborate to determine how many times students must maintain a green or blue color to earn the incentives, or to stay away from yellow or red. In this study, the incentives include monthly parties, quarterly field trips, positive notifications sent home to parents/guardians, concrete objects such as pencils, erasers, and stickers, and verbal and nonverbal praises such as high fives, smiles, and opportunities to eat lunch with teachers.

***The merit and demerit tracking system*** is the concrete tool used to measure appropriate and inappropriate behaviors that occur during the school day in each of the classrooms, hallways, and locations around the school building. It is ultimately a shared tracking system among the six sixth grade teachers which tracks individual student merits and demerits and overall progress throughout each month, quarter, and school year. The system also directly correlates to the Positive Behavior Intervention and Support system. Merits are given for good behavior and positive choices. Incentives are used as motivational tools and so that students have concrete goals to work towards. If students earn enough merit points for good behavior, they can attend monthly parties and quarterly field trips and receive concrete awards or praises from teachers, as connected with the PBIS system. If they do not earn enough merit points, they cannot attend incentive trips or receive and awards. This merit and demerit data for each individual student will be collected and analyzed to determine the effectiveness of the PBIS system. An increase in average merit points and a decrease in average demerit points will prove the effectiveness of the positive intervention reward program in motivating the students to behave appropriately in the classroom.

**P*ositive and appropriate behaviors*** of the participating sixth grade students will be observed by general education teachers throughout the school day in various locations and classrooms around the school building.These behaviors include staying in seats throughout the class and asking before they get out of their seats if needed, raising their hand to ask a question instead of calling out, participating in classroom discussions regularly, helping out other students in need, sitting nicely and up-right in their seats and using positive language. More extensive positive behaviors include helping out a fellow student or cleaning up something on the floor without being asked to, completing extra work for homework, or making a connection to another content area. These are the specific positive behaviors that will be observed throughout the study and at the end of the study. An increase in these positive and appropriate behaviors at the end of this study will lead to desirable results.

***Negative and undesirable behaviors*** are also observed by general education teachers of the same group of students throughout the school day in various locations and classrooms around the school building. These behaviors include disrespect of self or others, disrupting classroom instruction, getting out of a seat without asking, blurting out an answer without raising a hand, and insubordination. These behaviors result in demerit points. An decrease in negative behaviors and demerit points seen at the end of the study would lead to desirable results.

**CHAPTER II**

**REVIEW OF THE LITERATURE**

This literature review examines the effect of the Positive Behavior Intervention Support system on middle school female students’ motivation to behave well in the classroom. The first section discusses and provides insight into ideal student behaviors and how they might be observed in a classroom setting. The second section examines the physical, cognitive, and social-emotional development of middle school students and female students specifically, and how developmental transitions may impact the individual behaviors of the students in the classroom. The third section analyzes intrinsic motivation through self-regulation and increased self-esteem. The fourth section discusses reinforcements and consequences to student behavior and choices. The fifth section describes alternative traditional disciplines and strategies for behavior methods. The sixth section discusses the features, positive aspects and negative aspects of positive behavior intervention methods and strategies. Finally, this literature review will analyze the modern practices and research that exists on the Positive Behavior Intervention Support system.

**Ideal Behavior**

In order to explore successful techniques in motivating students to behave well in the classroom, it is important to discuss ideal behavior of students. Defining ideal behaviors is not an easy task, as not every classroom is the exact same and not every classroom is looking for the same behavior. However, it is possible to discuss a common standard for a student behaving positively. Identifying specific characteristics of behavior can help to approach a definition for ideal behavior. These characteristics include decision-making skills, social competence, and important pro-social behaviors.

In a famous paper, Watson proposed that human beings are born blank, and develop personality and intelligence through experience of life (Inglis & Aers, 2008). He believed that human attributes are not inherited, but learned. The classroom environment can support such learning to help develop the ideal personality and intelligence suited for individual success in school and in life. Watson further believed “psychology would benefit tremendously by taking a more objective view of observable behavior” (Landrum & McDuffie, 2008, p.4). By closely observing the various behaviors that exist, we can more easily identify ideal characteristics to encourage students and children to work towards and strive for. This sets a higher standard for students to work towards becoming a better person for themselves, for their peers, and for society.

