

Reward Systems, Positive Behavior Interventions, and Student Achievement

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Abstract

This study was designed to determine the impact of a School-Wide Positive Behavior Intervention (SWPBIS) reward system on student achievement. The study utilized a quasi-experimental design to determine the impact of a PBIS reward system on student achievement. The dependent variable in this study was the level of student achievement as measured by the third quarter math topic tests provided by Anne Arundel County Public Schools. In this study the independent variable was the “tiger tickets” given as a means of positive reinforcement for positive behaviors exhibited. The participants in this research were 32 fourth-grade students ranging in age from nine to ten years old from an elementary school located in Central Maryland. This study implies that the number of times students are rewarded for positive behavior may or may not have a statistically significant influence upon the students’ math test scores based on students’ race/ethnicity. Achievement gains were slightly higher in low performing students, especially those of African American heritage. These students demonstrated both statistically and educationally significant growth on the math assessment throughout this study.

CHAPTER I

INTRODUCTION

Overview

This quasi-experimental study was designed to determine the impact of a School-Wide Positive Behavior Intervention (SWPBIS) reward system on student achievement.

Student behavior and discipline are a growing concern in schools. Too often, dealing with students exhibiting negative behavior distracts the teacher from delivering highly effective and meaningful instruction to the remaining students. At a time when the outcomes of state testing are so critical in determining the future of students and teachers, every moment of instructional time is crucial. Improving student behavior is a constant challenge in the field of K-12 education.

The researcher, who has been teaching in public elementary schools for 10 years, has witnessed the impact of disruptive behavior on student learning. Students that come to school prepared to demonstrate respect, responsibility, and a readiness to learn frequently are deprived of the high quality instruction they deserve. This is due to the teacher dealing with a minority of the students exhibiting negative behaviors in the classroom. These behaviors include disruptive talking or actions, inappropriate language, insubordination, improper physical contact, improper use of classroom materials, and improper use of time.

In reviewing research on ways to improve student behavior, the researcher examined the work of Allred (2008) who states studies show that with positive behavioral and action interventions, all students may improve in behavior and academics, especially low-performing students, thus closing the achievement gap. School-Wide Positive Behavior Intervention, or SWPBIS as it will be referred to in the rest of this document, is one such program that the

researcher has utilized to address this issue. This program's primary focus is the school as a multidisciplinary system of care whose ultimate goal is to improve student achievement by reducing barriers to learning. This system, as used by the researcher, rewards positive behaviors demonstrated by students thus encouraging all students to demonstrate the rewarded actions. SWPBS is intended to improve the overall effectiveness of schools as learning environments by increasing (a) the amount of time students are in school, (b) the proportion of minutes that classrooms are engaged in instruction, and (c) the level of student academic engagement during instruction (Horner, Sugai, Smolkowski, Eber, Nakasato, Todd, & Esperanza, 2009). The researcher will collect data from this intervention system to empirically determine its effectiveness. This data will enable the researcher to conclude that there is a relationship between the use of a tangible reward system for positive behavior and student achievement.

Statement of the Problem

The purpose of this research is to determine if there is a relationship between positive reward systems and appropriate classroom behavior.

Hypothesis

The use of the Positive Behavioral Intervention and Support System (PBIS) will have no statistically significant impact on the development of appropriate classroom behavior as measured by students' math achievement on third quarter math topic tests.

Operational Definitions

Student achievement on math assessments will be measured operationally by recording student scores on each of the assessments and reviewing the data at the end of each marking period/school year to determine if the scores were higher than at a time without the incentive.

Student achievement in earning the actual “tiger ticket” will be accomplished by keeping track of the amount of tickets earned throughout a marking period/ school year. The more tickets earned, the more successful demonstration of positive student behavior.

Positive Behavior is defined as a student’s demonstration of respect for one’s self, peers, teachers, and education; responsibility is demonstrated by proper utilization of materials, time, and preparation.

CHAPTER II

REVIEW OF THE LITERATURE

This literature review explores issues related to the creation and implementation of positive behavior interventions and their influence on higher student achievement. The content emphasis in section one of the review will be an exploration of the Positive Behavioral Intervention Systems (PBIS) and/or School-Wide Positive Behavior Systems (SWPBS). This investigation will include principal leadership responsibilities, leadership team creation and representation, staff support, development, the three-tiered approach to discipline, and system implementation. The second section will review SWPBS data collection. Topics examined include a data collection tool titled the School-Wide Information System (SWIS); the social validity of the SWPBS program; the increased teacher use of universal practices; and the impact of SWPBS on student outcomes. Section three discusses SWPBS practices with an emphasis on a safe and supportive learning environment, and incentives.

