Teachers' Use of Positive and Negative Feedback With Students Who Are High-Risk for Emotional Behavioral Disorders

by

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ABSTRACT

Teachers use different rates of positive feedback with students who are high-risk for emotional and behavioral disorders (EBD) in comparison to the rates of positive feedback teachers' use with low-risk students. By addressing the differential treatment, it may alleviate some of the related negative effects students high-risk for EBD experience, such as poor educational and social outcomes. The study explored the extent of teachers' differential use of feedback toward students identified as high-risk and low-risk for EBD. The data were collected in 56 teachers' classrooms by measuring rates of feedback delivered to 1 high-risk and 1 low-risk student per classroom (112 students total). Results revealed that teachers used positive strategies infrequently with the students high-risk for EBD. Results further indicated that teachers were over reliant upon using negative feedback with high-risk students. Descriptive variables within the study, such as school-wide and teachers' self-evaluations of positive classroom strategies, schools' special education population, and suspension rates were further explored. Implications for professional practice and potential future lines of inquiry on the differential treatment of students at risk for EBD in educational settings are presented.

DEDICATION

For Sean, who was there through it all and provided endless love and support along the way. And, for Mom & Dad who instilled in me the importance of education and perseverance.

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Introduction

Schools are complex social structures that are as diverse as the students and faculty who attend and work within them. The educational system, like any complex social structure, has a unique set of factors to consider when measuring outcomes. Some prominent factors faced by educators today include increasing educational advancement, responsibilities, and accountability (Chatterji, 2002; Committee for Economic Development, 2001; Curran, 1999). Aside from those factors, disciplinary issues and problem behavior are some of the most common concerns voiced by educators in schools today (Skiba & Sprague, 2008; Utley, Kozleski, Smith, & Draper, 2002).

The concerns of educators have been verified by statistics that show an increase in violent behavior warranting disciplinary action. According to the 2007-2008 National Center for Education Statistics (NCES) School Survey on Crime and Safety (SSOCS), of the 75% of schools reporting data, there were 27.9 violent incidents per every 1000 students in schools (NCES, 2008, p. 7, Table 1). Violent incidents consist of rape, sexual battery other than rape, physical attack or fight, threat of physical attack, and robbery with or without a weapon. Per every 100 students in United States public schools, there were 9.2 incidents of vandalism, possession of a knife or sharp object, firearm, explosive device, and distribution, possession, or use of illegal drugs or alcohol; additionally, serious violent incidents occurred at the rate of 1.2 and theft occurred at 5.8 incidents per every 1000 students (Neiman, DeVoe, & Chandler, 2009).

Disciplinary incidents such as those noted above significantly impede the educational process within schools everyday. The NCES SSOCS found that bullying behaviors occur 25.3% of the time on a daily and weekly basis (see Table 5 of NCES, 2008, for complete data). On a daily basis, student acts of disrespect for teacher and other verbal abuse occurred 10% of the time; verbal abuse of teachers occurred 6% of the time; and widespread disorder in the classroom occurred 4% of the time (Neiman et al., 2009). Of the more than 700,000 serious disciplinary actions taken by schools during the 2007-2008 year, 79% resulted in suspensions of five days or more, 19% resulted in transfers to specialized schools, and 5% were expulsions. The most disciplinary actions in schools were for insubordination (327,100) and physical attacks or fights (271,800). Unfortunately, the most common action taken by schools for these infractions were out-of-school suspensions lasting an average of 5 days or more (Roberts, Zhang Truman, & Snyder, 2010, p. 74, Figure 19.2).

Removal of a student as a result of discipline infractions may appear to be a quick fix, but the cumulative data tell a much different story. For instance, it has been estimated that for every 100 office referrals administrators spend 33 hours and teachers spend 25 hours away from their educational responsibilities (PBISAz, 2008). Additionally, every 100 behavior referrals yield approximately 75 hours in suspensions, which means there is a loss of 75 hours of academic time for students (PBISAz). The loss of instructional time that is dedicated to addressing discipline is a problem that has become a prominent issue in schools and has influenced strategies and approaches to prevent problem behavior and

academic failure so that students and teachers can spend more time engaged in learning and teaching.

Behavior problems have historically been the most common reason that students are removed from classrooms (Cohn, 2001). Once removed from the classroom, students miss valuable instruction and opportunities to learn appropriate behaviors (Freiberg & Lamb, 2009). Subsequently, misbehavior that is exacerbated by missing instructional time means that students with behavior problems are twice jeopardized – once for his or her behavior and twice by missing core content instruction. Over time, this could lead to lowered performance, discouragement, and a lack of interest in school, all which are potential risk factors for dropping out of school.

How Did We Get Here?

Improving student behavior has been of interest to educators and society since schools were initially organized. The use of structured approaches to identify and remediate problem behavior to respond to the aforementioned statistics has gained much attention in recent history. However, the study of behavior comes with great responsibility through the exploration of ethical questions, methodologies, to assess problems in education. Scrutinizing and making inferences regarding behavior and responsiveness to interventions leads researchers to make presumptions regarding functions of behavior (Clark, 1987). In order to knowledgeably address the potential implications in this line of inquiry, it is vital to understand the historical contexts for which the methodology and assumptions regarding behavior are based.

Since the industrial revolution, the scientific method used to examine behavior has influenced fields such as psychology, social work, educational psychology, and special education. Within each specific discipline, there are different frameworks used to address the influence and impact of behavioral concerns (Martin & Pear, 2007; O'Donohue & Ferguson, 2006; Roberts, 2001). This chapter will examine the various frameworks, particularly behaviorism's historical and contemporary underpinnings of school-wide positive behavior supports (SWPBS) from a technical and critical perspective to provide the background for the research questions and methods used in this dissertation. SWPBS provides educational organizations with an operational framework for achieving positive outcomes to focus on prevention and improvement of behavior problems school-wide.

Experimental analysis of behavior. Behaviorism is the science of manipulating variables to increase desired behaviors in the least invasive and most ethical manner. Behaviorism provides a theoretical lens that focuses on analyzing environmental variables that consistently influence target behaviors. This research utilizes this theory to examine the variables and focus on identifying environmental influences that may be increasing or impeding behavior change (Cooper, Heron, & Heward, 2007). Before examining the implications of studying behavior from the behaviorist perspective, it is helpful to provide a historical perspective on the origins of behavioral analysis. There is a crucial difference between the behaviorist approach and the mentalistic approach used in psychology. Traditional mentalistic approach presupposes psychological

dimensions as explanation for behavior. However, behavioral theorists define behavior by observable assessment and do not attribute specific internal functions to the external production of behavior (Clark, 1987).