One example of this observable behavior is prosocial behavior. Prosocial behaviors are cooperative interaction patterns that can mark successful social competence. These behaviors include positive characteristics such friendliness, cooperation, and helping others. Such behaviors predict children’s success at forming positive peer relationships, which is crucial for a successful learning experience in a classroom with a population of students (Ladd, 2012). These behaviors are only a few of the many characteristics that teachers should encourage in their students.

**Middle School Development**

During middle school years, early adolescents experience significant and rapid developmental stages and transitions, which are important to analyze when discussing the behaviors of students in classrooms. Human beings are unique in their individual characteristics and inherited traits: however, all humans experience similar developments which drive them into their adulthood. Development is important to discuss as it directly impacts students’ experiences in the classroom, including their responses to classroom disciplines and behavior intervention systems. The three categories of middle school development include biological or physical development, cognitive development, and social development. Each of these categories is directly related to one another and, collectively, they contribute to individual responses in the classroom in different ways.

Horn, Drill, Hochberg, Heinze, and Frank (2008) discuss the complex and varied physical development of middle school students. Beginning around the middle childhood and early adolescent time period, children begin to experience skeletal and muscular growth, significant changes in height and weight, and neural development. Puberty and hormonal changes are most notable, however, during this transition time. Sex hormones begin to rise and trigger physical changes in the body. As their bodies develop, these students not only have to adjust to their altered appearances and feelings around these changes, but they must also cope with others’ responses to their maturing bodies (Adams & Berzonsky, 2003). These transitions are associated with emotional dispositions and behavior and can positively or negatively impact the self-esteem, engagement, motivation, and achievement of students in middle school (Horn et al., 2008).

Significant cognitive changes also occur in the brains of these early adolescent students, which contribute to their emotional dispositions and behaviors in school. The brain matures and develops physically and the results directly impact individuals’ unique reasoning skills, perspective taking, and the ways they understand the world around them. Horn et al. (2008) describe how the brain changes in three primary ways. The first is the thickening of the myelin sheath. The second is an elimination of unused connections between neurons with the onset of puberty. The third is a change to the prefrontal cortex. These physical changes allow an adolescent’s brain to begin to think ahead, anticipate risks and rewards, plan, and regulate impulses and desires. The impulses and desires are the key aspect targeted by the behavior intervention system with reinforcement.

Along with the physiological changes of the brain, adolescents also begin to display greater self-reflection and introspection, which leads to social-emotional development. Social development is mostly affected by the social context in which early adolescents engage (Horn et al., 2008). Early adolescents become overly focused on themselves, separate from their families they have always relied on. They start to accept their own moral perceptions of society, culture, and religion and construct their own social understandings of relationships, institutions, authority and legal systems (Turiel, 2005). They begin to consider fairness and equality and develop an urge to make decisions for themselves. This often results in a dismissal or resistance to conventions and rules as they are seen as simple dictates of authority (Horn et al., 2008). This is important in considering the effectiveness of behavior intervention systems and the push back that may exist from students going through this social-emotional developmental stage.

Adolescent development is important to take into account when analyzing the effectiveness of a middle school behavior intervention system. Learning environments that adapt to the needs, capacities, and normative changes of early adolescence can have tremendously positive effect on how young students navigate this challenging developmental period of their lives.

**Intrinsic Motivation Through Self-Regulation and Self-Esteem**

To promote a positive learning environment with accountable and responsible decision-making, teachers constantly strive to increase intrinsic motivation in their students. Intrinsic motivation is directly related to a child’s self-regulation and self-esteem. It is important to discuss the self-regulation process and self-esteem of middle school students when determining the effectiveness of a behavior intervention system that’s primary purpose is allowing students to self-regulate their own behaviors while working towards a set goal.

Lewis (2005) states that there is evidence of an idea of “me” by the middle of the second year of life. Throughout their lives, children and adolescents are constantly altering this idea of “me.” This results in different temperaments and personalities, further giving them unique self-regulation strategies. Studies show that a child’s ability to self-regulate and control their own behavior is directly related to school success (Stockard, 2007). While self-regulation allows children to become more capable of positive emotions such as pride and empathy, it also allows for the development of more negative emotions such as embarrassment, shame, or guilt (Lewis, 2005). These are important to track in students as these emotions can become increasingly harmful if they are not managed properly.

