

EFFECTIVENESS AND ACCEPTABILITY OF A BEHAVIOR MONITORING  
PROGRAM FOR SECONDARY STUDENTS AT-RISK FOR EMOTIONAL AND  
BEHAVIORAL DISORDERS

A Thesis

by

JILLIAN R. WHITE

Submitted to the Office of Graduate Studies of  
Texas A&M University  
in partial fulfillment of the requirements for the degree of

MASTER OF SCIENCE

December 2009

Major Subject: Educational Psychology

EFFECTIVENESS AND ACCEPTABILITY OF A BEHAVIOR MONITORING  
PROGRAM FOR SECONDARY STUDENTS AT-RISK FOR EMOTIONAL AND  
BEHAVIORAL DISORDERS

A Thesis

by

JILLIAN R. WHITE

Submitted to the Office of Graduate Studies of  
Texas A&M University  
in partial fulfillment of the requirements for the degree of

MASTER OF SCIENCE

Approved by:

Chair of Committee,	Mack Burke
Committee Members,	Kimberly Vannest
	Robin Rackley
Head of Department,	Victor L. Willson

December 2009

Major Subject: Educational Psychology

## ABSTRACT

Effectiveness and Acceptability of a Behavior Monitoring Program for Secondary Students At-Risk for Emotional and Behavioral Disorders. (December 2009)

Jillian R. White, B.A., Baylor University

Chair of Advisory Committee: Dr. Mack Burke

Schools are facing an increasing pressure to deal effectively with students' problem behaviors in the school environment. Research suggests that Behavior Monitoring Programs (BMPs) are effective and efficient secondary interventions to use in remedying problem behavior in the classroom and are acceptable to teachers, parents, and students. Most of the research on BMPs has been conducted at the elementary school level. The current study investigated the effectiveness of a BMP within a school-wide system of Positive Behavior Support (PBS) with three suburban high school students.

Problem behaviors for each student were targeted based upon previous office discipline referral data (ODR) and teacher comments, and three behavioral goals were made for students based upon these findings, along with teacher input. Effectiveness of the intervention was measured by the increase in teacher's behavioral ratings on the Daily Behavior Report Card (DBRC). Furthermore, teachers, parents and students rated the intervention's effectiveness via a five-item intervention acceptability questionnaire.

Results of the study suggest that the BMP intervention is both effective and acceptable for use with secondary students. All students experienced an increase in behavioral ratings on the DBRC during intervention. Across all students and all behaviors, the intervention resulted in an overall mean improvement of 63% in problem behaviors in the classroom. Average effect sizes were large while probability levels were low. Furthermore, all teachers, parents, and students rated the intervention as being acceptable. The average rating that all parents gave for all five items (on a 6 point scale with higher numbers indicating greater acceptability) was 5.2, while the average for students was 4.3. The student's teachers together rated all five items as 4.8.

## ACKNOWLEDGEMENTS

I would first like to thank the team of members who made the grant possible which allowed me to further my education and have the opportunity to conduct this research. I would not be writing this if it weren't for all of their strenuous efforts in promoting the education of educators and their dedication to the education of the children in our society. I appreciate each of you.

I am indebted to my committee members who graciously volunteered their time and knowledge to help with this research. My deepest gratitude goes out to my committee chair and mentor, Dr. Mack Burke, and my committee members, Dr. Kimberly Vannest and Dr. Robin Rackley, for their guidance and support throughout the course of this project. Their insightful assistance has enabled me to make this research achievable.

I want to express my appreciation to other members of the faculty and staff who have made my time at Texas A&M University an enjoyable and rewarding experience. Dr. Richard Parker and Kristie Stramaski have been invaluable sources of information and I am extremely grateful for their willingness to share their expertise. Many thanks also go out to the teachers, parents, and students who were willing to sacrifice their valuable time and efforts to participate in the study.

Finally, I am grateful for all of my family and friends who have supported me throughout the last two years, Mom and Dad for their encouragement, Chris for his patience and understanding, and my closest friends and colleagues for their advice and

tolerance of me during this busy time in my life. It has been a long journey, but I have made it with all of your help!

## TABLE OF CONTENTS

	Page
ABSTRACT .....	iii
ACKNOWLEDGEMENTS .....	v
TABLE OF CONTENTS .....	vii
LIST OF FIGURES .....	ix
LIST OF TABLES .....	x
1. INTRODUCTION: PROBLEMS AND CURRENT RESEARCH .....	1
1.1 High School Dropouts and Students with Emotional and Behavioral Disorders.....	2
1.2 Positive Behavior Support.....	3
1.3 Behavior Monitoring Programs.....	4
1.4 Daily Behavior Report Cards .....	9
1.5 BMP/DBRC Acceptability .....	12
1.6 Purpose of Study and Research Questions .....	15
2. METHODS.....	17
2.1 Participants .....	17
2.2 Setting.....	18
3. PROCEDURES .....	20
3.1 Phase 1/Baseline.....	21
3.2 Phase 2/Intervention .....	22
3.3 Fidelity of Implementation.....	24
3.4 Experimental Design .....	25
3.5 Dependent Variable.....	26
3.6 Social Validity .....	27
3.7 Reliability .....	28
3.8 Data Analysis .....	31
4. RESULTS .....	34

	Page
4.1 Trevor DBRC .....	34
4.2 Stewart DBRC.....	37
4.3 Bryan DBRC .....	41
4.4 Acceptability .....	48
4.5 Fidelity .....	49
5. DISCUSSION AND CONCLUSION.....	51
REFERENCES.....	59
APPENDIX A .....	63
APPENDIX B .....	65
APPENDIX C .....	67
APPENDIX D .....	68
APPENDIX E.....	69
APPENDIX F .....	70
APPENDIX G .....	71
APPENDIX H .....	73
APPENDIX I.....	74
APPENDIX J.....	75
APPENDIX K .....	76
APPENDIX L.....	77
VITA .....	78

## LIST OF FIGURES

	Page
Figure 1	Trevor Behavior 1/On-task..... 35
Figure 2	Trevor Behavior 2/Teacher Assistance ..... 36
Figure 3	Trevor Behavior 3/Compliance ..... 37
Figure 4	Stewart Behavior 1/Adult Interaction ..... 39
Figure 5	Stewart Behavior 2/Peer Interaction ..... 40
Figure 6	Stewart Behavior 3/Compliance..... 41
Figure 7	Bryan Behavior 1/On-task..... 42
Figure 8	Bryan Behavior 2/Appropriate Language ..... 44
Figure 9	Bryan Behavior 3/Compliance ..... 45
Figure 10	Behavior 1 for All Students..... 46
Figure 11	Behavior 2 for All Students..... 46
Figure 12	Behavior 3 for All Students..... 47

## LIST OF TABLES

		Page
Table 1	Reliability Data for All Students Over All Five Sessions.....	30
Table 2	AB Contrasts for Analysis.....	47
Table 3	Acceptability Ratings for Trevor.....	48
Table 4	Acceptability Ratings for Stewart .....	48
Table 5	Acceptability Ratings for Bryan.....	49
Table 6	Acceptability Ratings for All Students.....	49

## 1. INTRODUCTION: PROBLEMS AND CURRENT RESEARCH

Problem behavior in schools is detrimental to student learning and success, and antisocial behavior of some children is a concern in many schools (Irvin, Tobin, Sprague, Sugai, & Vincent, 2004). Behaviors such as aggression, noncompliance, disruption, and vandalism interfere with a school's ability to provide a safe, positive setting for students to learn. Schools are facing an increasing pressure to educate students with problem behaviors in the school environment (Fairbanks, Sugai, Guardino, & Lathrop, 2007). The traditional school approach to managing behavior that focuses only with punishing students after problem behaviors occur, such as corporal punishment, suspensions, and detentions, is often ineffective, and many times is counterproductive (Sprague & Walker, 2000). School policies that primarily use punitive consequences are just as likely to have the opposite of the intended effect, namely the decrease in problem behaviors, and in the long run, may actually increase the number of students put at risk for dropout (Hammond, Smink, & Drew, 2007). Educators must utilize alternative, non-punitive ways in order to reduce problem behavior in the classroom.

---

This thesis follows the style of *Journal of Positive Behavior Interventions*.

### *1.1 High School Dropouts and Students with Emotional and Behavioral Disorders*

Dropout prevention is especially important in high school as approximately 76% of students who do drop out of school fall in the 15-18 year old age range (U.S. Department of Education, 2001). Furthermore, high school dropouts tend to experience difficulties in finding employment and receiving higher incomes than those who graduate (McIntosh, Flannery, Sugai, Braun, & Cochrane, 2008). Barton (2006) stated that dropouts will generally find work that still places them close to the poverty line. Dropouts also represent a large percentage of the country's prison population (U.S. Department of Justice, 2000).

The need for a focus group on dropout prevention is especially true for students with Emotional and Behavioral Disorders (EBD). The National Longitudinal Transition Study-2 (NLTS2) indicated that among dropouts with EBD, 58% have been arrested at least once and 43% have been on probation or parole (Wagner, Newman, Cameto, Levine, & Garza, 2006). Furthermore, the NLTS2 reported that 44% of students with EBD drop out of grades 9-12, which is the highest of any disability category (Wagner et al, 2006).

Problem behavior in schools has “been well-documented to have a direct impact on high school dropout rates” (Suhyun, 2007, p. 196) and students with EBD in high school are especially in need of interventions (McIntosh et al., 2008). Hammond et al. (2007) found in their review of risk factors associated with school dropout that 41.7% of studies reviewed cited misbehavior as a significant factor. The problem behaviors exhibited by students at-risk for EBD often increase the likelihood of their being

suspended and/or expelled which in turn can become a barrier to finishing high school (Tobin & Sugai, 1999). One approach for intervening with problem behaviors at the secondary level is school-wide positive behavior supports (SWPBS).

### *1.2 Positive Behavior Support*

Sugai and Horner (2006) state that SWPBS reflects a body of research on proactive interventions such as social skill instruction, function-based support, token economies, and positive reinforcement. The purpose of SWPBS is to provide educators, school teams, and administration with the tools and systems needed to increase prosocial behavior and decrease problem behavior (Sugai & Horner, 2006). SWPBS uses a multi-tier continuum of supports that focuses on preventing the development of problem behavior (Sugai & Horner, 2006). Within the three-tier model, primary prevention is directed towards all students and across all settings, and involves school, family, and community members. In the next tier, secondary prevention strategies are used that are applied to the relatively small portion of students who require more support than primary prevention. Finally, tertiary prevention involves highly individualized and intensive function-based supports for those students whose behaviors are unresponsive to both primary and secondary interventions (Sugai & Horner, 2006).

Schools have experienced positive results using SWPBS in order to reduce behavior problems. Netzel and Eber (2003) found that after just one year of teaching school-wide rules, working on class management, and recognizing and acknowledging appropriate student behavior, an urban school experienced a 22% reduction in overall suspensions and office discipline referrals had decreased as well. SWPBS is effective

because it offers positive, effective, data-driven, and collaborative alternatives to traditional punitive discipline approaches and a means to identify problems, implement interventions, and also assess program effectiveness (Safran & Oswald, 2003). SWPBS has shown promise in improving school climate, reducing problem behavior, and preventing the development of problem behavior (Sugai & Horner, 2006; Netzel & Eber, 2003; Safran & Oswald, 2003). One secondary intervention approach that has been used in SWPBS is Behavior Monitoring Programs (BMPs).

### *1.3 Behavior Monitoring Programs*

BMPs are secondary level, targeted interventions that are currently used in many SWPBS models (Hawken, MacLeod, & Rawlings, 2007). When primary levels of prevention are not effective, the BMP is an intervention that can be used for students that exhibit at-risk behaviors in schools, but do not need tertiary levels of support (Crone, Horner, & Hawken, 2004). BMP programs typically include check-in/check-out and a daily summary progress report. One goal of the BMP is to increase teacher, parent, and student cooperation by providing summary feedback regarding behavior to students and parents, increasing positive student-teacher interactions. Often, behavioral goals are incorporated into the BMP on a daily and weekly basis. Some programs may vary slightly and may have small procedural differences. For example, in a study conducted by March and Horner (2002), the authors had students get teacher ratings on their daily summary progress reports at the end of every class period, while in a study by Todd, Campbell, Meyer, and Horner (2008) students were only required to give this report to three selected teachers each day for rating. BMPs may also differ in the giving of

feedback, rewards, or in the consequences that may be delivered, however, the basic framework for the program and its goals are generally the same (Crone et al., 2004).

**BMP Components.** Crone et al. (2004) provides basic requirements for setting up a BMP. These steps were used as a model for the current proposal. First, the student checks in with a BMP coordinator or a selected person of choice before school starts. At this time, the student is given a daily goal sheet/report card and prompted to have a good day. Students are also given class materials if needed and given feedback on what they should work on behaviorally in order to improve performance throughout the day. Second, the student gives the report card to their teachers during the day to evaluate their behavior during classes. The teacher rates their selected behaviors, gives the child brief positive feedback, and returns the form to the student. Third, the student checks out with the BMP coordinator or the selected person of choice at the conclusion of the day, and at this time is given feedback on the day's performance. The student may receive rewards for having a successful day or week. Finally, the student brings the report card home for the parent or guardian to sign and returns it the next day during check in.

**Check-In/Out Based BMPs.** Research has shown that the BMP and the other similar interventions have successfully aided in the reduction of problematic behaviors exhibited by students in the classroom. Hawken and Horner (2003) evaluated the BMP intervention within a middle school school-wide system of PBS, in which they analyzed the results of the BMP among four students on two different dependent variables: the percentage of observation intervals with problem behavior and academic engagement. They used a multiple baseline across subjects design and found that all four of the

participants, two of which were receiving special education services, experienced reductions in the mean of problem behavior and increases in mean level of academic engagements. Furthermore, a larger effect of the BMP was that students became more consistent in participating in class without problem behavior (Hawken & Horner, 2003).