School-Wide Positive Behavior Systems

SWPBS is a team-based process for systemic problem solving and planning. This system is designed to diminish negative behaviors that detract from the best possible learning environment. It provides an approach to create an environment of school-based teams of educators. The team is provided training in systems change, effective management principles and practices, and applications of research-validated instruction and management practices.

Principals must be members of the SWPBS team as they have unique leadership capacities and decision-making authority. Flannery, Guest, & Horner (2010) state the principal has the role of establishing the learning climate, hiring and supporting personnel, and modeling

instructional leadership. Additionally, a principal helps communicate the vision by helping staff understand why change is necessary and why a school-wide approach is important. Providing ongoing support to the team is an important role for the principal. The success of the team depends on how well the principal supports and empowers it (Flannery et al., 2010). Other responsibilities of the principal include involving students and staff members, resource allocation, acknowledgement of accomplishments, use and sharing of data, and acquiring district support.

A SWPBS team is formed within the school to provide leadership regarding school-wide implementation of SWPBS. The stakeholders of this team should be composed of staff members who are respected by their colleagues, representative of their staff population, collectively have behavioral competence, have a regular and efficient means of communicating with the school staff as a whole, and are endorsed by their principal. Parents are also recommended to serve as team members because they can provide a voice and link to the school for families and community members. A representative from the Parent Teacher Organization (PTO) of a school district can serve as a valuable asset to a SWPBS team. Green (2009) states the PTO may subsidize costs for acknowledgement activities by providing the school with funds allocated on a per-pupil basis. A collaborative relationship fostering mutual respect and trust among all stakeholders is important. The goal of collaboration is to implement an approach to resolving children's problem behavior in a manner that is effective, compatible with the program's commitment to inclusion and developmentally appropriate practice, and feasible for implementation by classroom staff (Fox & Little, 2001).

Staff development and support include training by a behavioral support coach who can provide on-site technical assistance regarding SWPBS. Bradshaw, Koth, Bevans, Ialongo, &

Leaf, (2008) maintain PBIS aims to alter school environments by creating improved systems and procedures that promote positive change in student behavior by targeting certain staff behaviors. Targeted behaviors include positive reinforcement toward student behavior and classroom management. Additional staff behavior training is also necessary in tasks such as filling out discipline behavioral forms accurately and consistently across grade levels. A formal system is developed to collect, analyze, and use disciplinary data (e.g. office discipline referrals, suspensions) to make decisions regarding program implementation (Bradshaw et al., 2008)

SWPBS is often described as a three-tiered comprehensive approach to discipline. The three tiers are described in a publication authored by Green (2009), as: universal, target group, and individual. The universal tier is a school-wide system of intervention for all students in all identified settings. The target group tier is comprised of teaching prevention and intervention strategies to groups of students and concentrates on the students that benefit from more direct interventions. The individual tier involves the most intensive prevention and intervention strategies and targets the students who exhibit substantial emotional behaviors.

Development and implementation by the SWPBS team consists of accounting for several key components including prevention, interventions, data-based decision-making, and organizational systems (Flannery et al., 2010). During the development of the SWPBS, the team also needs to consider addressing the following features to ensure success: defining behavioral expectations; teaching behavioral expectations; acknowledging appropriate behaviors; proactively correcting behavioral errors; evaluating and adjusting team programs; providing administrative support; and providing individual student support systems. Although implementation models on school-wide systems of positive behavior support are individually

tailored to each school context, key features have been identified as critical for successful programs (Fox ET AL., 2001).

School-Wide Positive Behavior Support Data

The SWPBS process requires that the team examine data on a monthly basis. The data is then shared with the entire school. Data will drive many of the decisions the SWPBS Team will make throughout the year. The School-Wide Information System (SWIS) is a web-based discipline data system currently used by more than 3,000 schools nationally (Horner et al., 2009). This information system is designed to help school personnel use office referral data to design school wide and individual student interventions. SWIS reports also indicate times and/or locations prone to elicit problem behaviors, and allow teachers and administrators to shape school-wide environments to maximize students' academic and social achievements.

Many studies have been completed to determine the social validity of a program such as SWPBS. In one such study, conducted by Frey, Park, Browne-Ferrigno, & Korfhage (2010), teacher surveys, classroom observations, and focus group interviews that related to SWPBS goals and procedures were used to gathered data which contextualized the program's social validity. Among the program strengths that were identified in this article, the participants in almost every focus group expressed overall support for the approach used in designing and implementing the program.

SWPBS data may also be utilized when seeking to increase school staff's use of universal practices. Data analysis and consultation was related to teachers' increased use of classroom rules, matrices, schedules, transition supports (e.g. signals, warnings, pre-correction), and specific verbal praise and positive statements (Benedict, Horner, & Squires, 2007). Counselors also benefit from data collection and analysis. A study conducted by Curtis, Van Horne,

Robertson, & Karvonen (2010) states that although implementing the program does require significant time and effort, the resulting improvements in behavior and suspensions evidenced by a particular school can be an important ingredient in allowing professional school counselors the time needed to focus on building and maintaining thriving comprehensive school counseling programs.