Self-regulation may be dependent on self-esteem in certain circumstances. King, Vidourek, Davis, and McClellan (2002) state that high self-esteem is associated with high academic achievement. Enhancing self-esteem may be available through activities that are developed based on the four conditions of connectedness, power, uniqueness, and positive-role models. Goal setting is also proven to increase self-esteem in students as long as goals are measurable, realistic, and attainable (King et al., 2002). Increasing self-esteem not only supports positive behaviors, but assists in reducing risky behavior.

Positive Behavior Intervention and Support system strives to increase self-regulation and self-esteem in students by focusing on intrinsic motivation through extrinsic rewards. Intrinsically motivating students to self-regulate will ultimately increase self-esteem and provide students with the best opportunity to experience social and academic success (Landrum & McDuffie, 2008).

**Reinforcements and Consequences**

The motivational aspect of the PBIS system comes from positive reinforcements for behaviors exhibited by students. B.F. Skinner is a prominent behavioral scholar whose work on operant conditioning contributed greatly to the study of behavior intervention systems in education. His theory of operant conditioning encompasses several principals that form the basis for behavioral techniques applied in teaching and learning. This theory supports the idea of reinforcement as an approach to increasing the frequency of desired responses (Landrum & McDuffie, 2008).

Reinforcement can be described as an effect that strengthens a behavior or makes it more likely to occur by the consequence that follows it. “A particular consequence is said to be a reinforcement only if its contingent use results in increased rates or likelihood of behavior occurring” (Landrum & McDuffie, 2008, p. 5). Specifically, positive reinforcement is strengthening a positive behavior by adding a reward. Rewards can be social gestures such as positive words or praises, activities or privileges such as time to play on a computer game, or tangible objects such as food or stickers. Negative reinforcement, on the other hand, refers to a behavior being strengthened when something is taken away such as recess time.

Positive reinforcement fosters a positive learning environment that allows students to feel comfortable asking questions, seeking help and participating and responding to questions. It also promotes communication and collaboration around tasks and investigations (Harris, Marx, & Blumenfeld, 2008), which are important social skills for success in the classroom and out of the classroom. Positive reinforcement is the key focus of Positive Behavior Intervention Support system.

**Traditional Behavior Disciplines**

Traditional disciplines in education have always been simple and absolute. Traditional views have often been seen as management that requires control, compliance and obedience (Evertson & Poole, 2008). Many of the traditional behavior systems involve negative reinforcement. Landrum & McDuffie (2008) explain a negative view towards this approach and state, “traditional behavioral view undermines intrinsic motivation by introducing artificial and extrinsic rewards” (p. 167). In a traditional classroom, there is a lack of goal-setting, flexible activities, opportunities for various demonstrations of knowledge, or metacognitive practices which promotes intrinsic motivation. Along with its lectures and direct instruction, there is a set standard for traditional behavior discipline.

With its use of negative reinforcement, traditional approaches often lead into a cycle of escalating negative behavior. It is easy for negative behavior to become constant and predictable with individual students who aren’t motivated to change it due to a lack of direction towards more positive choices (Landrum & McDuffie, 2008). Contrary to traditional behavior discipline styles with negative reinforcement, Positive Behavior Intervention and Support system strives to increase positive reinforcement and increase intrinsic motivation in students.

**Positive Behavior Intervention and Support System (PBIS)**

Positive Behavior Intervention and Support system (PBIS) can be described as a multi-tiered framework for the prevention and intervention of challenging behavior with young children. The intervention intensity and individualization of PBIS is dependent on the responses of children’s behaviors to present levels of support (Rispoli, Burke, Hatton, Ninci, Zaini, & Sanchez, 2015). A Positive Behavior Intervention Support system allows students to regulate their own behavior and interact socially with others. It provides a structured system for motivating students to behave well and go “above and beyond” in order to work towards rewards and incentives.