The BMP intervention has been effective in the elementary settings as well. Like Hawken and Horner (2003), Todd et al. (2008) used a multiple baseline across subjects design with direct observations of problem behaviors as a dependent variable in studying the BMP in four male elementary students. Two of the boys were Caucasian, one was Native American, and the other was African American. One student in the study received special education services. All four participants exhibited reductions in problem behaviors after the implementation of the BMP as determined by both the percentage of intervals with problem behaviors and the occurrence of ODRs.

Filter et al. (2007) examined the effectiveness of the BMP program as well, but solely determined by ODR data in a quasi-experimental design. Overall, for the 12 elementary participants, significant decreases in ODRs per week were detected while they were participating in the intervention. In addition, while participants were in the program, the occurrence of ODRs decreased from one ODR every 5.59 days to one every 8.47 days. Positive behavioral outcomes were exhibited by two-thirds of the participants suggesting that the program is a “viable targeted behavioral intervention with students for whom primary level preventative measures are insufficient” (Filter et al., 2007, p. 69).

Additionally, Hawken et al. (2007) found similar results for the majority of elementary students when using ODR data as the dependent variable: The BMP was successful in reducing problem behaviors. Twelve students participated in the intervention, two of which were from ethnic minority backgrounds and one that qualified for special education services as a student with a learning disability. The participants were grouped into groups of three for a total of four groups, and the BMP intervention showed reductions in the average number of ODRs per month across all four groups of students. Group 1 had a 51% reduction from baseline to intervention and Group 2 averaged a 46% reduction. Group 3 averaged at a 36% reduction, while Group 4 represented a 25% reduction in ODRs. While results indicated that not all students benefited from the BMP, it was effective for the majority of students as measured by the reduction of ODRs (Hawken et al., 2007).

When BMP interventions are not sufficient for some students extra measures can be taken. Although the current proposal is not interested in investigating the effectiveness of tertiary supports, it is interesting to note that the BMP can be used as a stepping stone in order to further efforts in eliminating problematic behavior in schools. March and Horner (2002) found that for students who did not experience a reduction in ODRs after the implementation of the BMP intervention, that providing these students with function-based, tertiary supports greatly decreased the intervals of problem behavior and increased the level of academic engagement for the participants. Three out of 20 students participated in this study (17 responded favorably to the BMP

intervention). Two students who were nonresponsive to the intervention received special education services while one did not.

March and Horner (2002) implemented function-based supports based upon four steps. First, a functional behavior assessment (FBA) hypothesis was developed and these hypotheses were either confirmed or not through data collected (direct observation, etc.). FBAs are conducted in order to analyze the function of a behavior by determining motivation of a variety of socially significant behavior, thereby facilitating intervention planning designed to change a behavior in a desirable direction (Carr et al., 2002). Then, behavioral supports were designed by identifying changes to be made in setting events, immediate antecedents, identifying new skills to teach, rewards to withhold due to problem behaviors, and rewards to be increased for desirable alternative behaviors. Finally, those supports were implemented. These steps allowed for a greater understanding of what the function of the behavior was for the student and a greater knowledge as to what could be done to eliminate the unwanted behaviors. While this information is valuable, it may not be needed if students respond to the secondary BMP intervention as it is less time consuming and seemingly effective, as in this study, the BMP was effective for 85% of students (March & Horner, 2002).

Similarly, Fairbanks et al. (2007) examined classroom behavior support in ten second grade students whereby a BMP intervention was investigated based upon Hawken and Horner's (2003) guidelines. Four out of eight students indicated responsiveness to the intervention. For the students who were not sufficiently responsive, function-based supports were implemented in addition to the BMP

intervention and proved to be effective. The data from their findings support previous findings that suggest that BMP can be effective for students, however, those students who do not experience success with the intervention can benefit from more intensive function-based programs.

McCurdy, Kunch, and Reibstein (2007) found in their study on the BMP that out of eight participants, 50% showed successful outcomes, 25% showed moderately successful outcomes, and 25% showed undesirable unsuccessful outcomes in one urban elementary school for a group of students requiring a more intensive intervention. Despite the variability in outcomes, the authors state that the intervention can be easily implemented and used as an alternative to conducting a full FBA. It has proved to be “an effective entry procedure to addressing student problem behavior” (McCurdy et al., 2007, p. 16). As previously discussed, students failing to make progress, can be aided by combining BEP data and a brief FBA to determine functionality of the behavior. However, unlike FBAs, larger amounts of students can be addressed simultaneously with the implementation of the BEP (Crone et al., 2004).

#### *1.4 Daily Behavior Report Cards*

Daily Behavior Report Cards (DBRCs) are a critical part of the BMP. Past research has demonstrated that daily behavior monitoring can also be beneficial to students in reducing behavior problems. McCain and Kelly (1993) conducted a study using daily behavior monitoring with a school-note home intervention involving an ADHD preschooler with moderately severe symptoms using a reversal (ABAB) design in which baseline and intervention phases were altered two times. On the note home,

parents were instructed to deliver consequences as seen fit after reviewing performance ratings. The student showed positive results in each of the two implementation phases of the school-note home intervention in regards to increased intervals of on-task behavior, a decrease in disruptive behaviors, and participating in fewer activities for longer amounts of time. The authors suggest that daily behavior monitoring is effective because it requires the combined efforts of teachers, parents, and students. Furthermore, it allows parents to deliver consequences and still allows for the student to receive more positive, consistent feedback from teachers. The authors argue for the setting of goals and rewards for goal achievement to improve behavior.

Additional research on students with ADHD has shown promise for the school-note home intervention as well (Jurbergs, Paicic, & Kelley, 2007). African American, low-income, elementary students with ADHD participated in a study that utilized the school-home notes both with and without a response cost (reversal design with alternating treatments). The two treatments were alternated throughout the intervention, and the only difference between the two notes was that the response cost note had five extra smiley faces on it. Teachers were instructed to have students cross off a smiley face for each instance of disruptive behavior, and if there were remaining smiley faces that had not been not crossed off at the end of the day, the student would gain an extra point on his rating sheet. Jurbergs et al. (2007) found that both of these notes are equally effective in increasing on-task behavior rates and accurate class work completion.

Furthermore, Kelley and McCain (1995) examined daily behavior monitoring in five elementary school-aged students with school-notes home similar to those

investigated by Jurbergs et al. (2007). They found that while all academic performance in inattentive children attending regular education classes was improved by the intervention, the note with the response cost produced greater performance. This finding suggests that notes with response costs may provide students with more immediate feedback on problem behavior which in turn results in increased performance. Furthermore, tailoring the intervention to meet the developmental level of each student is important and should not be overlooked.

Davies and McLaughlin (1989) evaluated the effects of a daily report card on disruptive behaviors in primary students with two participants in a resource classroom. Unlike the previous studies discussed, parents were asked to only give praise for teacher feedback and not to make negative comments. Mean number of inappropriate behaviors were reduced between baseline and intervention phases of the study for both students suggesting that DBRC and home-based contingencies can decrease disruptive behaviors in schools.

In investigating the reliability of daily behavior ratings Chafouleas, Christ, Riley-Tillman, Briesch, and Chanese (2007) found that daily behavior ratings are likely to approximate or exceed reliability coefficients of .70 after 7 ratings are collected across 4-7 days, and .90 after 10 ratings. It should also be noted that behavior monitoring programs may provide “data consistent with that obtained via systematic direct observation” (Chafouleas, Riley-Tillman, Sassuu, LaFrance, & Patwa, 2007b, p. 30). Chafouleas, Christ, et al. (2007) examined student behavior in the elementary setting in order to investigate the consistency of information obtained from a DBRC versus direct

observation. The authors found that for two out of three students direct observation and DBRC ratings produced a similar pattern of results suggesting high consistency across raters and methods. This finding is important because it suggests that DBRC data can be just as effective as using direct observation data when trying to make reliable decisions on student progress when tracking the effects of an intervention. Furthermore, Chafouleas et al. suggest that it can be beneficial to have teachers complete the DBRC instead of having observers do so because of its results in the reduction in reactivity of both teachers and students, and it is a more efficient in a school's use of resources.

### *1.5 BMP / DBRC Acceptability*

BMPs and DBRCs apparent effectiveness is promising, and research suggests that they have high social validity as well. Filter et al. (2007) found the BMP intervention as rated by teachers, administrators and staff to be associated with perceived effectiveness. Furthermore, according to Todd et al. (2008), 9 out of 10 of the teachers who used the intervention in their study would recommend it to other schools. Jurbergs et al. (2007) found that all teacher, parent, and student participants would recommend the intervention to others as well. Participants also believed that the intervention was easy to implement, and teachers appreciated not having to greatly alter classroom management techniques. All moms were very pleased with the students' behavior following implementation except for one (out of six) which stated that she was somewhat pleased (Jurbergs et al., 2007). Students also felt that the BMP was helpful in improving their behaviors and academic performance (Hawken & Horner, 2003).

Fairbanks et al. (2007) found similar results as the intervention was considered by students to be a positive experience.

Chafouleas, Riley-Tillman, and Sassu (2006) conducted a measurement study in which a survey of teachers was taken in order to gain insight into the reported use and acceptability of daily behavior report cards. Teachers reported that the DBRC is “highly adaptive in representing a broad array of possibilities, rather than having a single, scripted purpose” (Chafouleas et al., 2006, p. 180). Teachers reported using DBRCs for the observation of behavior (32%), to change behavior (60%), and to communicate with others about behavior (62%). When asked about acceptability of the intervention for monitoring purposes, the majority of ratings fell in the *slightly agree to agree* range. Acceptability in collecting and sharing of information, the assessment’s ability to handle problems, and the overall benefit to the child all fell in these ranges. Acceptability for the intervention’s procedures, perception of the intervention’s overall benefit to child, and ratings of the intervention’s ability to handle problems fell in the *slightly agree to agree* range as well.

In a more recent study, Riley-Tillman, Chafouleas, Briesch, and Eckert (2008) found similar results when investigating the DBRCs acceptability compared to acceptability of direct observations. Respondents were randomly selected school psychologists. Acceptability ratings for the DBRC and direct observations were similar with ratings falling in the *slightly agree to agree* range. This finding indicates a moderate degree of acceptability for both measures and is important because it supports past claims that the DBRC is an accepted method of behavioral assessment.

The DBRC appears to be acceptable to parents and peers as well. Davies and MacLaughlin (1989) found that parents enjoyed the increased communication with teachers that occurred within the DBRC program. Parents also appreciated hearing positive comments on behavior instead of only negative ones (Jurbergs et al., 2007). Furthermore, according to peers the intervention helped the students exhibiting behavior problems in improving behavior and work habits (Davies & MacLaughlin, 1989). It seems as though the BMPs and DBRCs degree of high acceptability make them appealing for schools to incorporate into school-wide systems of behavioral supports for students needing additional behavioral supports.

**Current Research Limitations.** Despite the abundance of desirable results that research in this area has produced, it is important to note that current studies have limitations and should be considered in the evaluation the BMP's effectiveness. Many of the current studies state that small sample size and small number of data points limit the result's ability to generalize to other schools, students, and populations (Chafouleas, Christ, et al., 2007; Fairbanks et al., 2007; Filter et al., 2007; Hawken et al., 2007; March & Horner, 2002). Additionally, of the studies conducted utilizing ODR data as a measure of BMP effectiveness, ODR data reliability and validity data was not analyzed (Fairbanks et al., 2007; Filter et al., 2007; Hawken et al., 2007). Furthermore, a few studies did not consistently receive the parental signature element of the intervention, however, in these cases, the intervention still proved to be effective (Hawken & Horner, 2003). Finally, studies in which observers as well as teachers rated student behavior

should be examined with caution as the observers could have produced reactivity in both students and teachers (Chafouleas, Christ, et al., 2007; March & Horner, 2002).

### *1.6 Purpose of Study and Research Questions*

Collectively, the research on the BMP intervention seems to argue for its efficiency and effectiveness (Crone et al., 2004). BMPs have been proven to be effective when examining several different dependent variables (direct observation, ODRs, and DBRC ratings) with students from different ethnic backgrounds (African Americans, Latino Americans, Asian Americans, and European Americans), and with different types of disabilities (ADHD and LD) in both resource and general education classrooms in the elementary and middle school setting (Chafouleas, Christ, et al., 2007; Davies & McLaughlin, 1989; Fairbanks et al., 2007; Filter et al., 2007; Hawken & Horner, 2003; Hawken et al., 2007; Jurbergs et al., 2007; Kelly & McCain, 1995; March & Horner, 2002; McCain & Kelly, 1993; McCurdy et al., 2007). Moreover, BMPs have also been found to be effective with various types of problem behaviors such as staying on-task (Jurbergs et al., 2007; Kelly & McCain, 1995), defiance (Todd et al., 2008), disruption (Davies & McLaughlin, 1989; McCain & Kelly, 1993), and completion of school work (Hawken & Horner, 2003; March & Horner, 2002). However, there is a gap in the literature that exists. There are few studies examining the effectiveness of BMP oriented programs at the secondary level, in particular at high schools.

Most research that has been conducted on the BMP intervention has focused primarily on elementary aged students as “younger children are more likely to be responsive to and maintain the positive outcomes from early prevention and intervention

programs” (Cheney, Flower, & Templeton, 2008, p. 109). This study seeks to fill a void in knowledge and in literature on the BMPs effectiveness in high school students that need secondary levels of support within a school-wide system of PBS. The purpose of the current study is to further efforts in investigating the effectiveness and acceptability of the BMP intervention in reducing problematic behaviors in the secondary classroom. The two main research questions are posed: First, does the BMP intervention reduce behavior problems in the secondary classroom as determined by an increase of DBRC ratings by teachers? A second question posed focuses on whether the BMP intervention is an acceptable intervention to use in reducing behavior problems in the classroom according to teachers, students, and parents as determined by the results of a BMP Acceptability Questionnaire.