Data-based decisions regarding student responses to the interventions are also vital to SWPBS practices. Decisions in SWPBS practices are based on professional judgment informed directly by student office discipline referral data provided by SWIS as well as performance data. Benedict et al., (2007) maintain interventions are developed in response to one child's disruptive behavior without systematically reducing the risk of other children in the classroom developing similar patterns of challenging behavior. This concentration on individualized interventions for a particular child is important to remedy severe problem behavior but fails to address the needs of all students. This principle requires that ongoing data collection systems, such as SWIS, are in place and that resulting data is used to make informed behavioral intervention planning decisions.

The impact of SWPBS on student outcomes is an important topic that can also be monitored through the use of data provided by SWIS. Bradshaw, Mitchell, & Leaf (2010), state in their study with regard to office discipline referrals (ODR's), that the schools trained in SWPBIS reported a significant reduction in both percentage of children with a major or minor ODR event as well as for the overall rate of major and minor ODR events. The lower percentage of office referrals correlates directly with more time available for students to receive direct instruction. The additional time in the classroom will lead to higher academic achievement. This demonstrates that the SWPBS interventions and supports have a positive impact on student

outcomes. SWPBS is intended to improve the overall effectiveness of schools as learning environments by increasing (a) the amount of time students are in school, (b) the proportion of minutes that classrooms are engaged in instruction, and (c) the level of student academic engagement during instruction (Horner et al., 2009).

School-Wide Positive Behavior Support Practices

Positive behavior support professionals implement interventions to ensure the success of multiple interventions while working within everyday settings. Behavior is considered purposeful and is under the control of environmental factors that can be changed. Positive behavior support assessment and intervention strategies are based on research in applied behavior analysis and emphasize the importance of implementing intervention strategies that are effective in natural everyday settings. Allred (2008) states studies show that, with positive behavioral and action interventions, all students may improve in behavior and academics, especially low-performing students, thus closing the achievement gap. In addition, long-term studies show that positive behavior program's effects are often sustained as a result of the school-wide collaboration and implementation.

By creating learning environments that support social and learning outcomes, problematic behaviors are prevented. Classroom universals are those organizational and teacher instructional practices that are essential in preventing the occurrence of problem behaviors while simultaneously increasing academic achievement (Trussell, 2008). These constant and consistent rules, routines, and physical arrangements are developed and taught by school staff to prevent initial occurrences of the targeted behavior that the school is working to change or prevent.

All SWPBS practices are founded on the assumption that all children can exhibit appropriate behavior. Setting and teaching behavioral expectation to the students is an important SWPBS practice. Students need to be taught what actions are expected in order to demonstrate the appropriate actions that are the goal of the SWPBS plan.

Another SWPBS practice is displaying student work. This practice creates a positive learning environment by providing public acknowledgement of the students' efforts, while exhibiting the quality of work expected in the classroom. Determining traffic patterns in the classroom is another common practice. The ideal classroom setup would have few barriers and sufficient walkways in which students and teachers can effectively move about without interruption.

It is important to consider the accessibility of classroom materials and equipment in a SWPBS as well. Students should be able to gather the necessary materials to complete an assignment easily and quickly. Classroom materials such as the pencil sharpener, wastebasket, stapler, textbooks and computers should be visible and accessible. Problem behaviors are often a result of a classroom environment that has unclear expectations. Classroom rules should not only be posted and visible, but be referred to by the teacher when an incident occurs. Green (2009) maintains that in some instances, a student may be able to self-correct behavior after a staff member, observing the student's inappropriate behavior, redirects the student's attention to a SWPBS poster. A visible daily schedule is also a common SWPBS practice. Unscheduled time in the classroom is an opportunity for disruptive behavior. A schedule helps the teacher reduce the frequency and duration of downtime, while providing students with a plan for the day.

Specific praise is extremely important in increasing the recurrence of appropriate behavior. Paper tickets that are handed out to students exhibiting the appropriate behaviors in

the school are a form of incentive. The paper tickets may be used to create a token economy throughout the school. Students that demonstrate a strong understanding of the expected appropriate behaviors will earn the tickets from the staff. The SWPBS team will determine appropriate times that tickets may be redeemed for prizes, admission to positive behavior incentive assemblies or any other activity that the SWPBS team deems suitable. Booster activities are preventative interventions used to re-teach behavior expectations (Green, 2009).