Studies show that there is a connection between the behavior intervention techniques and the moral development of adolescents. Children make moral judgments that are structured by considerations of rewards and punishments. As they mature through adolescent years, they continue these considerations as they begin to develop a sense of obligation based on respect of rules for authority (Turiel, 2005). Therefore, the structured Positive Behavior Intervention and Support system supports the moral development of students in middle school classrooms.

The PBIS system requires a consistent effort on the teacher’s part to make sure each student’s individual rewards are given equally for similar behaviors across the board. As for the student-teacher relationship, a sense of trust must exist so students can feel the teacher is dependable and the rewards are concrete. Consistent reactions show students that a teacher’s word is reliable and without favoritism. Inconsistencies prompt students to rethink what is expected and may lead to a lack of trust in the student-teacher relationship (Evertson & Poole, 2008). Classroom norms and expectations should be clearly outlined through class rules and procedures as early as possible in the school year so students are fully aware of the expectations.

With the Positive Behavior Intervention and Support system, teachers must also provide a proactive classroom management system. Through this, teachers plan for before students enter the classroom, for reactions once students behave positively or negatively, and for delivery of responses to the students (Evertson & Poole, 2008). That way, they are proactive and prepared when situations rise. Preparation ensures consistency and less room for error and a smoother intervention process.

It has been proven that rewards and consequences are an essential part of effective classroom management, particularly for students experiencing significant behavioral challenges (Landrum & McDuffie, 2008). Positive Behavior Intervention Support emphasizes neutralizing or eliminating risk factors in behavior and enhancing protective factors to prevent the occurrence of problem behavior, reduce its incidence and prevalence, and enhance academic gains.

**Modern Practices and Research**

There is extensive research on behavior intervention strategies in education as it provides a systematic way for teachers to keep a positive yet controlled learning environment. There are a wide variety of positive behavior interventions and practices that exist. A few examples of approaches to systematic implementation involve an integration of measurable outcomes, data based decision-making, evidence-based practices, and overt systems to support implementers. Some PBIS approaches focus on achieving organizational capacity for political support, funding, visibility, training, coaching, evaluation, and exemplar demonstrations. Research on PBIS is extensive and well rounded as it encompasses the many aspects and goals of the system. It dives into the deeper questions of the system such as relevance, efficiency, and durability. The Positive Behavior Intervention and Support system allows teachers to create learning and teaching environments so that the best and most appropriate evidence-based practices can be adopted and implemented on a variety of levels (Sugai & Horner, 2006).

**Summary**

A positive learning environment is critical for increased opportunity for student academic and social success. Educators must establish a concrete system to support positive behavior and prevent or eliminate negative behavior. Through effective implementation of the Positive Behavior Intervention and Support System, educators can create experiences that foster self-regulation and high self-esteem through intrinsic motivation. As education and best practices continues to grow and change with time, research should continue to evaluate and determine the effectiveness of the PBIS system in a variety of settings.

**CHAPTER III**

**METHODS**

The purpose of this study was to determine the effectiveness of the Positive Behavior Intervention and Supports system (PBIS) in increasing the positive behaviors of middle school female students.

**Design**

This study utilized a quasi-experimental design to determine the impact of PBIS on student motivation and behavior. The study simulated a modified pre-test, post-test design with two groups of similar sixth grade female students, and behavioral statistics collected for each. The first group of sixth grade students was the control group, with behavior data collected through a merit and demerit tracking system for positive and negative behaviors exhibited throughout the 2014-2015 school year. The behavior data acted as the pre-test. The second group of sixth grade students received the PBIS treatment in 2015-16 as the post-test and utilized the same merit and demerit-tracking system during implementation of the PBIS treatment. Behavioral data was collected and analyzed to determine the success of the PBIS system. The groups were considered convenience sampling due to the researcher’s position as a sixth grade teacher at the all-girls charter middle school in Baltimore City. The dependent variables in this study were the behavioral data as measured by a grade-wide merit and demerit tracking system. The researcher, along with six other sixth grade teachers, kept track of the number of merits and demerits each individual student earned throughout the school day by using a shared tracking system. The independent variables were the PBIS treatment and positive reinforcements (physical, verbal, and non-verbal) as a means of reinforcement for positive behavior exhibited. These reinforcements are directly connected to the Positive Behavior Intervention and Support system.