## 2. METHODS

### *2.1 Participants*

Six students were chosen to participate in this study, however, due to time constraints and the inability to gain consent for all students, only three students actually participated. Three male students in the 15-16 year old age range (10<sup>th</sup> grade) participated and were chosen after reviewing teacher recommendations. They were only allowed to participate if 1) they have attended the school for the entire academic year, 2) they had received at least 5 ODRs within the previous semester (Fall of 2008), and 3) students, parents, and teachers consented to the intervention and were willing to be trained on how to use the BMPs protocols.

Trevor. Trevor is a 16 year old Caucasian male in the 10<sup>th</sup> grade receiving special education services as a student with a learning disability (LD). He receives instruction in the general education setting. Trevor has been diagnosed with ADHD as well, and is currently unmedicated. Problem behaviors include being off-task, disrupting the classroom, and non-compliance with staff directives. He also tends to sleep in class. He has received seven office referrals this school year so far. According to teacher surveys, Trevor's problem behaviors tend to occur more frequently and severely in his math class.

Stewart. Stewart is a 16 year old, African American male in the 10<sup>th</sup> grade receiving instruction in the general education classroom. Problem behaviors consist of inappropriate verbal responses to teachers and peers, classroom disruption, and the

inability to accept criticism/responsibility for his actions and poor decisions. Examples of these behaviors include arguing with staff, deliberately engaging in verbal altercations with peers, and consistent talking to peers. Furthermore, his inability to handle criticism is displayed through disrespect (smacking lips, rolling eyes, and rude comments under his breath). He has been referred to the office seven times so far this school year. According to teacher surveys, Stewart's problem behaviors tend to occur more frequently and severely in his science class.

Bryan. Bryan is a 15 year old, African American male in the 10<sup>th</sup> grade receiving instruction in the regular education setting. Problem behaviors include inappropriate verbal interactions with peers and inappropriate verbal responses to adults. Examples of these behaviors include profanity and arguing. He has received out of school suspensions for these behaviors eight times so far this school year. According to teacher surveys, Bryan's problem behaviors tend to occur more frequently and severely during his math class.

## *2.2 Setting*

The study took place in a suburban high school located in southeast Texas. It serves approximately 2900 students in grades 9 through 12. There are seven periods in a school day. The school is ethnically diverse as approximately 42% of the students are classified as Latino Americans, 36% of students are Caucasian, 15% are African American, 5% are Asian Americans, and 2% are of other ethnicities. Thirty-seven percent of students in the school's population are considered low-income. Furthermore,

8% of students are receiving special education services and 6% of students are receiving services through the English as a Second Language (ESL) program.

The school is currently following a school wide system of positive behavior supports in hopes of reducing the number of problem behaviors it must encounter. It teaches behavioral expectations and rewards students for following them. It also teaches prosocial behaviors in efforts to improve school climate. Efforts have also been taken to assess and manipulate environmental factors that may predict occurrences of misbehavior. Teachers and staff have been trained on using operationalized policies and guiding principles and are experienced in using the procedures under SWPBS through staff development classes and trainings at the high school. Currently, the school has a program in place for students with tertiary level behavior problems which includes positive reinforcement and frequent monitoring, however, it lacks secondary supports for students with at-risk behaviors. Most students performing at this level receive punitive consequences for misbehavior. Research took place in the general education classroom. Some classes for some students did have a regular education teacher and a special education teacher or a regular education teacher and a paraprofessional.

### 3. PROCEDURES

The researcher collaborated with teachers of the school in choosing the students for study participation. Teachers provided recommendations of students with difficult classroom behaviors who could potentially benefit from the study. After students were selected, parents were asked to give their consent and students needed to assent as well to participate in the study by signing the Parental Permission/Consent Form (See Appendix A) and the Student Assent Form/Informational Letter (See Appendix B). Once consent and assent was attained, each student's teachers completed a survey on student problem behaviors. This was done in order to gain a clearer perspective of the behaviors that the students exhibit. Past ODR records were reviewed before beginning the study, and three DBRC goals were then made for each student according to the problem behaviors exhibited on ODRs and by information obtained by teachers on the Teacher Survey of Behavior (See Appendix C for an example of the survey). Goal behaviors were operationalized in order to produce more reliable ratings on the DBRC by teachers.

Teachers, parents, and students were then trained by the researcher via conference either face-to-face or over the telephone, prior to the start of this research, in order to ensure competence and understanding during the study. Trainings focused on the BMP intervention and specific procedures required for participation in this study. Every participant received general information on the BMP such as what it requires, and its procedures and goals, etc. In addition, teachers and data collectors were given

instructions for giving behavioral ratings and trained to produce reliable ratings. Then, reliability ratings on DBRC ratings were taken. Furthermore, parents were also trained on giving positive feedback to students after viewing teacher ratings on their child's daily behavior report card. Students were informed of requirements for their participation as well. Signatures were attained to document that training was provided (See Appendix D). Finally, a list of resources was also compiled for students and/or parents to refer to in the event that any unintended consequences resulting from this study produced distress or strain on the parent/child relationship (See Appendix E).

The school is currently using a version of the BMP program with selected students exhibiting problem behaviors in the classroom; therefore, teachers were already somewhat knowledgeable as to the workings of the program. Furthermore, teachers have been trained in school procedures for giving ODRs (See Appendix F for an example write-up form), and in PBS in general, by the principals themselves through staff development. There were two phases of study: Baseline and intervention.

### *3.1 Phase 1 / Baseline*

During baseline, teachers began using the DBRC (See Appendix G for an example daily report card) to observe and rate students' behaviors in each of the student's classes. Students' behavior was only observed at this time and teachers gave the rated DBRC forms (each Friday) back to the researcher, not to the student. Students did not receive any feedback or rewards on performance either and were blind to the fact that they are being observed during baseline.

After collecting baseline data, total DBRC ratings were analyzed. The results of this analysis were later compared with the results of intervention data. The researcher consulted with teachers and staff to establish an initial weekly goal rating for each student. Furthermore, the researcher met each week on Friday with teachers and staff to discuss student behavior and collect DBRCs for that week.

### *3.2 Phase 2 / Intervention*

The BMP was then implemented at various times for each student involved in the study using Crone et al. (2004) guidelines. Students reported to the researcher during morning check-in which took place when they got to school. Attendance during check-in was taken by securing student signatures on the Check-in/Check-out roster. This roster served as a sign in and out sheet to document student attendance, if the previous day's DBRC was returned, and if researcher feedback on behavior performance was provided (See Appendix H). Students were given a DBRC in which they were rated on meeting their three behavioral goals by the teachers throughout the day. The researcher also collected the previous day's DBRC at this time. If the student failed to return the form signed by his/her guardian it was be documented on the Check-in/Check-out roster in order to later assess this aspect of fidelity of implementation. Class supplies were handed out if needed and the students were prompted to have a good day.

The students then gave the DBRC to each teacher throughout the school day at the beginning of each class period in which the teacher rated to what degree a student performed his/her goal behaviors (5=Always/Mostly Always, 4=Often, 3=Sometimes, 2=Rarely, 1=Mostly Never/Never) and returned it to the student at the end of class. It

was the students' responsibility to give the DBRC to teachers to complete. However, teachers were instructed to remind students if they remembered themselves. Teachers were asked to give brief positive feedback to the students for each behavioral goal at the end of class regarding that class period's behavior using simple statements of 1) praise if the student performed at a 4 or 5 rating or 2) encouragement if the student performed at a 2 or 1 rating or 3) both praise and encouragement if a student performed a goal at a 3 rating.

In this study, praise consisted of the researcher and teachers using short statements that indicated that a student has done well on his behavior goal in class. Examples of such statements were: "Well done!" "Good work!" "Nice job!" or "Keep it up!" Encouraging statements like "Let's try again tomorrow!" or "You can do better!" were used when a student had not been successful in meeting his behavior goal(s). A list of possible statements was compiled so that all teachers and the researcher would use praise and/or encouragement in a uniform manner (See Appendix I for example scripts of positive or encouraging feedback).

The students then checked-out with the researcher at the conclusion of the school day and received a small reward of their choice (such as movie tickets/certificates) if ratings were attained from all classes and they met their daily point goals. Furthermore, the students were given praise for positive teacher ratings and/or encouragement for the next day if behavior was unacceptable during any class period. The same feedback script used by teachers was also used by the researcher. Finally, students took the form home, after the researcher made a copy of it to keep in records, to get parental signatures

on the DBRC and returned the completed form to the researcher the next day during check-in.

Students were also given a larger reward of their choice (such as a more expensive movie certificate) upon meeting their weekly goal rating which was determined by the researcher and teachers before the study began. Ideally, weekly goals for intervention would have been determined after investigating baseline DBRCs and consulting with staff, and weekly goals for some students may have been altered after researcher and teacher collaboration if 1) the goal was being too easily met or 2) if the student was having difficulty getting close to reaching that goal. However, due to time constraints these goals were never altered and remained the same throughout the study. The researcher was still able to meet each week on Friday with teachers and staff to discuss student progress and behavior and collect behavioral data.

### *3.3 Fidelity of Implementation*

Fidelity of baseline data was assessed by the researcher by examining permanent products such as the DBRC forms (See Appendix J for the form used to record fidelity data). The data collected measured the number of ratings that occurred each week. The researcher calculated the number of times that performing each element actually occurred and then divided that number by the number of times that it should have occurred (number of possible occurrences). Then, that number was multiplied by 100 in order to figure a percentage of fidelity.

Fidelity of BMP implementation was assessed by the researcher on the Intervention Fidelity Checklist each Friday (See Appendix K). The evaluation included

examining permanent products such as DBRCs and Check-in/Check-out rosters. Fidelity of implementation was assessed in order to determine the degree in which 1) students checked-in in the morning, 2) teachers rated behaviors throughout the school day, 3) students checked-out after school, 4) parents signed the DBRC and it was returned to the researcher the next morning during check-in, 5) researcher feedback was given, and 6) rewards were delivered upon the students' contingency of meeting goals. Percentages for fidelity for intervention data was determined in the same manner used for figuring baseline data fidelity. Fidelity was taken in both instances to make sure that all of the elements of the program were put into place as they needed to be.

### *3.4 Experimental Design*

This study employed a multi-phase, time-lagged, multiple-baseline across subjects design (Cooper, Heron, & Heward, 2007) in order to determine whether there was a relationship between the implementation of the BMP and a decrease in student problem behavior according to an increase in DBRC ratings. This design was chosen because a multiple-baseline design can allow for the individualization and analysis of data for each participant, and multiple-baseline designs have high internal validity. Furthermore, the multiple-baseline is a design of choice when it is not possible for subjects to return to original baseline (Gay & Airasian, 2000). In this study, it was not considered to be acceptable to take an effective intervention away from a student when it could be beneficial to student success.

The study implemented two phases: Baseline and intervention. Baseline served to collect information about student behavior before investigating the effectiveness and

acceptability of the independent variable. After baseline, the intervention phase consisted of collecting data once the BMP intervention had been implemented. Ideally, the length of each phase should have been determined by the data being collected. For each phase change, an attempt should have been made to wait until data had stabilized or until there had been a reasonable amount of time that had passed for a change in behavior to occur if it was going to, however, due to time constraints, some phase changes happened prematurely. This study attempted to use a replication design with the multiple-baseline design in which each of the three data series would include two students in each series instead of one, however due to aforementioned issues, only three students could participate in the multiple-baseline design and a replication design was not possible.

### *3.5 Dependent Variable*

The Daily Behavior Report Card. The Daily Behavior Report Card (DBRC) was the main dependent variable in this study. The DBRC is a goal sheet and a device which serves to document each student's progress in meeting his behavioral goals. These goal behaviors were rated by teachers as previously mentioned and sent home to parents each night. The sheet determined the feedback to be given to the students as well. The researcher in collaboration with staff, students, and parents created daily and weekly goals for each student based upon his/her problem behaviors prior to beginning the study. This goal was determined by meeting a percentage of their total possible points. The three DBRC goals were different for each student as not all students had the same targeted behaviors. DBRC goals were made for students based upon previous ODR data

and teacher comments. Examples of goal behaviors as well as non-examples were included on the DBRC (in addition to operational definitions for each one) in order to standardize ratings and produce more reliable teacher ratings on the DBRC.

During implementation of the BMP, teachers used the sheet to indicate the percentage of each class period that each student performed his behavioral goals. For example, if one of a student's targeted behavior was the inability to stay on task, the goal on the DBRC was to stay on-task and the teacher rated this behavior on a scale according to how much time the student was on-task during each period. Higher ratings indicated a greater percentage of the class period that the student met this goal. The DBRC then went home each night with each student for parents to review and sign.

### *3.6 Social Validity*

In order to determine the degree of acceptability of the BMP program, at the conclusion of the study, a five-item BMP Acceptability Questionnaire was administered similar to that used by Hawken and Horner (2003). Teachers, students, and parents were asked to answer questions which were designed to gauge the extent to which the BMP was perceived to (a) improve behavior at school, (b) improve academic performance, (c) be worth the time and effort, (d) be worth recommending to others, and (e) be easy to implement. Scores on the BMP Acceptability Questionnaire were recorded on a Likert-like scale from 1 to 6 with higher scores indicating a more favorable impression. The questionnaire also contained two open-ended questions in order to further evaluate program effectiveness. See Appendix L for the specific questions that were included on the measure.