Modern psychologists have debated a vast array of hypotheses regarding what motivates and changes behavior (Fancher, 1979). This longstanding debate can be traced back to Ivan Pavlov's contribution to behavioral studies. Pavlov illustrated how conditional reflexes could be acquired through controlled conditions that were essential for experiments involving behavior (Fancher, 1979). Building on Pavlov's theory, theorist Edward Thorndike's most notable contribution to the field was a study of escape behaviors; specifically, the Puzzle Box. This contribution of research led Thorndike to theorize that behavior is adaptive and can quickly adjust to meet a goal (Millenson & Leslie, 1979). These findings support that controlled conditions result in shaping behaviors, thus laid the framework for research to identify positive means to promote demonstration of positive behaviors.

Renowned researcher John Watson conducted early studies to establish the relationship between behavior and psychology. Specifically, he examined stimulus response behaviorism: the study of observable behavior. Watson coined the term *behaviorism* for the new science. The study of behaviorism shifted the research focus to environmental stimuli and the responses they evoke in humans and other living creatures. Watson could be best attributed with providing the framework for behaviorism as a modern science (Fancher, 1979).

B.F. Skinner was arguably the most famous behaviorist of the mid to late 20th century. Skinner explained behavior as functional and restricted by the lack of recognizing relationships between variables. The groundbreaking work of the Skinner Box illustrated that employing systematic conditions resulted in behavior change (Millenson & Leslie, 1979). The box was designed to use operant conditioning for experimental analysis of animal behavior. Within the Skinner Box, there was usually a lever or key that enabled an animal to operate it in order to obtain a reinforcer. The box would measure the lever pressing or key pecking, which provided a quantification of behavior. The colossal advancements of Pavlov, Thorndike, and Skinner in the study of behavior have influenced methodologies and reinforcers that have transformed behavioral sciences from laboratory experiments to studies in society.

Applied behavior analysis. When a study of behavior is conducted in a real life environment to analyze socially relevant questions, it is called an applied behavior analysis (ABA) (Baer, Wolf, & Risley, 1968). The results of ABA have been recognized for its contribution to a full range of interventions including disease prevention (DeVries, Burnette, & Redmon, 1991), education (Heward et al., 2005), health and exercise (De Luca & Holborn, 1992), and parenting (Kuhn, Lerman, & Vorndran, 2003) to name a few. ABA was used in schools during the 1960s and 1970s in the studies of contingent teacher praise and attention, token reinforcement systems, curriculum design, and instruction (Kazdin, 1981). However, in the last 35 years, ABA methodologies used with school children

have gained recognition. Many of these studies have related to teaching students with various EBD (Alberto & Troutman, 2006; Lovaas, 1987).

At its most basic, ABA is an analysis that takes place in real environments and deals with actual social issues. However, there is another aspect to ABA: the process of systematic application of interventions that are based upon learning theories. It is the goal of this process to improve target behaviors and to validate interventions that are responsible for improvement in behavior (Baer et al., 1968; Sulzer-Azaroff & Mayer, 1994). In 1968, Baer et al.'s innovative research arguably started the revolution of ABA by using experimental principles to shape behavior and bring about positive change. The authors posed a series of seven dimensions that constitute ABA science and methodology. The first dimension is the concept of *applied*. Application means that the intent of the methodology should be focused on long-term social significance. This is true not only for the consumer, which is the individual receiving ABA techniques, but also for those who may be closely affected by the practice. The *behavioral* dimension suggests that the target behavior must reveal observable and measurable change; researchers cannot solely rely on participant-reported change. In order to confirm outcomes, ABA needs to demonstrate *analytic* dimensions. Thus, the methodology must demonstrate control over the behavior through the interventions employed.

Baer et al.'s (1968) *technological* dimension means that the description of the procedure and variables must be very detailed and clearly described to enable a fellow researcher to replicate the study and expect similar results. ABA must

persist on being *conceptually systematic*, which means the analysis should not repeatedly continue an intervention once it has been determined to be ineffective. Instead, the principles of ABA suggest attempting one intervention, finding its effectiveness, and using behavioral evidence to determine and create interventions that may be more or continually *effective*. Perhaps the most important and fundamental dimension of ABA is the effective dimension. The social or practical importance ABA methodologies are essential in the behavioral science. To achieve this importance of social validity, the research must constantly examine whether or not the intervention is making a positive difference. The last dimension posed by the Baer et al. was *generality.* This refers to sustaining behavior change; therefore, behavior must not only change in experimental conditions, but also in other settings and eventually generalize to related behaviors (Baer et al., 1968).

Since the Baer et al. (1968) publication, there has been other research that has suggested additional characteristics or dimensions of ABA. In 2005, Heward et al. provided five additional characteristics including *accountable, public, doable, empowering* and *optimistic*. Cooper et al. (2007) described the accountable dimension as the commitment to being effective in detecting progress through direct and systematic measurement, and to make changes based on data. Results from studies utilizing ABA provide tools to change behavior, raise confidence, and increase awareness of important, socially relevant issues. Accordingly, the dimensions of public and empowering can be achieved. Lastly, the science is optimistic because it proposes that all individuals possess generally

equal potential. Furthermore, systematic measurement should yield detection of small improvements in performance toward potential that might otherwise have been missed. Hence, the goal of every intervention is to achieve positive outcomes and optimistic future success (Cooper et al., 2007).

Behavioral technology, such as ABA, has influenced the adoption of behaviorism into schools (Moxley, 1989). Concurrently, the child study movement began, which situated psychology and mental health issues within the realm of education. During this time, a quest for understanding educational problems led to the examination of factors that influence learning and schooling, which included genetics, environment, and interactions (Fagan, 1992). As psychoanalytic and behaviorist philosophies merged and become a valid intervention for emotional and behavioral needs, it became apparent that schools must utilize such information to attempt to address students' needs.

Schools as providers of emotional and behavioral services. Hoagwood and Johnson (2003) suggested that schools are the largest providers of emotional and behavioral educational support to children and adolescents in the United States. It has been suggested that many more students present elevated and prolonged symptoms that need intervention than those who actually receive it in the school-aged population. This percentage is based on the Diagnostic Statistical Manual Fourth Edition (DSM-IV) criteria; however, only approximately 0.7 % of students are identified as having EBD under Individuals with Disabilities Education Act (Turnbull, 2010, p.158). In turn, schools must provide intervention supports as treatment for these students who are clinically in need of services. It is

important to note that some patterns of behavior can qualify for a mental disorder according to DSM-IV, though the same behavior may not be covered by the IDEA (American Psychiatric Association [APA], 2000; IDEA, 2004).

Students identified as having EBD under IDEA are characterized as having serious and persistent difficulties, which affect their educational performance, social development, and often have long-lasting negative effects on many aspects of their lives. The devastating cycle of problem behavior, discipline problems, and exclusion from the learning environment has a dismal impact on all children. Students who experience prolonged problem behavior and lost instructional time are those who are most likely to experience labeling, school failure, and substantially higher than average dropout and exclusion rates (Hammond, Linton, Smink, & Drew, 2007). These issues have gained much attention with the passage of the IDEA in 1997 and its reauthorization in 2004. Particularly, IDEA avowed prevention efforts as a crucial direction worthy of national attention for helping students with EBD.