**Participants**

The study’s convenience sample included two groups of sixth grade students with similar characteristics, demographics, academic achievement levels, and socio-economic statuses. The control group and the treatment group both attended an all-female public, charter middle school in Baltimore City. They each followed the same schedule of six 50-minute class periods and one 30-minute lunch period. The age of students in both groups varied from 11 to 12 years old.

The 2014-2015 control group included 96 sixth grade female students. The entire population consisted of all-female students who lived in various areas around west and east Baltimore City. The students travelled among six teachers, and class sizes ranged from 18 to 24 students per class. Of those 96 students, 94 were African American (98%) and two were Caucasian (2%). Seven students received Special Education services (7%), and 84% of students received free or reduced-price meals through FARMS. To prove similar academic achievement levels, the researcher analyzed the results from the Measure of Academic Progress (MAP) mathematics and reading tests that both groups took at the beginning of their sixth grade school year. Out of the 86 students who successfully completed the MAPs test during the 2014-2015 school year, the average mathematics RIT score was 208 out of 300 (69%). The average reading RIT score was also 208 out of 300 (69%).

The 2015-2016 treatment group included 107 sixth grade female students. These students also attended the same Baltimore City charter middle school. All 107 (100%) of the students were African American . Five of the students (5%) received special education services and 87% of students received free or reduced-price meals (FARMS). The MAPs data for the 2015-2016 treatment group was very similar to the 2014-2015 control group. Out of the 102 students who successfully completed the MAPs test, the average mathematics RIT score was 209 out of 300 (70%). The average reading RIT score was 204 out of 300 (68%). Despite the difference in PBIS treatment implementation verse non-treatment, it is clear that both groups have similar characteristics, demographics, academic level, school-wide factors, and socio-economic status, which allows for consistent results and accurate data collected for this study.

**Instrument**

The instrument used for this study was the behavioral merit and demerit tracking system used by the six sixth grade teachers to track the positive and negative behaviors exhibited by the participants for both school years. The sixth grade teachers filled out the Excel tracking sheet each day by adding merits and demerits to two separate columns for each individual student who earned them throughout the school day. This data was collected during the pre-test, non-treatment period and during the post-test PBIS treatment period. The form remained the same for the 2014-2015 and 2015-2016 school years, aside from the obvious change of student names. The merits and demerits for the pre-test period were given for observable behaviors. The merits and demerits given during the post-test period were also tracked by observable behaviors connected to the PBIS system.

**Procedure**

Observations of negative behaviors and a negative school environment by teachers led the researcher to consider possible interventions to improve positive school climate. After proposing the idea for the PBIS system to the principal at the end of the 2014-2015 school year, the researcher agreed to pilot the system with the sixth grade for the 2015-2016 school year. The principal wanted to re-group at the end of the year and analyze behavior data to determine how effective the system was in fostering and encouraging positive climate. A positive result would allow the entire middle school to implement the system and eventually turn it into a school-wide implementation.

This study was completed between two school years. During the first school year (2014-2015), data was collected on behaviors of sixth grade students who exhibited positive and negative behavior without any treatment. This was the control group. During the next school year (2015-2016), the same positive and negative behavior was tracked during implementation of the PBIS system. Data was collected for both groups and analyzed.

The Positive Behavior Intervention and Supports system is a program designed to motivate students to exhibit positive behaviors and decrease negative behaviors. This is directly connected to the mission of the school, which is to nurture leadership in the young women of Baltimore City. PBIS utilizes a four-color tracking system to allow students to track their own behavior in each classroom. Each student starts on the neutral color green. Throughout the class, students can exhibit positive behaviors and move up to the color blue. Students may also exhibit negative behaviors and move down to yellow, which is seen as a warning level, and then move down to red if the negative behavior continues or worsens. Along with this self-tracking system, students earn tangible awards or incentives. These are given when students stay consistently on green or blue, and if they stay away from yellow or red. Rewards may include physical items such as candy, stickers, pencils or toys. Incentives may also be earning invitations to parties or field trips. They may also be as small as high-fives, smiles, or pats on the back. The specifics associated with the number of greens and blues that earn the incentives and rewards varied based on the school and the teachers utilizing the system.