### *3.7 Reliability*

Participating teachers needed to reach an interobserver agreement with the researcher on the DBRC prior to participating in the study. A criterion of at least a 67% of agreement was reached for each session (at least two of the three behaviors had to be rated the same). Furthermore, if any behavior was not rated the same, teachers needed to rate each student's behaviors within 1 point (on the 5 point scale) of the researcher's rating to continue participating in the study without further training.

The initial reliability tests took place with each student's English teachers. Once the study had begun, the researcher chose class times to observe during both baseline and intervention phases to ensure that teachers were rating student behaviors reliably. These ratings occurred once a week for each student. During week one of baseline, each student's reliability checks took place in their Science classes. Week two ratings took place in Math classes, while week three checks occurred in the students' English classes. During the last week of the study, ratings took place in the Social Studies classroom. Rating sessions took place with each student's teachers over a one hour session/class period during one school day. It began with a discussion over 10 minutes to help calibrate the two observers. After discussing results and clarifying definitions, the final reliability sample was taken.

The observers used the DBRC with scale anchors and rubrics to help standardize their coding. Ratings consisted of the rater's rating each of the three goal behavior's holistically at the end of a 40 minute class period according to how much time the student performed his goal during the period. After observing, the two DBRCs were

placed together to check agreement and both agreements and disagreements were transferred to a Rater 1 x Rater 2 agreement matrix. Matrix data were then entered into the Number Cruncher Statistical Systems (NCSS) statistics program for cross tabulation which provided the Cohen's Kappa index, Cramer's V index, and Chi-squared probability levels.

Cohen's Kappa is a conservative index and does not distinguish between the degree of disagreement as it pulls away all chance data. Cramer's V is an index similar to Cohen's Kappa, however, is less conservative, and in this case, a more realistic index to use due to the rating scale used as it is less conservative. Chi-square p-values only tell if results are beyond all chance. Teachers needed to maintain the interobserver agreement during observations, and immediately participated in further training by the researcher on rating student behavior if this minimum was not being met, however, no further training was needed in this study. Reliability information for Acceptability Questionnaire data was not taken. Table 1 displays reliability calculations for each student for student averages over all sessions.

**Table 1. Reliability Data for All Students Over All Five Sessions**

Student	Index	Results Over All 5 Sessions
Trevor	Chi-square p value	0.000091
	Cramer's V	0.935414
	Kappa reliability test	0.814815
	% of agreement	86.8
Stewart	Chi-square p value	0.000257
	Cramer's V	0.924962
	Kappa reliability test	0.776119
	% of agreement	80.2
Bryan	Chi-square p value	0.004262
	Cramer's V	0.712325
	Kappa reliability test	0.628099
	% of agreement	86.8
All Students Averaged Together	Chi-square p value	0.001537
	Cramer's V	0.857567
	Kappa reliability test	0.739678
	% of agreement	84.6

During the course of the study, no individual sessions were rated under 67% of agreement and raters rated all behaviors within one point of the researcher. During baseline, Trevor's average percent of agreement was 100%, while during intervention the percent of agreement was 78%, giving him an average of 89% agreement during the study. Stewart's reliability checks showed an average of 83.5% of agreement for both baseline and intervention phases of the study, giving him an average of 83.5% agreement throughout the study. Finally, Bryan's average percent of agreement for baseline was 89%, while during baseline, raters rated behaviors at 100% of agreement, giving him an average of 94.5% of agreement throughout the study. During the whole course of the study (including the initial check before it began), percents of agreement for each student were 86.8, 80.2, and 86.8, respectively.

### 3.8 Data Analysis

The study lasted for four weeks (20 school days) due to time constraint with state testing and it being the end of the year with upcoming finals. All three students were present each day during both baseline and intervention. Each student's individual results were plotted on line graphs which indicated the level of behavior problems and goal points as determined by DBRC ratings of behaviors during both baseline and intervention phases. In order to determine the answer to the first research question, three graphs were displayed for each student, one for each targeted behavior showing DBRC ratings. Graphs are also included to illustrate the multiple-baseline design of the study. In order to answer the second research question, tables on page 48 and 49 were constructed to illustrate acceptability ratings on the questionnaire.

For the first research question, graphs were analyzed visually by determining (a) change in mean, (b) change in slope, (c) the Improvement Rate Difference (IRD), (d) intercept gap between baseline and intervention phases, and (e) the Percent of Non-overlapping Data (PND). The NCSS statistical program was used to determine the R<sup>2</sup>-squared effect size for each student's goal behaviors. According to Parker, Vannest, and Brown (2009), combining effect sizes with visual analysis can offer at least four advantages to SCR: objectivity, precision, certainty, and general acceptability. A variety of effect sizes and visual methods were analyzed in this study as a result of this finding.

In order to figure the percent of mean DBRC increase or improvement between phases, a simple algebraic formula was used. The average of all intervention scores was tallied for each behavior, and a separate number was attained by doing the same with

baseline scores. That intervention score was then subtracted from the baseline score in order to determine how many points of increase was shown between the two phases. Finally, the average number of points increased was divided by the baseline score and then multiplied by 100 to get the mean percentage of DBRC score increase.

In order to figure the IRD and PND for visual analysis, a number of steps were taken. If graphs had no overlapping scores, both of these scores equaled 100%. Parker, Vannest, and Brown (2009), stated that in calculating IRD and PND, first, the smallest number of data points needed to be removed from the graph in order to eliminate all overlap between the two sides of the contrast or between phases. This was determined visually and data was removed according to these guidelines.

Results were placed in a 2x2 matrix table and the IRD was determined by subtracting the two improvement rates. The improvement rate was figured using this equation:  $a/(a+c)-b/(b+d)$ . This equation consisted of labeling each box in the matrix where “a” indicated the number of improved scores during intervention, “b” indicated the number of improved scores during baseline, “c” indicated the number of unimproved scores during intervention, and “d” indicated the number of unimproved scores during baseline. The “needing to be removed” counts were entered in cells “b” and “c” of the table (Parker et al., 2009). The resulting number was then multiplied by 100 to get the improvement rate percentage.

Then, in order to calculate PND the same table was used, however, was calculated with a separate equation. The number of improved scores during both phases

(a+d) was divided by the number of total scores possible (a+b+c+d). This calculated number was then multiplied by 100 to get the percentage of non-overlapping data.

A Mean and Trend Shift (MTS) statistical test (Parker et al., 2005) was also conducted on A versus B phases to determine the statistical magnitude of the effect between phases (R<sup>2</sup>-squared effect size). The MTS takes into account both level of change and trend shift into the model resulting in an effect size that gives credit for both a jump in level between phases and for the improvement in trend line slope. The analysis was performed within the regression module of NCSS statistical package. Scores were designated the dependent variable (Y), and the two independent variables were Phase and Time. The MTS analysis fits trend lines to the two phases independently of one another. The analysis resulted in an R<sup>2</sup>-squared effect size (which ranges 0 to 1) and a p-value, which tells the probability of obtaining the effect size by chance alone (Allison & Gorman, 1993; Faith, Allison, & Gorman, 1997; Parker et al., 2005; Parker & Brossart, 2003). For all students, a MTS analysis was done with all behaviors because the intervention phases showed a clear improvement trend.

## 4. RESULTS

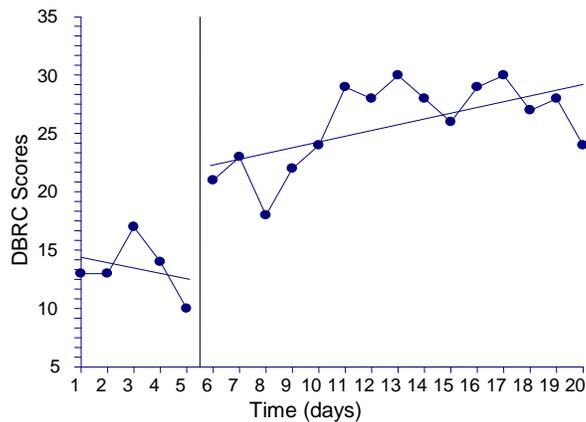
### 4.1 Trevor DBRC

Trevor participated in one week of baseline and three weeks of intervention. Results show an increase for all three goal behaviors after implementation of the BMP intervention. For each behavior there is a clear increasing trend during intervention which indicates improvement over time.

On-Task. Figure 1 illustrates Trevor's performance for behavior 1. During baseline, Trevor's mean DBRC rating for on-task behaviors was 13.4 with a range of 10-17. During intervention, the average rating increased to 25.7 for on-task behaviors (18-30 range). The average number of points that on-task behavior increased was 12.3, indicating a 92% mean improvement from baseline. During baseline, for on-task behaviors Trevor displayed a decreasing trend which indicates that his behaviors were getting worse during baseline. During intervention there is a substantial increase in trend/slope indicating greater improvement over time. There were no overlapping scores (100% of non-overlapping scores) between phases and the graph illustrates a very large intercept gap at the onset of the intervention phase. A large intercept gap and a change in trendline slope together are strong evidence for a causal link between phases.

Statistically, the effect size was large for on-task behaviors, and tells us there was strength in the relationship between phase and performance. Furthermore, the p-value was very low indicating that results are trustworthy and that they would not have happened by chance alone. For on-task behaviors, the resulting R<sup>2</sup> effect size from the

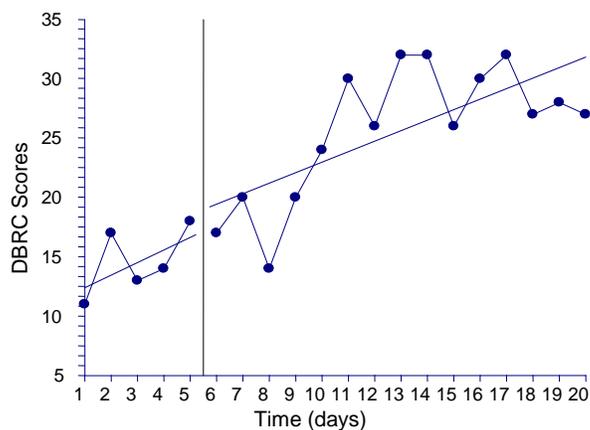
MTS test was .82 ( $p=.00$ ), indicating that 82% of the change in scores may be due to the difference between the A and B phases.



**Figure 1. Trevor Behavior 1/On-task.**

Teacher Assistance. Figure 2 illustrates Trevor's performance for behavior 2. During baseline, Trevor's mean DBRC rating for teacher assistance behaviors was 14.6 with a range of 11-18, while during intervention the average rating increased to 24.5 (14-32 range). The average number of points that teacher assistance behaviors were increased was 9.9, indicating a mean of 69% improvement from baseline. During both baseline and intervention phases for teacher assistance behaviors, Trevor displayed an increasing trend which indicates that his behaviors were improving over time during both phases. There were three overlapping scores (85% of non-overlapping scores) between phases and the graph illustrates a very small intercept gap at the onset of the intervention phase.

Statistically, the effect size was large for teacher assistance behaviors, and tells us there was strength in the relationship between phase and performance. Furthermore, the p-value was very low indicating that results are trustworthy and that they would not have happened by chance alone. For teacher assistance behaviors, the R<sup>2</sup> effect size from the MTS test was .74 (p=.00). Seventy four percent of the variants in scores may be due to the difference between baseline and intervention phases.

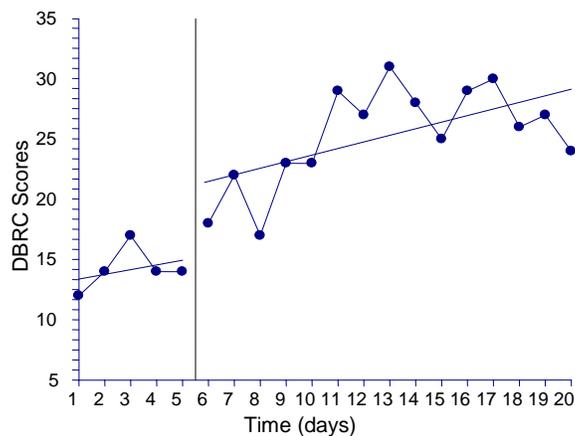


**Figure 2. Trevor Behavior 2/Teacher Assistance.**

Compliance. Figure 3 illustrates Trevor's performance for behavior 3. During baseline, Trevor's mean rating for compliance behaviors was 14.2 with a range of 12-17. During intervention, the average DBRC rating increased to 25.3 (18-30 range). The average number of points that compliance behaviors increased was 11.1, indicating a 78% mean improvement from baseline. During baseline for compliance behaviors, Trevor displayed a slight increasing trend which indicates that his behaviors were slightly improving during baseline. During intervention there is a more pronounced

increase in slope indicating greater improvement over time. There was one overlapping scores (95% of non-overlapping scores) between phases and the graph illustrates a relatively large intercept gap at the onset of the intervention phase.

Statistically, the effect size was large for compliance behaviors, and tells us there was strength in the relationship between phase and performance. Furthermore, the p-value was very low indicating that results are trustworthy and that they would not have happened by chance alone. For compliance behaviors, the R2 effect size was .77 ( $p=.00$ ), indicating that 77% of the change in scores may be due to the difference between the A and B phases.