School-wide Positive Behavior Supports

In response to the aforementioned discipline issues due to problem behavior, schools are increasingly seeking prevention and positively focused approaches to replace conventional, ineffective punishment strategies and procedures (Osher, Bear, Sprague, & Doyle, 2010; Safran & Oswald, 2003; Skiba, 2002; Skiba & Peterson, 2000). With legal and political backing, school-wide positive behavior supports (SWPBS) was introduced to encourage schools to differentiate curriculum, instruction, strategies, and interventions to meet the

needs of all students based on teaching and supporting prosocial and educationally appropriate behaviors (Sandomierski, Kincaid, & Algozzine, 2007; Sugai & Horner, 2002). SWPBS is grounded in ABA theory and has been deemed widely effective to decrease problem behavior and increase student success when it is applied systematically and consistently (Cohn, 2001; Skiba & Sprague, 2008).

The push for prevention received political backing when President Obama, then a senator from Illinois, introduced an act with Dick Durbin (D-IL) and Representative Phil Hare (D-IL). The legislation was called the Positive Behavior for Effective Schools Act (2007). The Positive Behavior for Safe and Effective Schools Act amended the Elementary and Secondary Education Act of 1965 (ESEA) that allowed schools to allocate school improvement funds for prevention-based, early intervention efforts for all students to promote appropriate behavior. The 2007 act was created to direct resources to programs designed to implement prevention-focused programs that sought to improve school climate, student learning, and outcomes (PBIS.org).

The current emphasis on prevention is prompting education to move toward interventions beyond the core curriculum. SWPBS provides a model for prevention of emotional and behavioral problems in the general education environment by providing support for all students. The reauthorization of IDEA in 2004 encouraged states and local educational agencies to adopt preventative strategies such as SWPBS to address the needs of all students. IDEA and SWPBS encourage schools to differentiate curriculum and instruction in an effort to meet

the needs of the whole population by assessing the average needs of an individual student through teaching and supporting prosocial and educationally appropriate behaviors (Sandomierski et al., 2007).

The SWPBS model resembles a shift from archaic, ineffective, reactive, and punitive methods to a preventative approach in an attempt to eliminate academic and behavioral failure (Ervin, Schaughency, Matthews, Goodman, & McGlinchey, 2007). SWPBS core principles underscore a proactive and systematic approach to maintain safe and effective learning environments, and prescriptive supports to encourage the mastery of skills or behavioral expectations. The model emphasizes instituting a support system for educational experts to work as a team and apply data-based decision making to academics and behavioral interventions (Stewart, Martella, Marchand-Martella, & Benner, 2005).

The key components of the SWPBS model include a solid three-tier model of preventing emotional and behavioral problems while simultaneously promoting positive behavior. One component pertains to universal screening methods for all students to target and identify supports for those who demonstrate the most need. Additional components include ensuring scientifically based instruction methodology and curricula are being presented in all classrooms, that there is continuous assessment and progress monitoring, and that the system is using the derived data to make decisions (Stewart et al., 2005).

Universal supports. The first tier in SWPBS emphasizes providing universal supports and interventions to all students at all times. At the first tier, all students in all settings will have access to a strong core curriculum, scientifically

based teaching practices, and universal interventions. The focus of the first tier is on being proactive and preventative. Approximately 80% to 90% of all students will respond to the intervention and demonstrate appropriate behavioral expectations and academic proficiencies (Sugai & Horner, 2006, p. 247). All students' progress is monitored regularly according to the priorities of the first tier throughout the academic year. Academic and behavioral gains are congratulated and deficits are analyzed to assess and plan for more intensive needs (Duhon, Noell, Witt, Freeland, Dufrene, & Gilbertson, 2004).

Primary or universal interventions are those directed to all students, across all environments and can include: positively established expectations, explicitly taught expectations, reinforcement and acknowledgment for following expectations, and systematic correction and reteaching of behavioral errors. Those students who do not respond to academic and behavioral universal interventions typically comprise 10% to 20% of the student population. These students may have deficits in a particular academic area, multiple subject areas, or do not grasp behavioral expectations (Cohen, Kincaid, & Elfner-Childs, 2007).

Supplemental supports. Within the second tier, there is implementation of quality, supplemental, and targeted intervention for those students who do not respond to interventions at the first tier, or universal, level. The focus at the second tier is targeted behavioral interventions that match the students with intervention based on academic need or function of behavior. The goal of the targeted interventions is to provide more intensive, direct and data driven interventions to address each students' distinct weakness and strengths. Students

in the second tier receive more intensive and prescriptive interventions based on their demonstrated need areas.

Tier two interventions are for a targeted group of students preliminarily identified as at-risk based on the data derived from the lack of responsiveness at the universal tier one. In the second tier, frequent assessment of response to interventions is vital. Interventions at tier two include additional instruction, more intensive focus on areas of deficit, rapid response, and frequent reinforcement for student growth. In the school environment, it is common to see problem behavior occur and result in academic deficits. Oftentimes, the problem behavior will increase in complexity and severity. Moreover, addressing needs more intensively and comprehensively aids in decreasing the number of students overlooked due to an incorrectly perceived level of need (Lane & Menzies, 2003).

Intensive supports. The third tier of support is the most intensive level of intervention. At this level, intensive individual interventions are delivered to those few students who have not responded to the universal or targeted intervention. The third level of intervention consists of function-based interventions, which are individually developed and delivered. Intensive interventions often require collaboration with the family and possibly community agencies that provide social service support to families. Approximately 3% to 5% of students do not adequately respond to the intervention at the universal (Tier one) or targeted level (Tier two). These students require interventions based on their own individualized needs with specifically targeted interventions based on each student's learning and behavioral profile. The monitoring of student progress at the third tier is

increased to analyze progression and error data. These data points may be derived from curriculum-based measures following interventions or from functional-based assessments, which can be applied toward developing academic and behavioral plans specifically tailored to individual students (Stewart et al., 2005).

The principles of SWPBS emphasize the importance of using positive strategies in the classroom with all students regardless of behavioral needs. There is a critical need for recent empirical support to be used to examine positive teaching strategies present in classrooms that may contribute to student success, such as the strategies intended to recognize and reinforce appropriate behavior, and provide positive comments and feedback. Receiving effective support has been a longstanding issue, particularly for students demonstrating EBD.