Summary

State testing and student achievement are an ever increasing and critical issue. SWPBS is a program that, when planed and implemented appropriately, has demonstrated effectiveness in narrowing the student achievement gap. The program requires a collaborative effort on the part of all stakeholders in today's educational system. When that collaboration is coupled with SWIS data that supports decision-making and universal practices utilized across the school community, higher student achievement has been observed.

CHAPTER III

METHODS

The purpose of this research is to determine if there is a relationship between positive reward systems resulting in significant improvement of student achievement as measured by Anne Arundel County Public Schools Grade 4 Mathematics Topic Test 12/13/14.

Design

The study utilized a quasi-experimental design to determine the impact of a PBIS reward system on student achievement. The dependent variable in this study was the level of student achievement as measured by the third quarter math topic tests.

In this study the independent variable was the “tiger tickets” given as a means of positive reinforcement for positive behaviors exhibited. The “tiger tickets” were used as a form of token economy where the students later redeemed the tickets for small prizes. The researcher kept track of the amount of “tiger tickets” earned by each student throughout the experimental period. The more tickets earned the more sustained demonstration of positive student behavior. Also, the third quarter math test scores were used to determine if there was a significant correlation established between the number of “tiger tickets” earned and students’ scores on the Grade 4 Mathematics Topic Test 12/13/14.

Participants

The participants in this research were 32 fourth-grade students ranging in age from nine to ten years old from an elementary school located in Central Maryland. This convenience sample consisted of 47% males and 53% females. Analyzing the sample based on race revealed that 50% of the class were African American, 28% Caucasian, 13% Mixed African American/White, 6% Hispanic, and 3% Asian. Further analysis of the sample revealed that of

these 32 students, 38% received free and reduced meals (FARMS), 9% qualified for Special Education Services, and 9% qualified for ESOL services.

Instrument

The instrument utilized for this study was the Anne Arundel County Public Schools Grade 4 Mathematics Topic Test 12/13/14. The students were allotted one class period (60 minutes) to complete this assessment. The assessment was comprised of a total of 19 questions. Thirteen of the questions were multiple choice/select response questions worth 1 point each. Two questions were fill-in the blank questions worth 1 point each. The remaining questions were two-part brief constructed response questions worth a total of 3 points each. Student performance on the test was measured with the use of a Mathematics Scale Score for 21 Point Topic Tests provided by the Anne Arundel County Public School Math Resource Team. Scores that fell in the range of 100%-90.5% received an A, scores in the range of 85.7%-76.2% received a B, scores in the range of 66.7%-71.4% received a C, scores between 50% and 61.9% earned a D, and any score below 50% was an E for failing.

Procedure

The participants were students in the researcher's homeroom. The researcher reviewed expectations with the participants based on the SWPBIS matrix. This matrix defines the behavioral expectations in various school settings including the classroom, bathroom, hallways, cafeteria, playground, and on the bus. The researcher also reviewed with the participants the necessity for constant and consistent rules, routines, and the physical arrangement of the room. The participants discussed with the researcher why the previously mentioned constants were necessary for a positive learning environment so that all students may experience the highest quality of education possible. The researcher discussed with the students that

appropriate/positive behaviors would be acknowledged by a reward system known as “tiger tickets.” The researcher also included that behavioral errors/negative behaviors would first be handled by proactively addressing the behavior by way of teacher redirect.

The researcher did not disclose to the participants that there would be a way of keeping track of their positive behavior rewards (i.e. tiger tickets). The researcher felt that if the students had knowledge of this, the accuracy of the experimental results would be compromised. The data gathered were used by the researcher to determine whether the null hypothesis could be supported.

Throughout the research timeframe of 20 school days, the researcher maintained a count of the number of tiger tickets earned by each student. The researcher first analyzed the data to determine the number of tiger tickets earned by each student. This information was also broken down by student subgroup. The researcher then analyzed the students’ math test scores together with the number of tiger tickets earned to determine if the number of tickets earned had a positive impact on student achievement.

CHAPTER IV

RESULTS

The purpose of this research was to determine whether there was a significant relationship between the use of a positive reward system (i.e. the Positive Behavioral Intervention and Support System - PBIS) and student achievement. The overall null hypothesis that was investigated in this study was as follows:

The use of the Positive Behavioral Intervention and Support System (i.e. PBIS) will have no statistically significant impact upon students' math achievement as measured by the third quarter math topic tests.

Table I below contains data from the group performance of all students who participated in the Tiger Ticket Reward System and were administered the math topic test during the 3rd quarter of the 2011-12 school year. As a basis for comparison, the highest possible score on the 3rd quarter math topic tests was 100%.