For this study, the teachers put additional supports in place by using a merit and demerit system. This was used for long-term tracking of positive and negative behaviors. The data for these behaviors on individual students on a grade-wide scale was collected throughout the entire school year in this tracking tool. It was first used with the control group without implementation of PBIS. Students were given merits and demerit points in all classes throughout the day for observable positive and negative behaviors. The teachers continued to use the behavior tracking system the next school year throughout implementation of the PBIS treatment. During implementation of the system, merits were given when students went up to blue and exceeded expectations or exhibited positive behaviors such as offering materials to a peer, participating consistently in class, helping to clean up a mess, holding a door open, etc. Demerits were given to students who exhibited negative behaviors and went down to yellow or red.

After the pre-test school year, the teachers attended a summer professional development seminar to learn about best practices and strategies for implementing the Positive Behavior Intervention and Supports system. One lead teacher was designated as the PBIS point person and attended monthly half-day seminars to continue to learn about PBIS and to make sure the sixth grade teachers were effectively implementing the system. Teachers also collaborated during weekly grade-level meetings to discuss consistency for each classroom. It was important to make sure students knew expectations and rules across the entire grade-level for both school years. The teachers of the treatment group also made sure to communicate with students the rules of PBIS, and the color system that they could use to self-track their own behavior progress in each of their classes throughout the year. They were also told that their behavior color movements would be tracked using a merit and demerit system and that data would be used to earn incentives and rewards.

Although the population of students changed between the two school years with the control group moving on to seventh grade when the treatment group entered the middle school as sixth graders, both groups of students had similar characteristics, demographics, and academic achievement levels. There were two teachers that left after the first school year and the two new teachers the second school year were, again, very similar to the teachers they replaced. The two new teachers had similar prior experience in inner-city schools with three to five years teaching experience. The teachers all had their Bachelor of Arts in teaching and their Maryland Certification for teaching elementary education for grades one through six. The average number of merits and demerits was compared after the two school years to determine the effectiveness of the PBIS system.

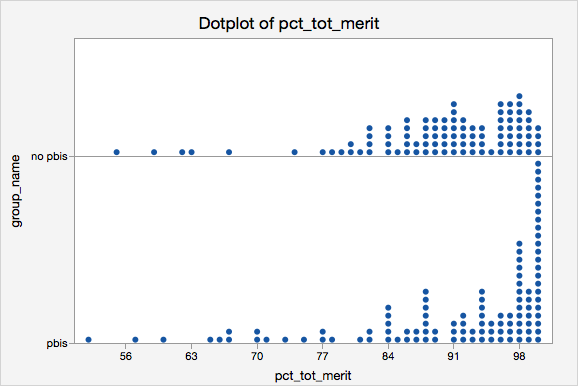
**CHAPTER IV**

**RESULTS**

The purpose of this study was to determine if the Positive Behavioral Intervention and Supports system (PBIS) had a positive impact on middle school female student behavior, as determined by the average number of merits and demerits received at the end of the school year. Table 1 shows the comparison between the non-PBIS group (2014-2015) and a similar PBIS group (2015-2016). The measure is the percentage of merits, defined by 100 multiplied by the number of merits and divided by the number of merits added to the number of demerits. The non-PBIS and PBIS groups finished in a statistical tie. The results from the t-test showed that the average percentage of merits awarded to non-PBIS sixth graders and PBIS sixth graders was not significantly different at the alpha=0.05 level. Therefore, the original null hypothesis stating that there was no difference in the average percentage of merits over the entire school year between the no-PBIS and PBIS groups is accepted. The results for this can be found in Table 1.