Feedback as a Support and Strategy

There is a large body of literature that provides empirical evidence that ABA-based principles found in SWPBS practices, which are effective for treating and educating individuals with a variety of needs and diagnoses (Howard, Sparkman, Chohen, Green, & Stanislaw, 2005; Koegel, Harrower, & Koegel, 1999; Lovaas, 1987; McGee, Morrier, & Daly, 1999). The ABA strategy that utilizes effective feedback provides information that has the most influence on learning (Hattie & Timperley, 2007). Feedback is referred as providing information regarding an individual's behavior or skills, and it can be used as an effective strategy in all SWPBS tiers of support.

Feedback can act as a powerful strategy if utilized correctly. When used properly, feedback has widely been identified as a vital medium for improving

learning and performance (Bandura, 1991; Fedor, 1991; Fedor, Davis, Maslyn, & Mathieson, 2001; Ilgen, Fisher, & Taylor, 1979). Hattie and Timperely (2007) noted that "feedback has no effect in a vacuum, to be powerful in its effect, there must be a learning context to which feedback is assessed" (p. 82). Thus, it can be argued that the predominant use of negative feedback without positive feedback and instruction could exasperate learning or performance problems by creating confusion. The focus of this study is to attempt to gain a better understanding of SWPBS strategies, such as teachers' use of positive and negative feedback in the classroom with students who have been identified as demonstrating emotional and behavioral problems.

Feedback with EBD students. Unfortunately, students suspected as having EBD are less likely to experience nurturing and encouragement from their teachers in comparison to their non-EBD peers (Itskowitz, Navon, & Strauss, 1988). Early research revealed consistent findings regarding treatment of students identified with EBD. For example, Strain, Lambert, Kerr, Stagg, and Lenker (1983) found that the majority of students rated low in social adjustment received near zero positive consequences or feedback for desired behavior by their teachers. The lack of positive feedback for students with EBD has become a historical trend, and the trend remains exceptionally prevalent in classrooms that only service students with EBD. For instance, Shores, Jack, et al. (1993) found teacher rates of positive feedback for students with EBD were as rare as one per hour. Wehby, Symons, Canale, and Go (1998) reported that teacher use of positive feedback in form of praise is nearly non-existent toward EBD students.

Ultimately, the most needy populations are those less likely to experience these positive strategies.

The prolonged lack of positive feedback and overreliance on negative feedback to address problem behavior functions as a detrimental cycle and tends to result in habitual negative interactions and relationships with students demonstrating EBD. Research has found that students demonstrating aggressive problem behavior experience negative consequences or statements by the teacher 22% of their time in classrooms and positive feedback only 3% of the time (Shores, Jack, et al., 1993, p. 33). These data suggests the educational experience of students with EBD regularly involves being prolonged recipients of negative feedback. Additionally, studies have shown that students who experience school failure receive minimal positive reinforcement, which causes school to become an aversive environment (McEvoy & Welker, 2000).

Students demonstrating problem behavior in the classroom are often viewed as aversive to teachers; thus, it is conceivable that teachers rely on negative feedback, exclusion, and removal strategies to stop the problem behavior. The analysis of how feedback is used toward students consistently reveals that children who act out are more frequently targets of negative feedback and receive positive feedback less frequently from their teachers. Studies have suggested that aggressive, at-risk students identified as having EBD receive poorer instruction, are given ineffective and negative feedback from teachers, and have lower academic confidence (Huesmann, Eron, & Yarmel, 1987). Research on the use of teacher feedback has suggested that heavy reliance on negative

feedback adversely impacts student-teacher relationships; thus, students who experienced frequent negative feedback in the classroom reported more negative relationships with teachers (Burnett, 2002). Clearly, behaviors and difficulties experienced by educators and students are interrelating in very complex ways (Talbott & Coe, 1997).

Promoting positive feedback. Outcomes of using positive feedback can have long-lasting effects. Hamre and Pianta (2001) found that kindergarten students identified as having elevated conflict levels with their teachers tended to have less positive feedback occurrences and more discipline infractions through elementary school. The trend remained consistent for males during the middle school years. The same research team found that, in classrooms offering robust instructional and positive supporting environments, students identified as high-risk for EBD demonstrated similar academic scores and positive teacher relationships as their peers who were low-risk for EBD. Subsequently, the at-risk students in less supportive classrooms demonstrated lower academic scores and had more disputes with their teachers (Hamre & Pianta, 2001). Consequently, it could be argued that teachers who engage in more positive feedback may have higher rates of students who demonstrate desired behavior in comparison to teachers who have classrooms where positive feedback is less prevalent.

Classic research in ABA has repeatedly confirmed that delivering positive feedback when students engage in desired behavior increases the likelihood they will demonstrate that behavior in the future (Madsen, Becker, & Thomas, 1968). Consequently, research has repeatedly acknowledged that teachers who

implement mismatched strategies for students with EBD may escalate adjustment and maladjustment problems (Greene, 1995; Kaufman & Wong, 1991; Pianta 1999; Pianta, Steinberg, & Rollins, 1995). Despite the long history of data to support the beneficial results of using positive feedback, research continually reveals that teachers rarely use this recommended strategy in the general education setting (Beaman & Wheldall, 2000) and even less often for students suspected to be EBD (Shores, Jack, et al., 1993).

Improving teacher use of positive feedback is a simple approach that can have a significant impact on student behavior. Research dedicated to this line of inquiry has revealed that positive feedback strategies that acknowledge a student for a desired behavior is extremely effective in promoting appropriate behaviors (Chalk & Bizo, 2004). It has been demonstrated that positive feedback does not need to be directed towards a specific student to be effective. Sutherland, Wehby, and Copeland (2000) examined the use of positive feedback through praise statements in a classroom of students with EBD. The findings illustrated that the rate of positive feedback statements and on-task behavior of the class as a whole increased concurrently.

The use of positive feedback has been found to be a useful technique when it is administered to individuals or a large group and is deemed a valuable strategy. Behavioral research has demonstrated that students who observe others receiving praise for a desired behavior are more likely to be motivated by the desire to receive the same positive feedback (Klimas & McLaughlin, 2007; Ollendick, Dailey, & Shapiro, 1983). The relationship of negative and positive

feedback to student behavior has been investigated and it has been determined that positive feedback is much more beneficial to students than criticism (Burnett, 2002).

As previously discussed the vicious reciprocal relationship between problem behavior and academic failure often results in students receiving little positive reinforcement and feedback, causing school to become an aversive environment (McEvoy & Welker, 2000). Though the relationship between feedback and behavior exists, there is a limited amount of current, empirical literature that measures teachers' differential use of feedback. More precisely, research needs to assess the extent of discrepancies in teachers' use of positive and negative feedback in classrooms toward students who are identified as high-risk and low-risk for EBD. Therefore, contributing research to this line of inquiry will provide valuable information on the current use of feedback, and potentially provoke teachers to employ positive teaching strategies in their classroom.