Table I

The Mean Performance of Students on the 3rd Quarter Math Topic Tests and the Tiger Ticket Reward System

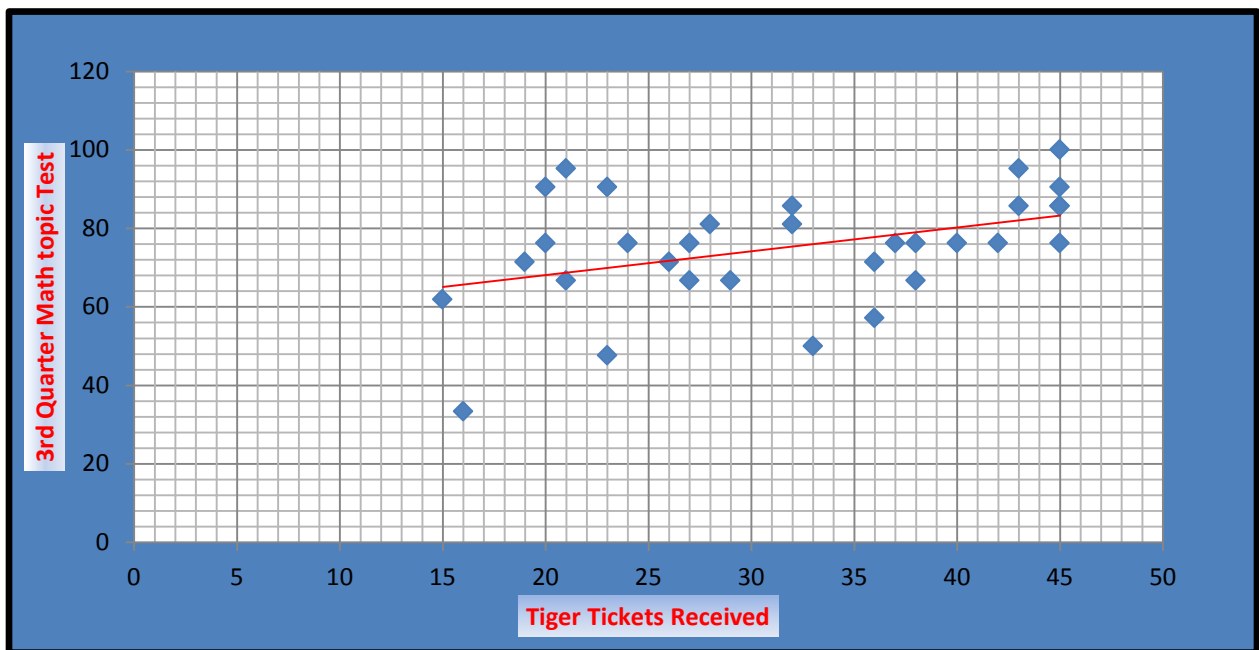
TYPE OF MEASURE	N	Mean	Std. Deviation
Topic Test Scores (12-15-2011)	32	75.16	14.57
Tiger Tickets	32	31.69	9.77

When students' mean performance on the 3rd quarter topic tests is compared with the maximum possible score on the math topic test, the performance of the whole group is considered proficient by the researcher. It is important to note, however, that there was substantial variability in individual student's performance on the 3rd quarter topic tests given the size of the standard deviation (14.57) within the group.

In order to determine the degree of relationship between students' 3rd quarter math performance and the Tiger Ticket reward System, a regression procedure was used. The Pearson Product Moment Correlation that was obtained ($r = 0.42$, $df = 29$, $p < .01$) does suggest that there was a moderate relationship between students' 3rd quarter math achievement and the number of rewards they received using the Tiger Ticket Reward System. Figure A below provides a visual picture of this moderate relationship.

Figure A

Scatterplot of All Students' 3rd Quarter Math Topic test Performance versus the Number of Tiger Tickets Received



In addition to evaluating the relationship between student's overall performance on the 3rd quarter math topic test and the Tiger Ticket reward System, the above results were also disaggregated by race/ethnicity. Table II on the following page reports these results.