****Table 1: *Mean, Standard Deviation, and t-test Results for Percent of Merits, PBIS v. Non-PBIS*

Considering that there is more to a data set than the average, the distributions of the percentage of merits for both the non-PBIS and PBIS groups was further examined. Noting the large number of very high percentage merit awards for PBIS, the merit percentages were recoded into categories of 100%, 90-99%, 80-89%, and 50-79%. (See Figure 1)

Figure 1: *Distribution of Total Year Percent of Merits, PBIS v. Non-PBIS*

To test the difference in the distributions of merits by category between non-PBIS and PBIS, a Chi-square statistic was utilized. As seen in Table 2, it is evident that there was a significant increase in the number of students who received 100% merits. The bottom number of each cell is the theoretical frequency of the null hypothesis. Since there are 96 students in the non-PBIS and 107 students in the PBIS, the null hypothesis expects a certain number of students in each category. There were 24 100% merit awards in total. The null expects 12 of those to be in the non-PBIS control group, and 13 to be in the PBIS treatment group. The reality was three in the non-PBIS group, and 21 in PBIS group. The major reason for the significant Chi-square comes from the 100% column, which is evidence for the effectiveness of the PBIS system. The Chi-square test had a p-level below 0.05, and therefore the null hypothesis that the non-PBIS group and PBIS group would have the same frequency distributions was rejected. The results of the chi-square test can be found in Table 2.

Table 2: *Two-Way Frequencies for Relation between non-PBIS, PBIS and Total Year Merits*

**CHAPTER V**

**DISCUSSION**

The purpose of the study was to determine the impact of PBIS on middle school female student behavior. The original null hypothesis stating that there was no difference in the average percentage of merits over the entire school year between the non-PBIS and PBIS groups was supported. After further analysis of compiled data, a second null was tested that the non-PBIS group and PBIS group had the same frequency distributions. This null hypothesis was rejected, as determined by the highest percentages of merit awards.

**Implication of Results**

Data from the 2014-2015 school year showed the 96 non-PBIS sixth graders earned a total of 12,666 merit points for positive behavior and 1,472 demerit points for negative behavior. The non-PBIS group had a total of 14,122 events with merits and demerits combined. The ratio of merits to demerits was 8.7 to 1, which means for every demerit earned, 8.7 merits were awarded. Data from the 2015-2016 school year showed the 107 PBIS sixth graders earned a total of 14,622 merit points for positive behavior and 1,377 demerit points for negative behavior. The treatment group had a total of 14,832 events with merits and demerits combined. The ratio of merits to demerits was 11 to 1 for this group, which means for every demerit earned, 11 merits were awarded. Because there were a different number of students in each group, analyzing ratios allowed for an appropriate analysis. The ratios of merits to demerits for both groups did not show a significant difference. Therefore, the null hypothesis that there is no difference in the mean percentage of merits earned during the entire school year between non-PBIS and PBIS groups was accepted.

When analyzing the data more closely, the researcher observed that an unbalanced distribution of merits and an enormous spread of scores existed. This lead to an inspection of distributions of merits for the non-PBIS and PBIS groups through percentage groupings. Both groups had large ranges that were skewed towards the lower end of the percentage scale. Therefore, a Chi-square test was added for percentages of merits tallied by logical categories of 100%, 90-99%, 80-89%, and 50-79%. The Chi-square test for differences in the frequency distributions between non-PBIS and PBIS groups was statistically significant at the alpha=0.05 level. Therefore, the second null hypothesis that the non-PBIS control group and PBIS treatment group would have the same frequency distributions of merits was rejected. Inspection of the two-way frequency table disclosed that the major reason for the significant difference was the disparity in the percentages of students in the non-PBIS and PBIS groups that earned 100% merits.The results revealed a significant increase in the number of students who received 100% merits. This data allows us to conclude that, despite a lack of significant differences in the number of total merits versus demerits, there was a significant increase in the number of students exhibiting only positive behaviors without any negative behaviors. This desirable outcome provides substantial evidence for the effectiveness of the PBIS system.

**Threats to Validity**

There are threats to the validity of this study that may have had an impact on the results. The participants of the control group and the treatment group were not the same students throughout the duration of the study. The non-PBIS group in 2014-2015 moved from sixth grade to seventh grade as the new group of PBIS sixth graders came in from various elementary schools for the 2015-2016 school year. The researcher is aware of the similarities between the control group and the treatment group, but it is inaccurate to match individuals to measure changes prior to PBIS implementation and post PBIS implementation. Because they are not the same students, many factors about individual differences could have caused the students to earn more merits or demerits rather than the implementation of the PBIS system. That being said, the researcher felt comfortable with the similarities that existed with the two convenience groups, such as, consecutive school years, same grade level, same school, same curriculum, same classroom, similar teachers, and similar backgrounds and socio-economic status home lives. The only overt difference was the implementation of PBIS; however, there is always a possibility that unobserved pre-existing differences could skew the data and affect outcomes.