Statement of the Problem

There is a gradual, yet promising shift in schools toward using positive focused strategies to replace ineffective punishment-based approaches to address student problem behavior (Osher et al., 2010; Skiba, 2002). The shift toward preventative efforts was first noted with the reauthorization of the Individuals with Disabilities Education Improvement Act in 2004 (IDEA, 2004), as well as in the introduction of The Positive Behavior for Safe and Effective Schools Act (2007). As early as 1968, positive feedback for desired behaviors has been used and deemed effective for reinforcing a desired behavior and decreasing problem

behavior (Madsen, Becker, & Thomas, 1968; Ward & Baker, 1968). Work by educational theorist (Sprick, Garrison, & Howard, 2006; Sprick, 1981, 2002;) suggested that positive attention given by the teacher for appropriate behavior should occur at a rate of three times greater than a teacher's negative attention for inappropriate behavior. Likewise, recommendations have been made that teachers should sustain a ratio of six positive social engagements for every negative interaction in order to encourage a positive classroom climate (Latham, 1992).

There are many types of positive feedback, and some have proven more effective than others. Teacher use of positive feedback has a longstanding demonstration as being effective at increasing appropriate behavior, intrinsic motivation, and academic competence (Brophy, 1981; Cameron & Pierce, 1994; Ferguson & Houghton, 1992; Hall, Lund, & Jackson, 1968). The association between positive and proactive strategies and increased improvements seem clear. Few strategies used in classrooms today have demonstrated such a consistent and sustainable positive effect on student achievement and reduced problem behavior as the use of appropriate positive feedback (Brophy, 1981; Burnett, 2002; Madsen et al., 1968; Sutherland, Wehby, & Copeland, 2000).

Despite political backing and empirical evidence that supports using positive teaching strategies to reduce problem behavior, there appears to be disconnect between the research and practice. Unfortunately, it has been suggested that most teachers continue to use forms of negative feedback at an alarming rate. Specifically, teachers are relying on punishment-based strategies in their classrooms to address problem behavior. Such punishment-based strategies

include reliance on ultimatums, consequences, removal requests, suspensions, and expulsions (Burnett, 2002; Maag, 2001). The fact that teachers continue to use negatively based strategies is a paradox, because it has been demonstrated that reliance on negative feedback, as opposed to positive feedback, has little effect on encouraging the development of socially appropriate behaviors with students at risk for EBD (Maag, 1999).

Kauffman (1996) suggested that there is an inverse relationship present in schools between what evidence suggests in this area of discipline and the actual practices. Over the last 30 years, studies have demonstrated consistent findings on the dilemma between using positive and negative feedback strategies. Strain et al. (1983) identified that teachers' use of positive feedback occurred approximately 10% of the time for the general population, and was observed 0% of the time for students identified as low in social adjustment. Many observational studies have identified that the use of positive strategies are infrequent, and a trend of overreliance on negative feedback is especially evident with students at risk for EBD. Several notable studies confirm the argument that positive feedback is used with EBD students at a low to nonexistent rate (Burnett, 2002; Gable, Hendrickson, Young, Shores, & Stowitschek, 1983; McEvoy & Welker, 2000; Shores, Jack et al., 1993; Wehby et al., 1998; Wehby, Symons, & Shores, 1995). Unfortunately, teachers' overreliance on consequences and negative feedback has historically been more common in classrooms than use of positive feedback and strategies (Gable et al., 1983; Knitzer, Steinberg, & Fleisch, 1990; Shores, Jack, et al., 1993).

Promising efforts are being made with the success of strategies promoted by SWPBS philosophies. Most notably, SWPBS is reconceptualizing traditional classroom strategies to focus on acknowledging appropriate behavior. Thus, it can be assumed that teachers who adopt and implement positive strategies are making fundamental advancements toward reducing student exclusion rates that, historically, have been a result of handling behavior and discipline problems in the classroom. Furthermore, employing SWPBS strategies to reduce problem behavior is responsible for increasing positive learning environments for all students.

Conceptual Framework

Within the line of inquiry on positive teacher feedback strategies, it becomes evident the powerful impact and effects it has on reinforcing and learning appropriate behavior. The focal points of this conceptual framework address elements of feedback that are effective in positively impacting and shaping appropriate behaviors in the classroom. Within this framework, elements of effective feedback include clear expectations, emphasizing goals, and presenting information in a positive way (see Figure 1). Research methods that capture the effective use of feedback strategies in addressing problem behavior provide information that will realistically lead to accomplishing the ultimate goal: awareness. Awareness of effective elements of feedback may result in a greater understanding of variables that influence positive behavior. Understanding how positive behavior is influenced can then affect intervention and strategy effectiveness in the context of the classroom.

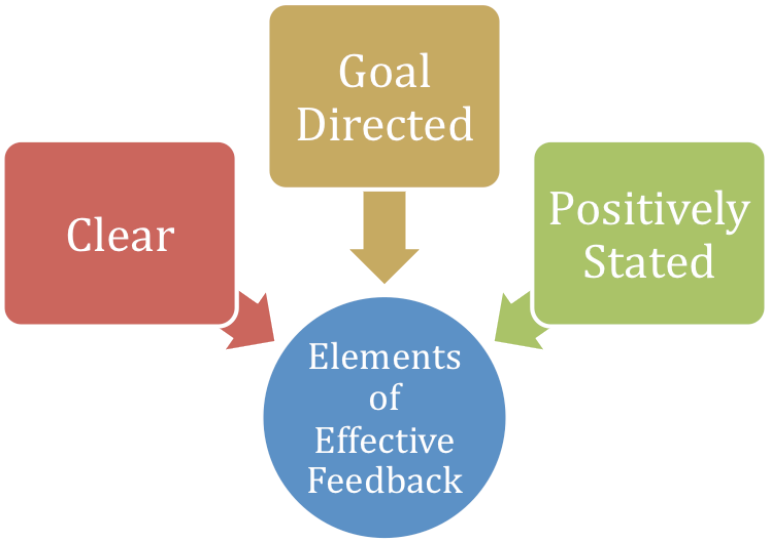

Figure 1. Conceptual framework of the elements of effective feedback. The terms represent the elements that are situated within this framework to maximize the effectiveness of feedback.

The Purpose of the Study

The present study will examine teachers' differential use of positive and negative feedback in the classroom toward students who are identified as high-risk and low-risk for EBD. Descriptive variables within the study will explore the qualities of SWPBS, schools' risk index of EBD, and self-evaluations of teachers' use positive strategies in their classrooms in the sampled population of schools. The strategies teachers use with students at risk for EBD rarely include increasing the use of positive feedback. Meanwhile, research has revealed that an imbalanced usage of positive and negative feedback often results in perpetuating problem behavior (Maag, 2001; Shores et al., 1993). It is vital to examine variables such as feedback that may contribute to the perpetuation of a student's problem behavior. The line of inquiry presented within this study is imperative, as it aims to provide an in-depth analysis of feedback usage in classrooms to

promote positive behaviors. The findings are intended to increase awareness of positive strategies used in schools today and to contribute to that body of literature that examines factors in the classroom that may contribute or exasperate EBD symptoms and trajectories.