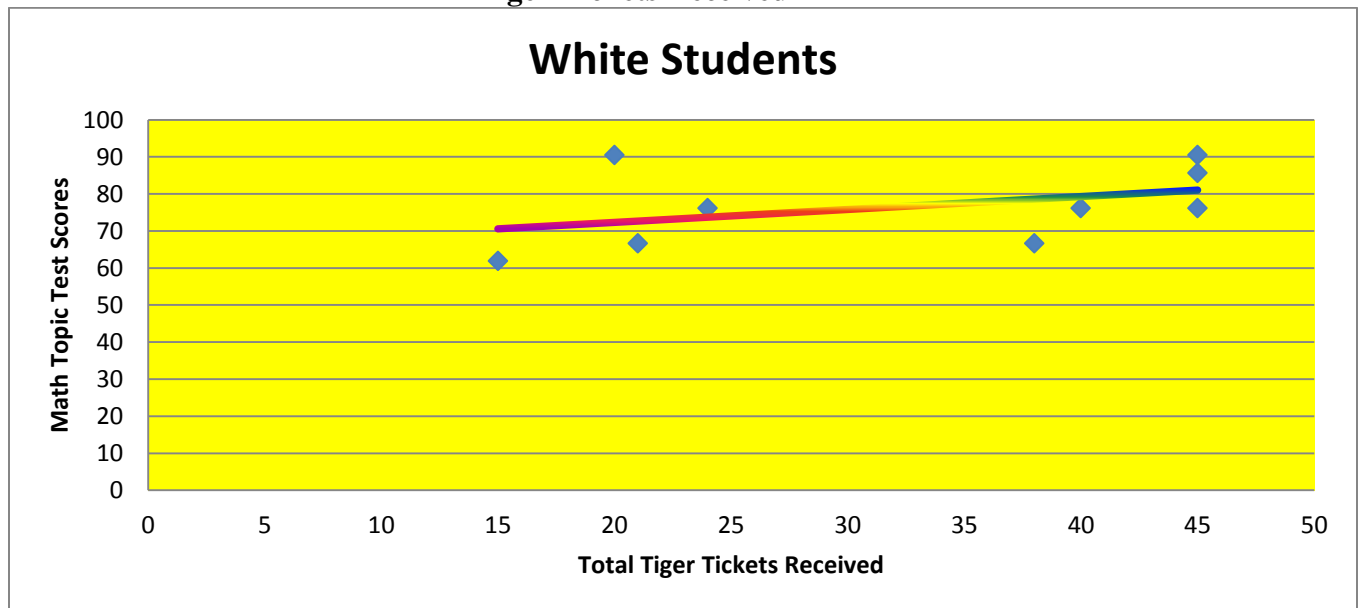
Table II
Student Performance on the 3rd Quarter Math Topic Tests and the Tiger Ticket Reward System Disaggregated by Race/Ethnicity

Race/Ethnicity	Math Topic Test (12-15-11)			Tiger Tickets		
	Mean	Std. Deviation	Number of Students	Mean	Std. Deviation	Number of Tickets
African American	78.44	15.61	16	29.88	9.12	478
White	76.67	10-28	9	32.56	12.36	293
Asian	81	n/a	1	45	n/a	45
Hispanic	52.50	6.36	2	29.50	9.19	59
Multi-Racial	67.25	12.26	4	34.75	6.34	139

While the average performance of African American students exceeded that of all other groups having more than one student (78.44), they also received the greatest number of Tiger Tickets (478). In order to determine the degree of relationship between students' math topic test performance and the number of Tiger Tickets received, Pearson Product Moment Correlations were calculated for student groups containing five or more students (i.e. African American and white students).

Among white students, the correlation between students' math topic test performance and the distribution of Tiger tickets received ($r = 0.41$) was not statistically significant $p = .27$). Thus, the null hypothesis that the use of the Positive Behavioral Intervention and Support System (i.e. PBIS) will have no statistically significant impact upon students' math achievement as measured by the third quarter math topic tests was accepted. A scatterplot of their scores is displayed in Figure B on the following page.

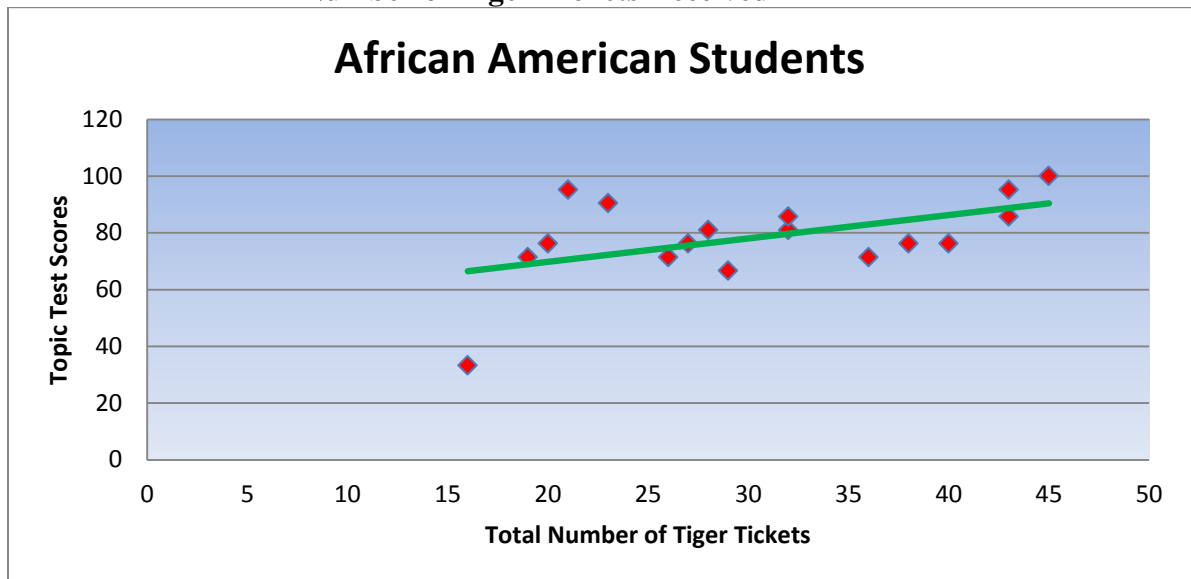
Figure B
Scatterplot of White Students' 3rd Quarter Math Topic Test Scores vs. the Number of Tiger Tickets Received