Another concern could be the consistency of the six teachers who awarded the merits and demerits. The behavior continuum was not changed as far as the expectations of the students and what warrants a merit or demerit award. However, the decision to award a merit or demerit is determined by six different teachers for each individual situation. One teacher may decide to award a merit for a behavior, while another teacher in the next school year could disagree. Two teachers left for a new school after the first school year without the implementation of the PBIS. During the next school year, two new teachers joined the study for the implementation of the PBIS system. This could have altered the results from the first school year to the next school year with teachers who are similar but not exactly the same.

Another concern about the validity of this study would be how well the teachers successfully implemented the PBIS system. This is a study about the impact that a specific behavior management system has on student’s behavior. Teachers with extended teaching experience could still have difficulty implementing the system. All six teachers were given the same professional development training on how to successfully implement and integrate the intervention system into their normal classroom routines. However, there is always a chance that misunderstandings or lack of experience with the system could have led to the results.

**Connections to Previous Research**

Positive Behavior Intervention and Supports system is an excellent behavior management tool that supports teachers by motivating students to self-regulate their own positive behaviors in school. An important component of the PBIS system is the clear expectations for ideal behaviors. Along with that are the positive reinforcements and negative consequences that must be consistently given to students either meeting those expectations or disobeying them. It has been proven that rewards and consequences are an essential part of effective classroom management (Evertson & Poole, 2008). Another important component to PBIS is the self-regulation strategies of behaviors by the students. Prior studies show that allowing students to self-regulate their own behaviors is directly related to school success (Stockard, 2007). This study looks at how this self-regulation of behavior through the implementation of a grade-wide intervention system is related to school success behaviorally in female middle school students. Studies also show that positive and negative reinforcements increase the frequency of desired responses (Landrum & McDuffie, 2008). These reinforcements are the ultimate idea behind the Positive Behavior Intervention and Supports system. This study failed to show a significant difference in increased positive behavior and decreased negative behaviors on average of middle school female students after implementation of the PBIS system. However, this study did show that those reinforcements worked to increase the number of middle school female students showing increased number of only positive behaviors and not showing any negative behaviors throughout an entire school year, as seen by the substantial increase in students receiving 100% merits during the 2015-2016 school year.

**Implications for Future Research**

The results of this study did not provide enough substantial evidence or statistically significant results to prove the effectiveness of the PBIS system in increasing positive behaviors and decreasing negative behaviors in female middle school students, despite increases in all-positive behaviors year-round. However, future studies should be conducted with alternative sampling methods. The sample size and number of participants for this study was substantial because the most reliable data can come from a large enough sample size. What should change about the sample in future studies are the participants chosen for the study. More accurate data can come from the use of the same participants with data collected prior to implementation of the PBIS system, during implementation, and post implementation. Although developmental changes could also cause a threat to validity, it would still result in more precise results because using two different groups of students allows for more threats to validity in differentiation of backgrounds, home lives, prior experiences, or intrinsic motivation.

It is also important to ensure that implementation of the system and data collection of merits and demerits is consistent and reliable. In this study, two teachers left the study after the school year was over, and although they were very similar in age, background, and teaching experience, two new teachers joined the study during the year of the implementation of PBIS. In future research, the teachers collecting the merit and demerit data should be the same for both school years of non-PBIS implementation and PBIS implementation to ensure valid results.

Having a larger variety of students would also allow for results to be generalized for a larger population rather than just female middle school students. There will always be threats to validity for past studies, present studies, and future studies, but continuing the study of this system can provide more insights into successful behavior management strategies and programs to support teachers and students in schools.

**Summary**

This study did not result in statistically significant evidence to support the positive impact of the PBIS system on middle school female student behavior on average. However, alternative desirable data that was analyzed during the study and researcher observations suggest that further research with a variety of changes may lead to more advantageous results. Hopefully, additional research will help teachers and educational personnel learn how to best implement the PBIS system to effectively support students by motivating them to exhibit positive behaviors through reinforcements and self-regulation.

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