Feedback is merely one aspect of the issues that contribute to the behavior of EBD students. Moreover, there are many issues to consider when examining at-risk and EBD populations, such as overrepresentation and disproportionality of minorities. However, such considerations are outside the main scope of the data analysis, but they will be included in the descriptive analysis section of the results and discussion. Additional topics within the descriptive analysis will include each school's suspension rate, EBD risk index, and special education data. Data obtained from this study may shed some light on external influences, such as strategies that teachers employ in the classroom that may in fact shape behaviors.

Research Questions and Hypothesis

In this study, the main research question will address the difference in the extent teacher's use positive and negative feedback toward students who are considered high-risk for EBD as compared to students who are identified low-risk. Additional descriptive analyses will be conducted on the school level regarding the qualities of SWPBS, the EBD risk index level, and teacher self-evaluation concerning the use of positive strategies. It is expected that the data will present a difference between the rates of positive feedback and negative feedback toward students considered as high-risk for EBD versus those who are low-risk. Additionally, it is hypothesized that the descriptive data will lend

additional information regarding the similar and different dimensions identified through the schools archival data. The research question in the study examines the following:

> To what extent does the rate of teacher use of positive and negative feedback differ toward students who are identified high-risk and low-risk for EBD?

The hypothesis is that the study will show the following results:

> The rate will be disproportionally balanced with fewer teacher uses of positive feedback than negative feedback toward students identified as high-risk for EBD.

Delimitations

Delimitations refer to restrictions or limitations of the study that were deliberately imposed by the researcher (Rudestam & Newton, 2001). The primary delimitation of the study is the limited size and geographical area of the sample used for data collection. The limited schools within the study will only allow for an analysis of a sample ideally representative of the population at large. Additionally, this study is limited to elementary school students within an identified school. Thus, generalizations should not be made beyond the parameters of the study variables.

Summary

Without question, problem behavior is the most common reason students are removed from the classroom. Classroom removal results in missing academic presentation, which is detrimental to a student's academic experience and

performance. The unproductive relationship of problem behavior and academic exclusion is significant and persistent on every school campus to some degree. Negative behavior often impacts schools because of inefficient use of staff resources and teaching time, and impacts classrooms because of the loss of instructional time for all students when teachers must use time for disciplinary action. As a result, schools are moving toward adopting philosophy in line with SWPBS to promote positive and proactive approaches to reduce problem behavior. The use of SWPBS demonstrates a promising shift away from reactive and punitive methods, and toward preventative approaches that have been proven to reduce academic and behavioral failure (Ervin et al., 2007).

Political backing behind the movement to establish a prominent presence of strategies for SWPBS means that schools are required to reconsider traditional approaches and promote the use of positive strategies. Using positive feedback as a regular teaching practice offers a promising approach to prevent and reduce problem behavior while increasing desired behavior in the classroom. Furthermore the importance lies within scholars and the research to highlight the need to bridge evidence based practices to the classroom. Accordingly, this study was designed to measure the use of positive feedback strategies that have been identified as effective and vital to increasing a student's behavioral success.

Definitions of Terms

The clear definition of terms is essential in the study of behavior. Terms addressed throughout the study can have different meanings based on context and may have dissimilar definitions in different fields. The following terms and

meanings will be used throughout this research study and were created by Nelson and Roberts (2000):

Approval – a form of positive feedback characterized by a teacher acknowledging appropriate behaviors or reacting in a positive manner toward the target student's appropriate behavior (e.g., providing points on positive behavior program, tangible response such as a sticker or points, social response such as a smile, or verbal responses such as "Thank you," "I like your behavior when you…," and "Good job").

Consequences – a form of negative feedback characterized by the teacher giving the target student a designated consequence for a disruptive behavior (e.g., loss of a privilege or points).

Leave request – a form of negative feedback that occurs when the teacher asks the target student to leave the classroom due to disruptive behavior (e.g., requests student to go to the principal's office or to the hall outside the classroom).

Negative Feedback – the term used to define a means by which students are directed in ways to improve or redirect problem behavior by providing information concerning students' behavior. The term negative represents that an attempt was made to eliminate or reduce a negative or inappropriate behavior.

Positive Feedback – the term used to define a means by which students are directed in ways to improve or acknowledge desired actions by providing information concerning students' behavior.

Reprimand – a form of negative feedback that occurs when the teacher asks the student to stop a problem behavior (e.g., "Stop hitting" or "Stop teasing").

Ultimatums – a form of negative feedback present when the teacher provides the target student a verbal choice to stop a problem behavior or the student will encounter a response cost, which refer losing a designated item as a result of displaying a behavior (e.g., “If you don’t stop ... then I will...” or “I need you to be quiet or...”).

Chapter 2

Literature Review

Educators and scholars continually influence learning and increase desired behaviors by providing feedback that is vital for student learning (Ilgen & Davis, 2000; Kluger & DeNisi, 1996; Scriven, 1967). Despite the fact that there is much debate over the use and usefulness of feedback, there is a common agreement that there are some features of feedback that effectively improve learning (Black & William, 1998; Hattie & Timperley, 2007; Kluger & DeNisi, 1996). This chapter will explore feedback as a classroom practice used to promote appropriate behavior and will examine feedback throughout the literature. Finally, the chapter concludes with an analysis of relevant research that provides a framework for effective positive feedback in the classroom in order to provide an understanding of the perspectives and methodologies employed in this study.

Selection of Literature

Influential articles in the feedback literature were identified and collected from a systematic review of published literature on feedback through online and library databases. Databases explored include PsycInfo, ERIC, Education Full Text, JSTOR, Academic Search Premier, and Google Scholar. In addition to these databases, catalogues, books, and journals were accessed at the Arizona State University Libraries. The search criteria included the following key terms: *feedback, positive feedback, negative feedback, behavior feedback, behavior modification, teacher student interaction, learning, applied behavior analysis, school-wide positive behavior supports,* and *emotional and behavioral disorders*

using the connector *and* until combinations were exhausted. In order to focus the search for useful articles, a compilation of relevant articles, books, dissertations, and conference presentations that met the criteria were included in the review. The inclusion criteria consisted of empirical studies, meta-analyses, and, above all, topical relevance.