Among African American students, the correlation between students' math topic test performance and the distribution of Tiger tickets they received ($r = 0.54$) was statistically significant $p = .03$).

Figure C

Scatterplot of African American Students' 3rd Quarter Math Topic Test Scores vs. the Number of Tiger Tickets Received



Thus, the null hypothesis that the use of the Positive Behavioral Intervention and Support System (i.e. PBIS) will have no statistically significant impact upon students' math achievement as measured by the third quarter math topic tests was rejected.

CHAPTER V

DISCUSSION

The purpose of this research was to determine the significance of the relationship between positive reward systems and improvements in student achievement overall, as well as when students were disaggregated by race/ethnicity. In relation to the whole student group, the information gathered from the study does suggest that there was a moderate relationship between students' 3rd quarter math achievement and the number of rewards they received using the Tiger Ticket Reward System. Another important observation in the analysis when results were disaggregated by race/ethnicity was that there was also variability in the degree of statistical significance between subgroups.

For example, among white students, the null hypothesis that the use of the Positive Behavioral Intervention and Support System (i.e. PBIS) would have no statistically significant impact upon students' math achievement as measured by the third quarter math topic tests was accepted. Among white students, the correlation between students' math topic test performance and the distribution of Tiger tickets received ($r = 0.41$) was not statistically significant $p = .27$).

On the other hand, an analysis of the data for African American students suggests that the null hypothesis that the use of the Positive Behavioral Intervention and Support System (i.e. PBIS) will have no statistically significant impact upon students' math achievement as measured by the third quarter math topic tests was rejected. Among African American students, the correlation between students' math topic test performance and the distribution of Tiger tickets they received ($r = 0.54$) was statistically significant.

Implications

Implications from the results of this study are very important for classroom teachers when taking into account the significance of the PBIS program when the results were disaggregated by race/ethnicity. This study implies that the number of times students are rewarded for positive behavior may or may not have a statistically significant influence upon the students' math test scores based on students' race/ethnicity.

There is statistical significance presented in Chapter IV for the researcher to state that utilization of PBIS may not demonstrate positive educational significance by encouraging the white students to exhibit behaviors that improve their academic achievement. Based upon informal observations by the researcher, however, this researcher does believe that PBIS had an "affective" impact upon students that was not evident in the quantitative data that was collected. As an example, students' ability to work together during the school day seemed to have improved based on anecdotal observations of the researcher. On the other hand, the statistically significant results presented in Chapter IV relating to African American students, does suggest that the use of PBIS had a positive educational impact on African American students. While the correlation coefficient (i.e. $r = .54$), was only moderately significant, the researcher believes, based upon his informal observations, that the educational significance of this program far surpassed the statistical significance reported.

Threats to Validity

There are several internal and external factors that can threaten the validity of this study. Internal threats to validity include the time of the day the students were tested, mental fatigue, maturity age of the students, and instrumentation. The math assessment occurred before lunch at 12:50, which may have caused some degree of distraction due to the students' anticipation for

lunch. Because the students had also been through rigorous Language Arts instruction prior to the math test, mental fatigue may also threaten the internal validity of the study. The chronological age of the students in this study may have also been a threat to the internal validity of this study based on differential rates of student maturity. The majority of the students in this study were 9 or 10, and there is often a significant difference between a nine-year-old and a ten-year-old. Another intervening variable that may have threatened to the internal validity of the study would be the additional time spent studying the information presented on the test. During every class period, students practice basic facts covered on the assessment. This additional practice during class time and on homework may have been an additional threat to the internal validity of the study. Because the researcher collected data through observation, the researcher may not have observed or evaluated behavior in the same way at the end of the study as at the beginning creating a lack of "intra-rater" consistency.