**Figure 3. Trevor Behavior 3/Compliance.**

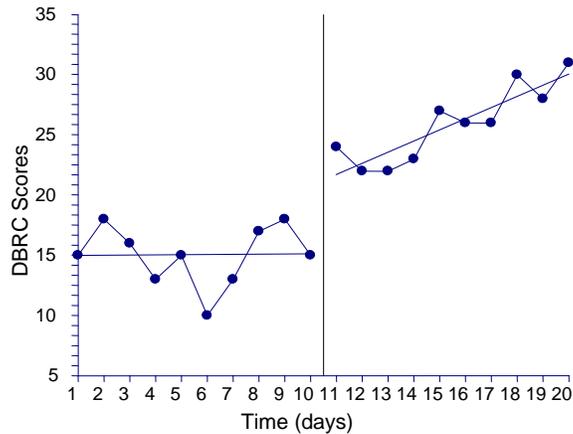
#### 4.2 Stewart DBRC

Stewart participated in two weeks of baseline and two weeks of intervention. Results show an increase in all three goal behaviors after implementation of the BMP

intervention. For each behavior there is a clear increasing trend during intervention which indicates improvement over time

Adult Interaction. Figure 4 illustrates Stewart's performance for behavior 1. During baseline, Stewart's mean DBRC rating for adult interaction behaviors was 15.1 with a range of 10-18. During intervention, the average rating increased to 25.9 (22-31 range). The average number of points that adult interaction behaviors increased was 10.8, indicating a 72% mean improvement from baseline. During baseline, for adult interaction behaviors, there is no visible trend which indicates that his behaviors were steady during baseline. During intervention there is a substantial increase in trend/slope indicating greater improvement over time. There were no overlapping scores (100% of non-overlapping scores) between phases and the graph illustrates a very large intercept gap at the onset of the intervention phase. A large intercept gap and a change in trendline slope together are strong evidence for a causal link between phases.

Statistically, the effect size was large for adult interaction behaviors, and tells us there was strength in the relationship between phase and performance. Furthermore, the p-value was very low indicating that results are trustworthy and that they would not have happened by chance alone. For adult interaction behaviors, the resulting R2 effect size from the MTS test was .90, indicating that 90% percent of the variants in scores may be due to the difference between baseline and intervention phases ( $p=.00$ ).

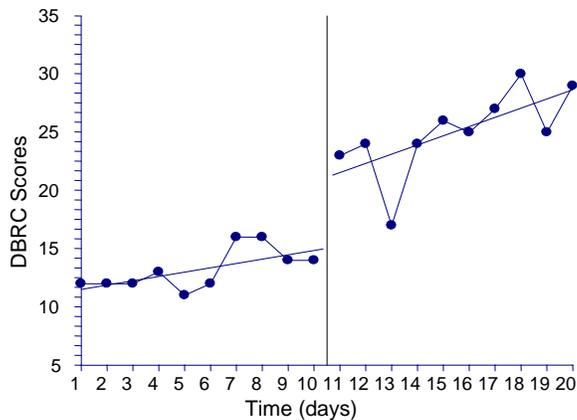


**Figure 4. Stewart Behavior 1/Adult Interaction.**

Peer Interaction. Figure 5 illustrates Stewart's performance for behavior 2. During baseline, Stewart's mean rating for peer interaction behaviors was 13.4 with a range of 11-16. During intervention, the average DBRC rating increased to 25 (17-30 range). The average number of points that peer interaction behaviors increased was 11.6, indicating an 86% mean improvement from baseline. During baseline, for peer interaction behaviors, Stewart displayed a slight increasing trend which indicates that his behaviors were slightly improving during baseline. During intervention there is a more pronounced increase in slope indicating greater improvement over time. There were no overlapping (100% of non-overlapping scores) scores between phases and the graph illustrates a large intercept gap at the onset of the intervention phase.

Statistically, the effect size was large for peer interaction behaviors, and tells us there was strength in the relationship between phase and performance. Furthermore, the p-value was very low indicating that results are trustworthy and that they would not have

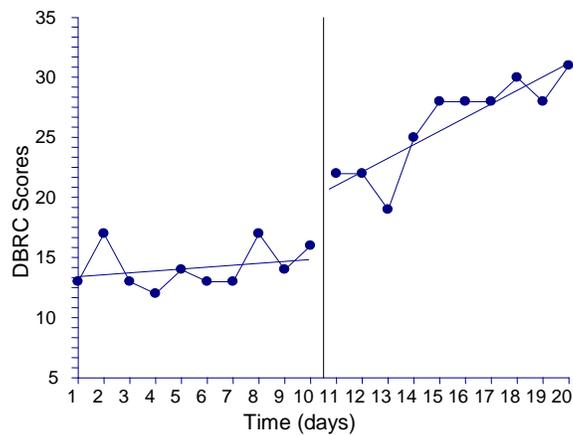
happened by chance alone. For peer interaction behavior, the R2 effect size was .91 ( $p=.00$ ). Ninety one percent of the variants in scores may be due to the difference between baseline and intervention phases.



**Figure 5. Stewart Behavior 2/Peer Interaction.**

Compliance. Figure 6 illustrates Stewart's performance for behavior 3. During baseline, Stewart's mean rating for compliance behaviors was 14.2 with a range of 13-17. During intervention, the average DBRC rating increased to 26.1 for compliance behaviors (19-30 range). The average number of points that compliance behaviors increased was 11.9, indicating an 84% mean improvement from baseline. During baseline for compliance behaviors, Stewart displayed a slight increasing trend which indicates that his behaviors were slightly improving during baseline. During intervention there is a more pronounced increase in slope indicating greater improvement over time. There were no overlapping scores (100% of non-overlapping scores) between phases and the graph illustrates a large intercept gap at the onset of the intervention phase.

Statistically, the effect size was large for compliance behaviors, and tells us there was strength in the relationship between phase and performance. Furthermore, the p-value was very low indicating that results are trustworthy and that they would not have happened by chance alone. For compliance behaviors, the R<sup>2</sup> effect size was .93 (p=.00), indicating that 93% percent of the variants in scores may be due to the difference between baseline and intervention phases.



**Figure 6. Stewart Behavior 3/Compliance.**

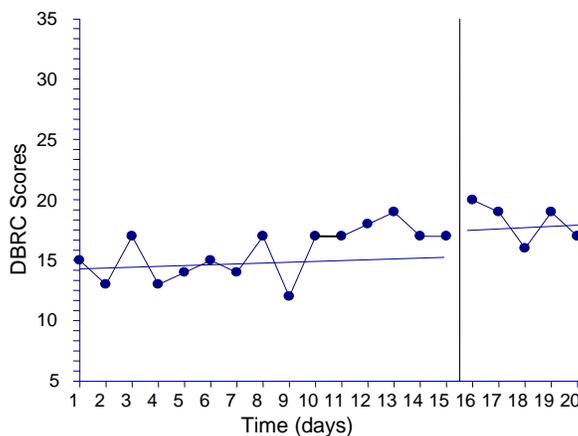
#### 4.3 Bryan DBRC

Bryan participated in three weeks of baseline, and only one week of intervention. Results show a very slight increase in all three goal behaviors after implementation of the BMP intervention. His improvement was not as great as the other students.

On-Task. Figure 7 illustrates Stewart's performance for behavior 1. During baseline, Bryan's mean rating for on-task behaviors was 15 with a range of 9-19. During intervention, the average DBRC rating increased to 18.2 (16-20 range). The average

number of points that on-task behaviors increased was 3.2, indicating a 21% mean improvement from baseline. During baseline for on-task behaviors, Bryan displayed a slight increasing trend which indicates that his behaviors were slightly improving during baseline. During intervention there is also a slight increase in slope indicating slight improvement over time. There were four overlapping scores (80% of non-overlapping scores) between phases and the graph illustrates a small intercept gap at the onset of the intervention phase.

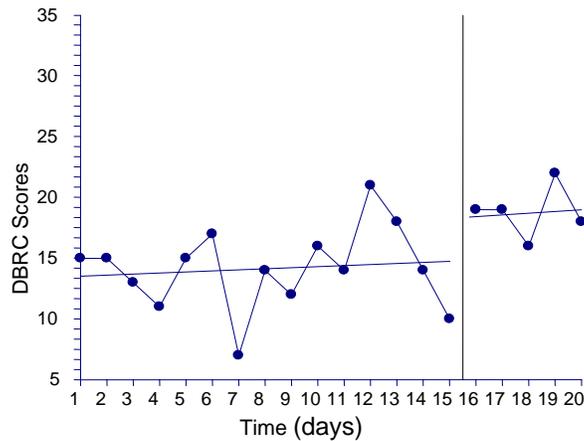
Statistically, the effect size was medium for on-task behaviors, and tells us there was some level of strength in the relationship between phase and performance. Furthermore, the p-value was low indicating that results are trustworthy and that they would not have happened by chance alone. For on-task behaviors, the R2 effect size was .52 ( $p=.01$ ), indicating that 52% percent of the variants in scores may be due to the difference between baseline and intervention phases.



**Figure 7. Bryan Behavior 1/On-task.**

Appropriate Language. Figure 8 illustrates Stewart's performance for behavior 2. During baseline, Bryan's mean rating for appropriate language behaviors was 14 with a range of 7-21. During intervention, the average DBRC rating increased to 18.6 (15-22 range). The average number of points that on-task behaviors increased was 4.6, indicating a 33% mean improvement from baseline. During baseline for appropriate language behaviors, Bryan displayed a slight increasing trend which indicates that his behaviors were slightly improving during baseline. During intervention there is also a slight increase in slope indicating slight improvement over time. Three scores overlapped with scores during baseline (53% of non-overlapping scores), and the graph illustrates a small intercept gap at the onset of the intervention phase.

Statistically, the effect size was small to medium for appropriate language behaviors, and tells us there was some level of strength in the relationship between phase and performance. Furthermore, the p-value was low indicating that results are trustworthy and that they would not have happened by chance alone. For appropriate language behavior, the R<sup>2</sup> effect size was .32 (p=.10). Thirty two percent of the variants in scores may be due to the difference between baseline and intervention phases.

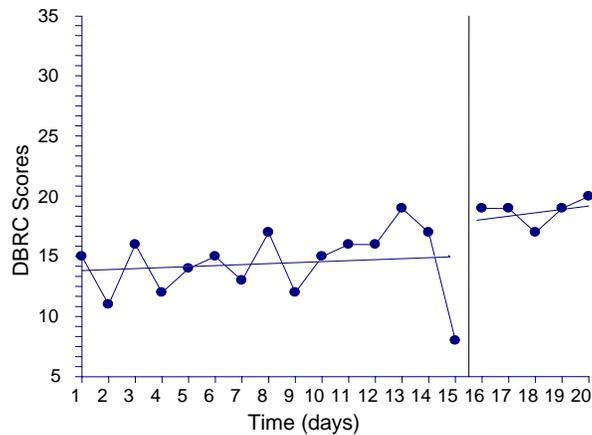


**Figure 8. Bryan Behavior 2/Appropriate Language.**

Compliance. Figure 9 illustrates Stewart's performance for behavior 3. During baseline, Bryan's mean rating for compliance behaviors was 14 with a range of 8-19. During intervention, the average DBRC rating increased to 18.8 (17-20 range). The average number of points that compliance behaviors increased was 4.8, indicating a 34% mean improvement from baseline. During baseline for compliance behaviors, Bryan displayed a slight increasing trend which indicates that his behaviors were slightly improving during baseline. During intervention there is also a slight increase in slope indicating slight improvement over time. Three scores during intervention overlapped with scores during baseline (84% of non-overlapping scores), and the graph illustrates a large intercept gap at the onset of the intervention phase.

Statistically, the effect size was small to medium for appropriate language behaviors, and tells us there was some level of strength in the relationship between phase and performance. Furthermore, the p-value was low indicating that results are

trustworthy and that they would not have happened by chance alone. For compliance behavior, the  $R^2$  effect size was .40 ( $p=.01$ ), indicating that 40% percent of the variants in scores may be due to the difference between baseline and intervention phases.



**Figure 9. Bryan Behavior 3/Compliance.**

According to study results, it appears that the answer to the first research question is yes. Current results indicate that the BMP seems to be an effective intervention for improving problem behaviors in the secondary classroom as measured by an increase in DBRC scores and a decrease in ODRs. All students experienced positive results during this study. See Figures 10, 11, and 12 for graphs showing the multiple baseline design. Figure 12 illustrates the only behavior that all three students shared, which was compliance. Table 2 shows a summary of all students and behavior with their corresponding AB Contrast results or analysis scores.

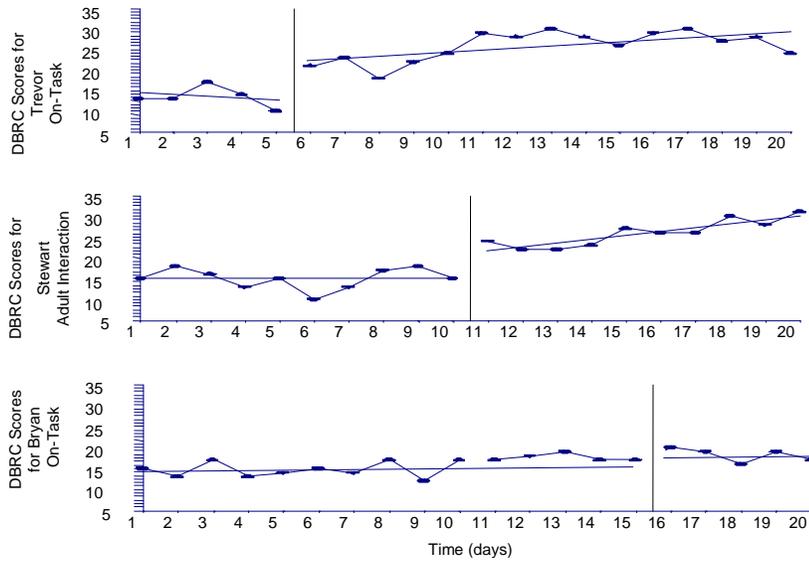


Figure 10. Behavior 1 for All Students.