The Meaning of Feedback

Feedback is information given to a person to scaffold learning experiences and evaluate performance successively toward a goal. The term is broad and has different meanings across different fields and theorists. Kerr and Nelson (2006) claimed feedback "typically occurs as a consequence of particular behaviors" (p. 57). Alternately, Ende (1983) described feedback as "information describing students' performance in a given activity that is intended to guide their future performance" (p. 777). The meaning of feedback is often dependent on how the information is relayed and the intent behind its use. The following section will explore the various types and purposes of feedback, specifically positive and negative feedback, which are investigated in the present study.

The goal of effective feedback, within and beyond education, is to improve performance. In terms of improving performance, a critical component of feedback is the manner in which information is presented. Bangert-Drowns, Kulik, and Morgan (1991) defined feedback as either *intentional* or *unintentional*. Intentional feedback is meant to convey information regarding the accuracy or appropriateness of a performance. Furthermore, unintentional feedback is defined as information that is obtained through natural interactions, such as watching

other students complete a task or learning to riding a bike through trial and error (Bangert-Drowns et al., 1991, p. 215). The chief distinction between the two types of feedback is the way in which information is delivered to the learning recipient. For this study, intentional feedback will be examined as a strategy used by teachers in the classroom to teach and reinforce appropriate or desired behaviors.

Intentional feedback has many different features that may affect or impact learning. For instance, the type of information presented in intentional feedback can vary significantly. The type of information presented in feedback relates to the process and outcome of a task (Earley, Northcraft, Lee, & Lituchy, 1990). Linn and Miller (2005) proposed that outcome-related feedback could be referred to as evaluative feedback, which conveys information concerning the correctness of a behavior. This form of feedback relies on social comparison, whereas process-related feedback, also known as descriptive feedback, provides information regarding how a task is performed and ways to improve the task or behavior.

Gipps, McCallum, and Hargreaves (2000) suggested that teachers' use of intentional feedback often vary by *presentation* and *content*. Presentation refers to who feedback is delivered to and how feedback is delivered; it could be directed at an individual student, small group, or whole class. The 'how' of the presentation refers to verbal, nonverbal, tangible, or written forms of presenting feedback. Tunstall and Gipps (1996) previously categorized the content of feedback by classification descriptions of *evaluative* or *descriptive* information. An evaluative feedback strategy refers to giving rewards and reprimands that

express approval or disapproval, such as "Billy, your behavior is not appropriate for a boy your age. I need you to act accordingly!" Descriptive feedback provides detailed information regarding why something is correct and learning strategies for demonstrating desired behaviors, such as "Billy, I would like to see your feet on the floor and sitting in the seat correctly in order to be displaying appropriate classroom learning behaviors." Arguably, the former rather than the latter request for a behavior change would produce less confrontational results with all students, especially those who demonstrate challenging behaviors.

Using effective intentional feedback in the classroom is an important practice for teachers to relay clear (descriptive) and goal-directed (evaluative) information to a learner (Linn & Miller, 2005). Sadler (1989) claimed, "students use teacher feedback to monitor the strengths and weaknesses of their performances, so that aspects associated with success or high quality can be recognized and reinforced, and unsatisfactory aspects modified or improved" (p. 120). Both goals, to educate and to promote positive environments, can be simultaneously achieved by employing strategies such as effective use of feedback (Hattie & Timperley, 2007). Feedback is not only valuable to the development and growth of students, but has been deemed a vital tool for teachers to promote SWPBS to create a positive learning atmosphere in their classrooms (Sugai & Horner, 2009).

Positive and Negative Feedback

Feedback can be *positive* or *negative*. For instance, if a behavior or task is demonstrated correctly, then positive feedback relays information to indicate that

a behavior should continue. Positive feedback is used to indicate that an expected or desired behavior was demonstrated, or to reinforce successive steps toward a goal. For the purposes of the present study, positive feedback is defined as verbal, nonverbal, or tangible feedback, which could include praise, behavior points, awards, and/or positive acknowledgement of a desired or appropriate behavior. Conversely, negative feedback indicates that a behavior or task was not performed correctly, thus indicating that a change of behavior is needed to demonstrate successive behaviors toward a goal. Negative feedback is defined in the present study as delivering a verbal or nonverbal reprimand, consequence, ultimatum, and/or leave request to indicate the need to terminate a behavior.

Positive feedback has a variety of features or characteristics. Such features may include "positive evaluations made by a person of another's products, performances, or attributes" (Kanouse, Gumpert, & Canavan-Gumpert, 1981, p. 98) and "favorable interpersonal feedback" (Baumeister, Hutton, & Cairns, 1990, p. 131). Intentional positive feedback is a common type of feedback that students receive from their teachers, ranging from statements such as "Good job, Billy!" to more sophisticated and individualized references to students' performance or behavior in a positively framed manner. It has been suggested that positive feedback could have favorable effects on motivation, self-efficacy, and performance (Illies & Judge, 2005; Pintrich & Schunk, 2002). Accordingly, teachers have been encouraged to use positive feedback as a universal strategy to reinforce appropriate classroom behavior (Dev, 1997). Askew and Lodge (2000) suggested that in order to be effective, positive feedback must aid in the

improvement of learning by motivating students, increasing confidence, uncovering meaning, and/or increasing understanding and connections to demonstrate an outcome. Furthermore, positive feedback must encourage the promotion of SWPBS feedback strategies as a means to improve academic and social outcomes.

Tunstall and Gipps (1996) created a typology of the functions of feedback. They suggested that the functions included providing reward/punishment, showing approval/disapproval, and distinguishing improvements toward achievement. The feedback typology was developed after exhaustively observing and interviewing students and teachers within classrooms. The authors suggested that teacher's use of feedback for socialization and academic performance assessment. Furthermore, they provided two typologies that constituted positive feedback, which were award and approval statements or actions, and two typologies for negative feedback, which were punishment and disapproval.

The differences in the typologies were established by the content of the embedded information. Negative feedback included information that relayed disapproval or punishment. Strategies used by teachers to signify or convey disapproval were categorized as negative feedback. Students often viewed negative feedback as punishment because teachers presented the information in a manner that identified the student to be at fault. Whatever forms negative feedback took, the feedback was intended to stop or eliminate a behavior that was perceived as unsatisfactory by the teacher. The authors illustrated that negative feedback often occurred during a student's presentation of inappropriate behavior

and resulted in statements of consequences, ultimatums, and removal or exclusion from the group (Tunstall & Gipps, 1996).

There is supporting and contradictory evidence regarding positive and negative feedback's effectiveness in changing a variety of challenging behaviors and facilitating learning. The following section will examine the counterarguments for the use and effectiveness of positive and negative feedback. It is vital to acknowledge that the use and effectiveness of feedback differs based on whom, how, and why it is used. Consequently, it is the responsibility of the educator to know the potential ramifications of using feedback to improve student performance and the importance of applying the correct form of feedback based on the learning context.