External threats to validity include the experimenter or "teacher effect" and selection-treatment interaction. The use of the researcher's homeroom group being utilized as the treatment group with no control group to use for comparison may cause a "teacher effect" influencing the validity of the research. Conscious or unconscious actions of the researcher may have had an effect on the students' performance and responses. Students that regularly exhibit behaviors indicative of earning the tiger ticket may be accidentally overlooked as opposed to students that so often exhibit poor behavior that they are rewarded with the tiger ticket every instance when positive behavior is being exhibited. Because the participants in this study were not randomly selected for treatment the ability of the researcher to generalize how this treatment would affect others may be threatened. The population represented in the homeroom class may not match the population of other groups of students in which this study may be used.

Outcomes Related to the Literature

It is undeniable that PBIS is an excellent tool for educators dealing with students exhibiting negative behavior that distracts the teacher from delivering highly effective and meaningful instruction to the remaining students. Allred (2008) states that studies show that with positive behavioral and action interventions, all students may improve in behavior and academics, especially low-performing students, thus closing the achievement gap. This study reflects the views presented by Allred. Low performing students, especially those of African American heritage, demonstrated both statistically and educationally significant growth on the math assessment throughout this study. Bradshaw, et al. (2008) maintain PBIS aims to alter school environments by creating improved systems and procedures that promote positive change in student behavior by targeting certain staff behaviors. Targeted behaviors include positive reinforcement toward student behavior and classroom management. The “tiger tickets” used by the researcher in this study targeted the teacher’s positive behavior reinforcement aptitude resulting in proficient performance by the students on the math test. Trussell (2008) states classroom universals are those organizational and teacher instructional practices that are essential in preventing the occurrence of problem behaviors while simultaneously increasing academic achievement. The constant and consistent rules, routines, and physical arrangement employed in this study assisted in the prevention of initial occurrences of negative behavior thus resulting in the educational significance stated above.

Future Research

To replicate this study the researcher recommends modifications for improvement. One suggestion for improvement of this study would be a change in instrumentation. The use of a pretest that is narrowly customized to provide consistency and reliability would assist in a more

valid assessment of student performance. Students that earn a perfect score on the pretest should not be used in future studies of this nature. Academic growth as a result of the “Tiger Ticket Incentive” would be difficult to measure with these students. Selecting different groups of students that may demonstrate academic benefit and growth from the specific topics of instruction will alter the results of the study. Utilizing various groups would permit t comparison to a control group.

This study may also be used as a reference for an alternative test related to behavior and academic success in all academic areas. Although it was determined that the increase in math scores on this assessment accompanied by the frequency/number of tiger tickets earned varied in statistical significance, research demonstrates that PBIS does demonstrate positive educational significance.

REFERENCES

- Allred, C. (2008) . Improving academics, behavior and character. *Leadership*, 38(2), 26-29.
- Benedict, E., Horner, R., & Squires, J. (2007). Assessment and implementation of positive behavior support in preschools. *Topics in Early Childhood Special Education*, 27(3), 174-192.
- Bradshaw, C., Koth, C., Bevans, K., Ialongo, N., & Leaf, P. (2008). The impact of school-wide positive behavioral interventions and supports (PBIS) on the organizational health of elementary schools. *School Psychology Quarterly*, 23(4), 462.
- Bradshaw, C., Mitchell, M., & Leaf, P. (2010). Examining the effects of school-wide positive behavioral interventions and supports on student outcomes: Results from a randomized controlled effectiveness trial in elementary schools. *Journal of Positive Behavior Interventions*, 12(3), 133.
- Curtis, R., Van Horne, J., Robertson, P., & Karvonen, M. (2010). Outcomes of a school-wide positive behavioral support program. *Professional School Counseling*, 13(3), 159-164.
- Flannery, K., Guest, E., & Horner, R. (2010, September). SWPBS: School-wide positive behavior supports. *Principal Leadership*, 11(1), 38-43.
- Fox L., & Little N. (2001). Starting early: Developing school-wide behavior support in a community preschool. *Journal of Positive Behavior Interventions*, 3(4), 251.
- Frey, A., Park, K., Browne-Ferrigno, T., & Korfhage, T. (2010). The social validity of program wide positive behavior support. *Journal of Positive Behavior Interventions*, 12(4), 222.
- Green, J. (2009). Changing past student discipline practices to create a district-wide discipline plan. *Education and Urban Society*, 41(4), 457.

Horner, R., Sugai, G., Smolkowski, K., Eber, L., Nakasato, J., Todd, A., & Esperanza, J. (2009).

A randomized, wait-list controlled effectiveness trial assessing school-wide positive behavior support in elementary schools. *Journal of Positive Behavior Interventions*, 11(3), 133-144.

Trussell, R. (2008). Classroom universals to prevent problem behaviors. *Intervention in School and Clinic*, 43(3), 179-185.