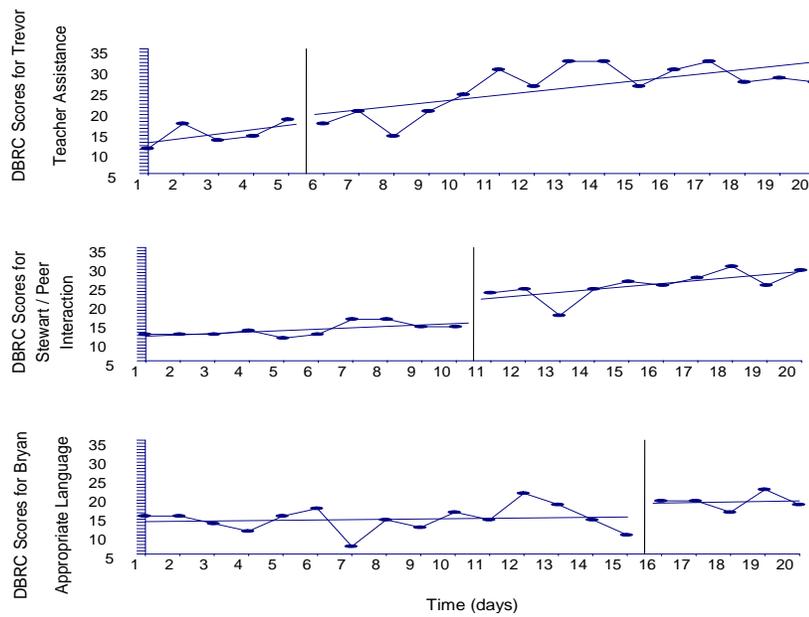


Figure 11. Behavior 2 for All Students.

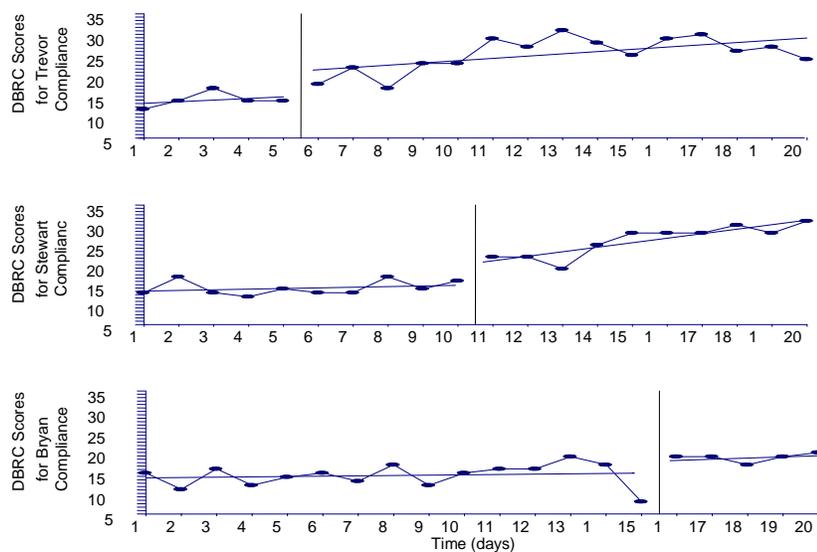


Figure 12. Behavior 3 for All Students.

Table 2. AB Contrasts for Analysis

By Student	Target Behavior	PND	IRD	Mean Shift Test (R <sup>2</sup> -squared) (p-value)	% of Mean Increase
Trevor	On-task	100%	100%	.82 .0000	92%
	Teacher Assistance	85%	67%	.74 .0001	69%
	Compliance	95%	83%	.77 .000	78%
Stewart	Adult Interaction	100%	100%	.90 .000	72%
	Peer Interaction	100%	100%	.91 .000	86%
	Compliance	100%	100%	.93 .000	84%
Bryan	On-task	80%	80%	.52 .007	21%
	Appropriate Language	85%	53%	.32 .094	33%
	Compliance	85%	67%	.40 .038	34%

#### 4.4 Acceptability

For the second research question, a five-item questionnaire was given to parents, student, and teachers of each student to fill out. This was done in order to obtain perceptions of how acceptable the BMP intervention was for these respondents. Respondents were asked to rate five elements of the BMP on a scale of 1-6 with higher scores indicating greater acceptance. There were also two open ended questions on the survey to aid in evaluating the program. See Tables 3, 4, and 5 which indicate individual student, parent, and teacher ratings on specific items of the questionnaire for Trevor, Stewart, and Bryan, respectively.

**Table 3. Acceptability Ratings for Trevor**

Questionnaire Question	Parent	Student	Average of Teachers
1: Improved behavior	5	5	5.57
2: Improved academic performance	4	4	4.43
3: Worth time and effort	5	5	4.71
4: Would recommend to others	6	4	5.57
5: Easy to implement	6	4	4

**Table 4. Acceptability Ratings for Stewart**

Questionnaire Question	Parent	Student	Average of Teachers
1: Improved behavior	5	5	5.43
2: Improved academic performance	5	4	4
3: Worth time and effort	6	5	4.71
4: Would recommend to others	6	5	5.43
5: Easy to implement	6	5	4.71

**Table 5. Acceptability Ratings for Bryan**

Questionnaire Question	Parent	Student	Average of Teachers
1: Improved behavior	4	4	4.43
2: Improved academic performance	4	3	4
3: Worth time and effort	5	4	5.57
4: Would recommend to others	5	4	5
5: Easy to implement	6	4	4.71

Overall, scores on the acceptability questionnaire were high indicating that the answer to research question two is yes. It appears that the BMP intervention is acceptable to use as a means of reducing problem behaviors in the classroom. See Table 6 for averages on acceptability ratings for all students, parents, and teachers.

**Table 6. Acceptability Rating Averages for All Students**

Questionnaire Question	Parent	Student	Average of Teachers
1: Improved behavior	4	4	4.43
2: Improved academic performance	4	3	4
3: Worth time and effort	5	4	5.57
4: Would recommend to others	5	4	5
5: Easy to implement	6	4	4.71

#### *4.5 Fidelity*

During baseline for all students, ODR data and DBRC ratings were secured with 100% fidelity. During intervention, fidelity was recorded for students checking-in and out, teachers rating behaviors on DBRCs, the researcher giving feedback and rewards, and parents signing DBRCs. Fidelity for all elements was 88% for Trevor for week one of intervention, 100% for week two, and 96% for week three, averaging at 95% fidelity

for the entire intervention phase of the study. One time during intervention Trevor did not check out after school, and therefore, did not receive researcher feedback or rewards for that day. Furthermore, parent signatures were not attained twice during the intervention for Trevor. During the two weeks of intervention for Stewart, all aspects of the intervention were performed at 100% fidelity. During the one week of intervention for Bryan, he did not receive a parental signature on one occasion. His fidelity percentage was 96 for that week.

## 5. DISCUSSION AND CONCLUSION

Current results suggest that the BMP is effective and can be an acceptable intervention to utilize in the reduction of problem behaviors in the secondary classroom as determined by an increase in DBRC ratings by teachers. Trevor's on-task DBRC ratings increased 92% during the intervention phase of the study, which was the one greatest increase in a behavior. Teacher attention ratings improved 69%, while compliance ratings increased 69%. Over all behaviors Trevor improved 80% during intervention.

Stewart's ratings also increased during intervention. Adult interaction ratings improved 72%, while peer interaction ratings increased 86%. Compliance behavior ratings increased 84% during intervention. Over all behaviors, Stewart improved 81% from baseline.

Bryan's behaviors increased as well, however, not as much as the other students. On-task behaviors increased 21% during the intervention phase of the study. Appropriate language behaviors increased 33%, while compliance behaviors improved 34%. Over all behaviors, Bryan improved 29% from baseline during his one week of intervention. Across all students and all behaviors, the intervention resulted in an overall improvement of 63% in problem behaviors in the classroom, which is impressive.

Bryan experienced the greatest amount of improvement during the intervention according to mean DBRC averages over all three behaviors, but only by 1% from Trevor. This could be due to the fact that the other student's behaviors were more severe

and not as malleable or easy to change. Perhaps Bryan had the least amount of improvement due to the fact that he only participated in the program for one week. Despite the fact that individual point goals were not consistently met at the beginning of during intervention, the students still performed better than during baseline. The researcher was not able to change point goals during intervention due to lack of time, however, after the first week of baseline, both Trevor and Stewart met goals consistently. There is the possibility that these scores may have been even higher if alternative rewards were offered that were catered to each student's preferences early on. Trevor and Bryan did not meet any of their daily goal points during the first week of intervention, while Stewart did for one day only (on Friday). After the first week of intervention (other than for Bryan who only participated in one week), both Trevor and Stewart met daily and weekly goals consistently. This suggests that students may need to become acclimated with the program in order to produce more positive results.

IRD and NAP percentages were generally high indicating that the differences in rates of improvement between phases was good and that there were relatively few overlapping data points between phases and among students and behaviors. As mentioned before, using both visual and statistical analysis is the optimal method when analyzing improvement between phases. Therefore, a statistical test was run as well.

The high R<sup>2</sup> squared effect sizes that each of the student's DBRC ratings produced suggests that the results of the current study are reliable and can be trusted. Trevor's average effect size for all three behaviors was .78, while Stewart's was .91. Effect sizes were generally lower for Bryan for all behaviors which could be due to the

fact that he only participated in one week of the intervention. The average of Bryan's effect sizes for all behaviors was 41. According to the data for the other two students, it is likely that with a couple more weeks of baseline, Bryan could have improved his performance, thereby, possibly raising the effect sizes. The average effect size for all three students across all behaviors was .70. Furthermore, the p values for all behaviors and students were low as well, indicating that there was very little or no chance of the results occurring due to chance.

As stated before, all students performed better on their goal behaviors during intervention even if they did not reach their goals for the day or week. Problem behaviors that they normally exhibited in the classroom had decreased and a more positive learning environment was created. The subjects and other students might have been impacted by the decrease in classroom disruption and experienced better academic performance. Parents were able to worry less about receiving calls from the principal or teachers about behavior because of the increase in communication with teachers and the increase in the student's prosocial behaviors in the classroom. Teachers had some of the burden lifted off of them to constantly reprimand negative classroom behaviors, leaving more time for instruction in the classroom as well.

Scores on the Acceptability Questionnaire indicated that parents, students, and teachers considered the BMP intervention to be effective at improving behavior and school performance. Respondents also agreed that it was worth the time and effort, worth recommending to others, and that it was easy to implement. Only one of the respondents rated any item on the questionnaire below a 4 (somewhat agree). The

average rating that all parents gave for all five items was 5.2, while the average for students was 4.3. The student's teachers together rated all five items as 4.8.

Parents rated most items higher than students and their teachers. This could be due to the fact that the parent's involvement in the intervention was less intensive and they were not present in the classroom to observe their child's actual performance. Inversely, students rated most items lower than both parents and teachers. This could be because the student's involvement was more intensive and required more time and effort causing them to feel less positively about it.

Furthermore, a few of the students, teachers, and parents answered the open ended questions at the bottom of the survey. When asked what component of the intervention was most effective, students indicated that they enjoyed having goals to meet and being rewarded for meeting them (even if they did not meet them consistently). They also stated that having teacher feedback on behavior was helpful. Parents agreed that the teacher's feedback was a positive aspect of the intervention, and teachers appreciated the parental involvement in the child's education and behavioral issues. When asked how they would improve the program, one student felt that the program was too time intensive. No parents answered this question, while teachers responded stating that adding ways to teach appropriate behaviors would be helpful. Teachers also felt that altering the goal points so that they would have been attainable would have helped students reach them more frequently.

The impact of the BMP intervention on problem behavior in this study mirrors results found in previous research. Past studies using the DBRC as the dependent

variable with younger children, have found that students showed positive results in regards to increased intervals of on-task behavior, a decrease in disruptive behaviors, and participating in fewer activities for longer amounts of time (McCain & Kelly, 1993), and that school-notes home were effective in increasing on-task behavior rates and accurate class work completion (Jurbergs et al., 2007).

Studies using the BMP have also found similar success with different dependent variables as well. Studies using ODR data as the main dependent variable with elementary students have found that the intervention significantly decreased ODRs per week and the intervals in which ODRs are received are increased as well (Filter et al., 2007; Hawken et al., 2007; March & Horner, 2002). Studies using direct observation of problem behaviors with elementary students have found that all students experienced a reduction in percentage of problem behavior and an increase in level of engagement according to direct observations of behavior (Hawken & Horner, 2003; Todd et al., 2008).

Although it was difficult to find studies using the intervention with secondary students, according current results, it can be just as effective as the studies conducted with younger children. According to a study investigating the intervention with middle schoolers, it has also illustrated that student problem behaviors decreased and levels of academic engagement increased (Hawken & Horner, 2003). While the current study did not investigate whether or not academic engagement increased during the intervention, or if behavior problems decreased according to direct observations, it would have been interesting to know if this was the case with Trevor, Stewart, and Bryan. Parent, teacher,

and student ratings on the BMP Acceptability Questionnaire seem to suggest that it was, at least to some degree.

It is also important to note, like in other studies, students with disabilities can improve their behaviors with the BMP just as much as a student that has none. Trevor, who is a student with LD and ADHD, improved almost as much behaviorally as Stewart did during his time in the intervention phase of the study. Todd et al. (2008) found similar results while using a mixture of general education and special education students. They all experienced positive results. The current data seems to argue for its effectiveness with both regular education students and those receiving special education services for disabilities.

Acceptability ratings of the BMP intervention for this research further supports past investigations as well. Past research conducted by Jurbergs et al. (2007), Todd et al. (2008), and Fairbanks et al. (2007) found similar acceptability in that the respondents agreed that the intervention was effective and would recommend it to others. These studies also added that academic performance was improved and that the students viewed the intervention as a positive experience.

Teacher ratings throughout the study continued to meet the researcher's minimum when checked each week, therefore, teacher ratings were considered reliable. Average reliability scores for all students during the study were very good indicating that ratings throughout the study can be trusted (See Table 1 for totals). Also, the fidelity for each student during implementation was very high indicating that all aspects of the intervention were in place as expected to be. The average percent of fidelity for all

students during baseline was 100% while during the intervention percent of fidelity averaged at 97%, averaging at 98% fidelity for all students during both phases of the study.

Results displayed by the current participants can generalize very loosely to other students similar in age and with similar problem behaviors and levels of behavior, but due to the nature of single case research it makes it difficult to assume that will be the case in every situation. Each subject is unique and it is unlikely that they will have the exact same problem behaviors and display them in the same manner as other children. Results do suggest that the intervention was effective and acceptable for the participants in this study, and future research should continue investigating its effectiveness and acceptability with students of different ages and populations, in different settings, and with a larger quantity of students with different problem behaviors. Future research should also focus on students similar in age and with similar behavioral problems in order to try to replicate these results as there has been little research conducted with the BMP using secondary students.

The purpose of this study was to investigate the BMP intervention in its effectiveness and acceptability in the secondary classroom according to DBRC data. Past research has illustrated its effectiveness with students in the classroom and has shown that it is acceptable to use as well. Furthermore, the vast amount of improvement that each student exhibited during the current study argues for its effectiveness and continued use. Its acceptability among parents, teachers, and students suggests that it should be used as a tool for behavior control in the classroom. According to the

seemingly reliable DBRC data in this and previous research, the BMP intervention is one which warrants further investigation into its effectiveness with secondary students, and also with different types of students and settings.

## REFERENCES

- Allison, D. B., & Gorman, B. S. (1993). Calculating effect sizes for meta-analysis: The case of the single case. *Behavior, Research, and Therapy*, *31*, 621-631.
- Barton, P. E. (2006). The dropout problem: Losing ground. *Educational Leadership*, *62*(5), 14-18.
- Carr, E. G., Dunlap, G., Horner, R. H., Koegel, R. L., Turnbull, A. P., & Sailor, W., et al. (2002). Positive behavior support: Evolution of applied science. *Journal of Positive Behavior Interventions*, *4*(1), 4-16.
- Chafouleas, S. M., Christ, T. J., Riley-Tillman, T. C., Briesch, A. M., & Chanese, J. A. (2007). Generalizability and dependability of direct behavior ratings to assess social behavior of preschoolers. *School Psychology Review*, *36*(1), 63-79.
- Chafouleas, S. M., Riley-Tillman, T. C., & Sassu, K. A. (2006). Acceptability and reported use of daily behavior report cards among teachers. *Journal of Positive Behavior Interventions*, *8*(3), 174-182.
- Chafouleas, S. M., Riley-Tillman, T. C., Sassu, K. A., LaFrance, M. J., & Patwa, S. S. (2007). Daily behavior report cards: An investigation of the consistency of on-task data across raters and methods. *Journal of Positive Behavior Interventions*, *9*(1), 30-37.
- Cheney, D., Flower, A., & Templeton, T. (2008). Applying response to intervention metrics in the social domain for students at risk of developing emotional or behavioral disorders. *The Journal of Special Education*, *42*(2), 108-126.
- Cooper, J. O., Heron, T. E., & Heward, W. L. (2007). *Applied behavior analysis*. Upper Saddle River, NJ: Prentice Hall.
- Crone, D. A., Horner, R. H., & Hawken, L. S. (2004). *Responding to problem behavior in schools: The Behavior Education Program*. New York: Guilford Press.
- Davies, D. E., & McLaughlin, T. F. (1989). Effects of a daily report card on disruptive behavior in primary students. *B.C. Journal of Special Education*, *13*(2), 173-181.
- Fairbanks, S., Sugai, G., Guardino, D., & Lathrop, M. (2007). Response to intervention: Examining classroom behavior support in second grade. *Exceptional Children*, *73*(3), 288-310.

- Faith, M. S., Allison, D. B., & Gorman, B. S. (1997). Meta-analysis of single-case research. In R. D. Franklin, D. B. Allison, & B. S. Gorman (Eds.), *Design and Analysis of Single-Case Research* (pp. 245-277). Mahwah, NJ: Lawrence Erlbaum Associates.
- Filter, K. J., McKenna, M. K., Benedict, E. A., Horner, R. H., Todd, A. W., & Watson, J. (2007). Check in/check out: A post hoc evaluation of an efficient, secondary-level targeted intervention for reducing problem behaviors in schools. *Education and Treatment of Children, 30*(1), 69-84.
- Gay, L. R., & Airasian, P. (2000). *Educational research competencies for analysis and application* (6th ed.). Upper Saddle River, NJ: Prentice Hall.
- Hammond, C., Smink, J., & Drew, S. (2007). *National Dropout Prevention Center*. D. Linton: Communities In Schools, Inc. Retrieved December 12, 2008, from <http://www.dropoutprevention.org>.
- Hawken, L. S., & Horner, R. H. (2003). Evaluation of a targeted intervention within a school wide system of behavior support. *Journal of Behavioral Education, 12*(3), 225-240.
- Hawken, L. S., MacLeod, K. S., & Rawlings, L. (2007). Effects of the behavior education program (BEP) on office discipline referrals of elementary school students. *Journal of Positive Behavior Interventions, 9*(2), 94-101.
- Irvin, L. K., Tobin, T. J., Sprague, J. R., Sugai, G., & Vincent, C. G. (2004). Validity of office discipline referral measures as indices of school-wide behavioral status and effects of school-wide behavioral interventions. *Journal of Positive Behavior Interventions, 6*(3), 131-147.
- Jurbergs, N., Paicic, J., & Kelley, M. L. (2007). School-home notes with and without response cost: Increasing attention and academic performance in low-income children with attention-deficit/hyperactivity disorder. *School Psychology Quarterly, 22*(3), 358-379.
- Kelley, M. L., & McCain, A. P. (1995). Promoting academic performance in inattentive children: The relative efficacy of school-home notes with and without response cost. *Behavior Modification, 19*(3), 357-375.
- March, R. E., & Horner, R. H. (2002). Feasibility and contributions of function behavior assessment in schools. *Journal of Emotional and Behavioral Disorders, 10*(3), 158-171.

- McCain, A. P., & Kelly, M. L. (1993). Managing the classroom behavior of an ADHD preschooler: The efficacy of a school-home note intervention. *Child and Family Behavior Therapy, 15*(3), 33-44.
- McCurdy, B. L., Kunsch, C., & Reibstein, S. (2007). Secondary prevention in the urban school: Implementing the behavior education program. *Preventing School Failure, 51*(3), 12-19.
- McIntosh, K., Flannery, K. B., Sugai, G., Braun, D. H., & Cochrane, K. L. (2008). Relationships between academics and problem behavior in the transition from middle school to high school. *Journal of Positive Behavior Interventions, 10*(4), 243-255.
- Netzel, D. M., & Eber, L. (2003). Shifting from reactive to proactive discipline in an urban school district: A change of focus through PBIS implementation. *Journal of Positive Behavior Interventions, 5*(2), 71-79.
- Parker, R. I., & Brossart, D. F. (2003). Evaluating single-case research data: A comparison of seven statistical methods. *Behavior Therapy, 34*, 189-211.
- Parker, R. I., Brossart, D. F., Callicott, K. J., Long, J. R., Garcia de Alba, R., Baugh, F. G., & Sullivan, J. R. (2005). Effect sizes in single case research: How large is large? *School Psychology Review, 34*(1), 116-132.
- Parker, R. I., Vannest, K. J., & Brown, L. (2009). The improvement rate difference for single-case research. *Exceptional Children, 75*(2), 135-150.
- Riley-Tillman, T. C., Chafouleas, S. M., Briesch, A. M., & Eckert, T. L. (2008). Daily behavior report cards and systematic direct observation: An investigation of the acceptability, reported training and use, and decision reliability among school psychologists. *Journal of Behavioral Education, 17*(4), 313-327.
- Safran, S. P., & Oswald, K. (2003). Positive behavior supports: Can schools reshape disciplinary practices? *Exceptional Children, 69*(3), 361-373.
- Sprague, J., & Walker, H. (2000). Early identification and intervention for youth with antisocial and violent behavior. *Exceptional Children, 66*(3), 367-379.
- Sugai, G., & Horner, R. R. (2006). A promising approach for expanding and sustaining school-wide positive behavior support. *School Psychology Review, 35*(2), 245-259.
- Suhyun, S. (2007). Predictors of categorical at-risk high school dropouts. *Journal of Counseling & Development, 85*(2), 196-203.

- Tobin, T. J., & Sugai, G. M. (1999). Using sixth-grade school records to predict school violence, chronic discipline problems, and high school outcomes. *Journal of Emotional and Behavioral Disorders*, 7, 40-53.
- Todd, A. W., Campbell, A. L., Meyer, G. G., & Horner, H. H. (2008). The effects of a targeted intervention to reduce problem behaviors. *Journal of Positive Behavior Interventions*, 10(1), 46-55.
- U.S. Department of Education. Institute of Education Sciences, National Center for Education Statistics. (2001). *Dropout rates in the United States: 2000*. Retrieved December 12, 2008, from [http://www.nces.ed.gov/pubs2002/droppub\\_2001/](http://www.nces.ed.gov/pubs2002/droppub_2001/).
- U.S. Department of Justice. Office of Justice Programs, Bureau of Justice Statistics. (2000). *Correctional populations in the United States, NCJ-177613*. Washington DC: US Government Printing Office.
- Wagner, M., Newman, L., Cameto, R., Levine, P., & Garza, N. (2006). *An Overview of Findings From Wave 2 of the National Longitudinal Transition Study-2 (NLTS2)*. Menlo Park, CA: SRI International. Retrieved December 12, 2008, from <http://www.nlts2.org/reports/>.

## APPENDIX A

## PARENT PERMISSION/CONSENT FORM

**Effectiveness and Acceptability of a Behavior Monitoring Program for Secondary Students At-Risk for EBD****Introduction**

The purpose of this form is to provide you (as the parent of a prospective research study participant) information that may affect your decision as to whether or not to let your child participate in this research study. Also, if you decide to let your child be involved in this study, this form will be used to record your consent.

If you agree, your child will be asked to participate in a research study investigating the effectiveness of a behavioral intervention. The purpose of this study is to investigate whether or not a Behavior Monitoring Program (BMP) is effective in reducing problem behaviors in the secondary classroom and to see if it is an acceptable way to accomplish this. The BMP is an intervention that has been effective with students with behavioral difficulties in the classroom, and promotes positive interactions among teachers, parents, and students. It involves positive and proactive methods for behavior management. Your child was selected to be a possible participant because his/her teachers referred him/her to me as student who may benefit from the intervention and experience a positive behavioral change. I am a teacher at the high school and am doing this research in order to fulfill my masters degree graduation requirements.

**What will my child be asked to do?**

If you allow your child to participate in this study, three behavioral goals will be made for him/her. During the intervention he/she will be asked to check in and out with the researcher each day, and carry a behavioral report card to each class for his/her teachers to rate goal behaviors. Students will receive positive and encouraging feedback on behavior, and also small rewards for meeting goals. Rewards will consist of coupons/certificates for free movie rentals. Your child will not be punished or have any negative consequences for exhibiting negative behavior, but will receive positive encouragement if these behaviors occur. Each night your child will bring his/her behavior report card home for you to sign and review performance, and will return the signed form to the researcher the next morning. This study will take approximately 5-6 weeks, however, your child will only have to carry the behavior report card for approximately 1-2 weeks (5-10 school days). At the conclusion of the study, you and your child will be asked to fill out a brief, seven item survey on your experience with the intervention. You will also be asked to give permission for the researcher to have access to Office Discipline Referral (ODR) data and records so that the researcher can track behavioral change.

**What are the risks involved in this study?**

The risks associated in this study are minimal, and are not greater than risks your child ordinarily encountered in daily life.

**What are the possible benefits of this study?**

The possible benefits of participation are expected to include your child's improved behavior in the classroom and possibly outside of the classroom as well.

**Does my child have to participate?**

No, your child doesn't have to be in this research study. You can agree to allow your child to be in the study now and change your mind later without any penalty.

**What if my child does not want to participate?**

In addition to your permission, your child must agree to participate in the study. If your child does not want to participate they will not be included in the study and there will be no penalty. If your child initially agrees to be in the study he/she can change their mind later without any penalty. Your child's grades and relationships with teachers will not be impacted in any way if he/she chooses not to participate or later changes his/her mind.

**Who will know about my child's participation in this research study?**

This study is confidential and the records of this study will be kept private. No identifiers linking you or your child to this study will be included in any sort of report that might be published. Research records will be stored securely and only you, your child, your child's teachers, and the researcher will have access to the records as they are involved in the study. During the intervention, you child will meet for check-in and check-out privately in my classroom when I do my usual one-on-one meetings with students who are assigned to me. This way no one will know he/she is participating.

**Whom do I contact with questions about the research?**

If you have questions regarding this study, you may contact Jillian White at [jillianrwhite@katyisd.org](mailto:jillianrwhite@katyisd.org) or (281) 237-6091.

**Whom do I contact about my child's rights as a research participant?**

This research study has been reviewed by the Human Subjects' Protection Program and/or the Institutional Review Board at Texas A&M University. For research-related problems or questions regarding your rights as a research participant, you can contact these offices at (979)458-4067 or [irb@tamu.edu](mailto:irb@tamu.edu).

**Signature**

Please be sure you have read the above information, asked questions and received answers to your satisfaction. You will be given a copy of the consent form for your records. By signing this document, you consent to allow your child to participate in this study.

**Signature of Parent/Guardian:** \_\_\_\_\_ **Date:** \_\_\_\_\_

**Printed Name:** \_\_\_\_\_

**Printed Name of Child:** \_\_\_\_\_

**Signature of Person Obtaining Permission:** \_\_\_\_\_ **Date:** \_\_\_\_\_

**Printed Name: Jillian White/Teacher and Researcher**

## APPENDIX B

## STUDENT ASSENT FORM/INFORMATIONAL LETTER

**Effectiveness and Acceptability of a Behavior Monitoring Program for Secondary Students At-Risk for EBD****Introduction**

You have been asked to participate in a research study studying a Behavior Monitoring Program (BMP). I am doing this study in order to investigate this program's effectiveness in reducing problem behaviors in the secondary classroom as determined by office discipline referrals and whether or not problem behaviors in the classroom decrease. The BMP intervention has been effective in students with behavioral problems and promotes positive interactions among teachers, parents, and students, and involves positive and proactive methods to behavior management. You were selected to be a possible participant because your teachers believe that you may benefit from the intervention and experience a positive behavioral change.

**What will I be asked to do?**

If you agree to participate in this study, you will be asked to take a behavioral report card to your teachers each day on which teachers will rate your behavioral goals. You will also be asked to meet with the researcher each day before and after school. At these times you will receive positive feedback and encouragement for meeting goals, and also small rewards for doing so. Rewards will be coupons for free movie rentals. You will not be punished for negative behavior at any time, and will only receive encouraging feedback if it occurs. You will be asked to take the teacher completed behavior report card home to have your parents sign each night and will return it to the researcher the next day during check-in. At the conclusion of the study, you will be asked to fill out a brief survey about your opinions of the intervention. This study will take approximately 1-2 weeks of your time (5-10 school days).

**What are the risks involved in this study?**

The risks associated in this study are minimal, and are not greater than risks ordinarily encountered in daily life.

**Do I have to participate?**

No. Your participation is voluntary. You may decide not to participate or to withdraw at any time and no one will be upset.

**Who will know about my participation in this research study?**

This study is confidential and names and/or other identifying information will not be revealed. Furthermore, research records will be stored securely and only the researcher, teacher, parents, and students will have access to the records.

**Participation**

If you would like to participate please let the researcher know.

**Who do I contact with questions about the research?**

If you have questions regarding this study, you may contact the researcher at [jillianrwhite@katyisd.org](mailto:jillianrwhite@katyisd.org) or (281) 237-691.

**Whom do I contact about my rights as a research participant?**

This research study has been reviewed by the Human Subjects' Protection Program and/or the Institutional Review Board at Texas A&M University. For research-related problems or questions regarding your rights as a research participant, you can contact these offices at (979)458-4067 or [irb@tamu.edu](mailto:irb@tamu.edu).

## APPENDIX C

## TEACHER SURVEY OF STUDENT BEHAVIOR

## PROBLEM BEHAVIOR QUESTIONNAIRE

Respondent Information					
Student _____	DOB _____	Grade _____	Sex: M F	IEP: Y N	
Teacher _____	School _____				
Telephone _____	Date _____				

STUDENT BEHAVIOR: Please briefly describe the problem behavior(s)

DIRECTIONS: Keeping in mind a typical episode of the problem behavior, circle the frequency at which each of the following statements are true.							
	PERCENT OF THE TIME						
	Never	10%	25%	50%	75%	90%	Always
1. Does the problem behavior occur and persist when you make a request to perform a task?	0	1	2	3	4	5	6
2. When the problem behavior occurs do you redirect the student to get back to task or follow rules?	0	1	2	3	4	5	6
3. During a conflict with peers, if the student engages in the problem behavior do peers leave the student alone?	0	1	2	3	4	5	6
4. When the problem behavior occurs do peers verbally respond or laugh at the student?	0	1	2	3	4	5	6
5. Is the problem behavior more likely to occur following a conflict outside the classroom? (e.g., bus write up)	0	1	2	3	4	5	6
6. Does the problem behavior occur to get your attention when you are working with other students?	0	1	2	3	4	5	6
7. Does the problem behavior occur in the presence of specific peers?	0	1	2	3	4	5	6
8. Is the problem behavior more likely to continue to occur throughout the day following an earlier episode?	0	1	2	3	4	5	6
9. Does the problem behavior occur during specific academic activities?	0	1	2	3	4	5	6
10. Does the problem behavior stop when peers stop interacting with the student?	0	1	2	3	4	5	6
11. Does the behavior stop when peers are attending to other students?	0	1	2	3	4	5	6
12. If the student engages in the problem behavior do you provide one-on-one instruction to get student back on-task?	0	1	2	3	4	5	6
13. Will the student stop doing the problem behavior if you stop making requests or end an academic activity?	0	1	2	3	4	5	6
14. If the student engages in the problem behavior, do peers stop interacting with the student?	0	1	2	3	4	5	6
15. Is the problem behavior more likely to occur following unscheduled events or disruptions in classroom routines?	0	1	2	3	4	5	6

Source: Lewis, Scott, and Sugai (1997)

Please include any additional information on student behavior that you feel may be relevant:

## APPENDIX D

## EXAMPLE FORM FOR ATTAINING TRAINING

**Training Affirmation**

I \_\_\_\_\_ (printed name) have been trained on the BMP program and am fully aware of what this study requires.

I have received instruction via (please circle one):

Direct contact with the researcher

DVD

Informational letter or email

Signature: \_\_\_\_\_

Date: \_\_\_\_\_

Role in study (student, parent, teacher, observer): \_\_\_\_\_

## APPENDIX E

## RESOURCES FOR STUDENTS AND PARENTS

Please seek assistance from trusted adults, like teachers, counselors, and school psychologists in addition to using the links below. They can provide additional resources for you and your family.

1. [www.dfps.state.tx.us](http://www.dfps.state.tx.us) The Department of Family and Protective Service Provides information and links for parents and teens that need to seek assistance in areas such as transitional living, abuse, youth delinquency, etc., and also provides prevention and intervention strategies on these topics. Contains hotline information for youth runaways, family conflicts, truancy, etc. and also provides links for additional resources and services in Houston. Resources for family strengthening services are also provided.

2. [www.learntoparent.org](http://www.learntoparent.org) ESCAPE Family Resource Center Provides advice and resources to parents on parenting, including tips and classes offered in the area, as well as articles and presentations on topics such as household dysfunction, academic difficulties, bullying, child abuse, etc.

3. <http://www.teenandfamilyservices.org> Teen and Family Service Provides assistance for parents and teens in the area through meetings and counseling services. They also offer after school programs and peer assistance groups and provide information on teen substance abuse, behavioral problems, family conflict, anger management, etc. Hotline information is available as well.

4. <http://www.familyservices.org> Family Services Provides support to families through counseling services and education.

5. <http://www.ymcahouston.org> YMCA Provides activities and programs for family strengthening and youth development.

6. <http://www.familytimeccc.org> Family Time Crisis and Counseling Center Provides counseling and classes for families on a variety of different issues.

7. <https://www.211texas.org/211/home.do> OR call 2-1-1 for Texas Health and Human Services Provides a free means of finding information on various services available including disaster relief, counseling, child care and other programs in the area.

APPENDIX F

OFFICE DISCIPLINE REFERRAL FORMS



Discipline Notice

Subject/Grade	Sex <input type="checkbox"/> M <input type="checkbox"/> F
---------------	--

Please sign and return

Student name: Last		First		Middle	
Date	Time <input type="checkbox"/> a.m. <input type="checkbox"/> p.m.	Referred by		Date parent called	
Principal signature		Parent signature		Student signature	
<b>Offense Level:</b> <input type="checkbox"/> I <input type="checkbox"/> II <input type="checkbox"/> III <input type="checkbox"/> IV <input type="checkbox"/> V (For a description of Offense Levels, refer to the Katy ISD "Discipline Management and Student Code of Conduct" handbook.)					
Describe offense					
Action taken					

WHITE COPY: Parent copy  
 YELLOW COPY: Parent signs and returns to teacher  
 PINK COPY: Principal  
 GOLD COPY: Teacher copy

Catalog No. 0360  
 Revised 05-23-00

## APPENDIX G

## EXAMPLE OF A DBRC

Behavioral Goal	Target Behavior	Operational Definition	Examples	Non-Examples
1. To remain on-task during the class period.	Off-task behaviors	On-task behaviors will consist of the student actively participating on an assigned task.	Actively participating in lecture, group discussion, independent school work, or other assignment-related activities	Sleeping in class, engaging in outside conversations or work, daydreaming, doing things other than assigned task
2. To gain teacher assistance in the appropriate manner	Gaining teacher assistance	Gaining teacher assistance behaviors consist of appropriate ways the student can gain help and assistance on academic related tasks.	Raising hand, asking teacher politely without interrupting	Talking out, interrupting teacher during conversations or lecture
3. To comply with staff directives immediately and without arguing.	Compliance with staff directives	Complying with staff directives is when a student engages in an activity following a specified demand.	Following the first directive within 3 seconds	- Following the directive after more than 3 seconds - Following after more than 1 directive is given
<p>Directions for ratings: After each period, rate the students on the following questions:</p> <p>1. For the class period, to what degree was the student was <b>on-task</b>?</p> <p>2. When the student needed help during the class period, to what degree did the student appropriately <b>gain teacher assistance</b> on academic related tasks?</p> <p>3. When given a staff directive during the class period, to what degree did the student <b>comply</b> with the directive?</p> <p><b>Scale: 5=Always/Mostly Always 4=Often 3=Sometimes 2=Rarely 1=Almost Never/Never</b></p>				



APPENDIX H

CHECK-IN/CHECK-OUT DATA COLLECTION ROSTER  
Each student had one for each week.

Student: \_\_\_\_\_ Week: \_\_\_\_\_

Date/ Time	Check In Student Signature	Returned DBRC with parent signature Yes or No	Check Out Student Signature	Appropriate Researcher Feedback given Yes or No	Reward given if applicable Yes or No

## APPENDIX I

## SAMPLE SCRIPTS/PHRASES USED TO GIVE FEEDBACK

For the purpose of this study, praise can include any one of the following positive statements:

“Well done!”

“Good work!”

“Nice job!”

“Keep it up!”

“You were great today!”

For the purpose of this study, encouragement can include any one of the following statements:

“Let’s try again tomorrow!”

“You can do better!”

“Try a little harder!”

“I know you can do it!”

## APPENDIX J

## BASELINE FIDELITY CHECK SHEET

Student: \_\_\_\_\_ Week: \_\_\_\_\_  
 DBRC rater: \_\_\_\_\_

Element in place Yes=1 or No=0	Monday	Tuesday	Wednesday	Thursday	Friday	Total Points Earned (# of Yes)
Teacher recorded behavior on DBRC						_____ out of 5

Percentage of fidelity for teachers recording on the DBRC for the week: \_\_\_\_\_ %

Percentage will be calculated by dividing the number of times the element took place by the number of times the element could have occurred and multiplying that number by 100.

## APPENDIX K

## INTERVENTION FIDELITY CHECK SHEET

Student: \_\_\_\_\_ Week: \_\_\_\_\_  
 DBRC rater: \_\_\_\_\_

Element in place 1=yes 0=no	Monday	Tuesday	Wednesday	Thursday	Friday	Earned Total/Percentage of Fidelity # of yes	Possible Total # of yes
Students checked-in in the morning						____ out of 5 ____%	5 out of 5
Teacher rated behaviors						____ out of 5 ____%	5 out of 5
Teachers gave appropriate feedback						____ out of 5 ____%	5 out of 5
Students checked-out after school						____ out of 5 ____%	5 out of 5
Researcher gave feedback						____ out of 5 ____%	5 out of 5
Parents signed the DBRC						____ out of 5 ____%	5 out of 5
Totals for each day						____ out of 30 ____%	30 out of 30

## APPENDIX L

## BEHAVIOR MONITORING PROGRAM (BMP) ACCEPTABILITY QUESTIONNAIRE

Teachers, students, and parents were asked questions which were designed to gauge the extent of acceptability of the intervention. Scores on the BMP Acceptability Questionnaire were recorded on a Likert-like scale from 1 to 6 with higher scores indicating a more favorable impression.

On a scale from 1-6 please rate the following items:

**1=strongly disagree 2=somewhat agree 3= agree**  
**4=disagree 5=somewhat disagree 6=strongly agree**

1. \_\_\_\_\_ The BMP was effective in improving behavior at school.
2. \_\_\_\_\_ The BMP improved academic performance.
3. \_\_\_\_\_ The BMP seems to be worth the time and effort.
4. \_\_\_\_\_ The BMP is worth recommending to others.
5. \_\_\_\_\_ The BMP was easy to implement.

Please answer the following open-ended questions as accurately and honestly as possible.

Which component(s) of the intervention did you feel was/were the most effective?  
 Please explain.

How would you improve this program? Please explain.

Person rating / teacher, student, or parent? \_\_\_\_\_

## VITA

Jillian R. White received her Bachelor of Arts degree in psychology from Baylor University in 2001. After a few years of working with at-risk youth and substitute teaching, she returned to school in 2004 where she took courses at Texas A&M University in Prairie View in order to become certified in teaching special education grades K-12. She entered Texas A&M University in College Station in 2007 during her 3<sup>rd</sup> year of teaching special education at the secondary level, and received her Master of Science degree in educational psychology in December of 2009. Her research interests include special education and behavioral interventions for secondary students. She would like to further her education and eventually teach at the college level.

Ms. White may best be reached at TAMU, 704 Harrington Tower, MS 4225, College Station, TX 77843-4225. Her email address is [jillianrwhite@yahoo.com](mailto:jillianrwhite@yahoo.com).