The Effects of Feedback

It is important to ask the central question within the debate on feedback: Does feedback affect performance? To address the contrasting positions on this subject, an overview of the evidence supporting each position on the effectiveness of feedback is presented. The conflicting positions have been reconciled by identifying conceptual themes that constitute effective use of feedback.

Overall, there is a great deal of compelling evidence that suggests feedback is a superior tool for increasing a desired or target behavior. However, there is an equally large body of research dedicated to disproving that statement entirely. Kluger and DeNisi (1996) presented a meta-analysis of feedback, which largely deemed feedback to be an effective tool to promote learning. The authors noted that much of the controversy regarding the effectiveness of feedback has

been the result of flawed methodologies, unwarranted generalizations, and inconsistencies in the evidence. In the meta-analysis, the authors reviewed more than 100 studies. Evidence to support feedback as effective was identified in two thirds of the studies, but one third of the studies reviewed indicated that it might actually decrease desired performance. This debate has led to a wide array of assumptions regarding the use, function, and effectiveness of feedback as a tool to improve behavior.

Assertion that Feedback is Ineffective

Feedback has been criticized and condemned because of the perceived pressure to achieve and its potential negative effects on students' feelings about themselves (Kluger & DeNisi, 1996). Commonly, assumptions about feedback often differ regarding how and when it is effective to improve performance. Those who contend that feedback is ineffective provide comprehensive and compelling evidence to support their argument. According to such evidence, feedback, specifically positive feedback as defined within the context of this study, may have opposite outcomes than desired. One study specifically presented evidence to support the assumption that feedback is ineffective. An exhaustive meta-analysis examining influences on student achievement identified that forms of feedback including praise, punishment, and extrinsic rewards were the least effective variables to influence student achievement (Hattie, 1999). Contrary to behavioral theories, the foundation of this argument suggests that feedback can be ineffective because it can be accepted, modified, and rejected (Kulhavy, 1977). Therefore, the importance of disparities in comprehension and perceived

importance of the feedback by the consumer may be overlooked as impeding positive growth.

Transparency of intent. Weeden and Winter (1999) interviewed approximately 200 students aged 3 to 13-years-old to gain children's perspectives on teachers' use of feedback. The findings concluded that much of the information within the feedback was perceived as unclear and did little to improve learning. The authors also identified that younger students were more often confused by the function of feedback, specifically feedback that emphasized effort and feedback that emphasized achievement was a specific source of confusion. Positive findings suggested that all students perceived to benefit more from focused and specific comments or information regarding how to improve. Additionally, the authors identified variability and lack of clarity of feedback as reasons that contributed to students' confusion regarding the function or intention of the feedback. These findings support Sadler's (1998) view that the quality of feedback outweighs the importance of the quantity.

It has been inferred that positive feedback in the form of praise for task performance is ineffective because it contains little learning-related information (Hattie & Timperley, 2007). Accordingly, the authors suggested that in order to be effective and to positively impact learning, the consumer needs to understand the intent and relevance of the information being conveyed. Aside from being unfavorable to learning, positive feedback has been criticized for not being a culturally responsive strategy. Cultural psychologists have conducted research studies that have illustrated that positive feedback is not a learning strategy in all

cultures (LeVine, 1989; Maynard, 2002). In fact, certain traditions believe that children learn by watching others and feedback is only provided when an action is done incorrectly. The appearance of feedback in other cultures suggests that feedback may be universal for learning, but the incongruence lies in the intent of its function.

Lacking intrinsic motivation. Positive feedback can be communicated in many ways, one of which is to provide a reward. Using tangible rewards as a means to provide positive feedback has received much criticism in recent literature. Deci, Koestner, and Ryan (1999) examined research on the effects of feedback on motivation and concluded that tangible reinforcers should be described as contingencies of behavior as opposed to feedback because information about the task is not being conveyed. Furthermore, the Deci et al. argue that extrinsic rewards, intended as positive feedback, "undermine people's taking responsibility for motivating or regulating themselves" (p. 659). The authors contend that that the intent of tangible positive feedback often yields contradictory results.

Experimental studies on positive feedback have a long history yielding interesting and complex results regarding intrinsic motivation and carryover of feedback. Early studies on the effectiveness of feedback have demonstrated stable findings across time. For instance, Lepper, Greene, and Nisbett (1973) examined children's motivation levels based on rewards. The findings suggested that receiving a reward for following directions did not yield statistically different levels of intrinsic motivation than control conditions. The authors suggested that

children might be demonstrating behaviors purely for appeasement of the teacher and not because of intrinsic motivation. More recently, Kast and Connor (1988) illustrated similar findings by examining students who received different types of positive feedback for their performances. Students who received feedback in an unaccommodating controlling manner subsequently showed lower levels of interest or motivation in the activity than children who did not receive feedback. Furthermore, studies of parents' use of positive feedback with their children did not reveal carryover of prosocial behaviors into the classroom (Grusec, 1991). These studies suggest that feedback may not be an effective or consistent strategy to promote intrinsic motivation and generalization of skills.

Influence of judgment. Researchers and educators who dispute the effectiveness of positive feedback suggest that it is potentially an ineffective tool, because it is based on judgments and is also detrimental to learning (Baumeister et al., 1990; Butler, 1987; Kohn, 1993). For example, Kohn (1993) stated "the most notable aspect of a positive judgment is not that it is positive, but that it is a judgment" (p. 102). Teacher judgments coupled with excessive pressure embedded in a feedback statement may unintentionally impede learning by negatively impacting motivation. Baumeister et al. (1990) also documented reasons why positive feedback could impede progress toward a goal. The primary explanation proposed by the authors is that positive feedback makes students self-conscious and may cause a disruption of performance.

Some scholars suggest that feedback may convey contrary or harmful messages, for instance, Butler (1987) illustrated that students selected to be in a

praise group had the highest perceptions of success, but their performance was considerably less successful than the non-praise group. These findings suggest that lack of clarity for the purpose of positive feedback focuses attention away from the goal, which could result in negative effects on performance. Results of the Kluger and DeNisi's (1996) meta-analysis revealed three major factors that impact the effectiveness of feedback: (a) feedback effectiveness decreased when praise was viewed as a critical judgment that was attached to the information, (b) detailed information regarding a correct solution was more effective than correct/incorrect statements of outcomes, and (c) feedback on cognitive tasks was more effective than feedback on physical tasks. Furthermore, feedback's effectiveness was largely associated with perceived levels of threat to self-esteem (Kluger & DeNisi).

Overall, there is an abundance of evidence on both ends of the argument regarding the effectiveness of feedback as an educational strategy. Scholars and educators alike possess significantly opposing viewpoints on the effects of feedback on students' learning. Positive effects of feedback when effectively used as a strategy in the classroom are summarized in the next section. The use of positive feedback with different populations of students will also been explored. Subsequently, the critical analysis will provide a framework of what constitutes effective positive feedback in the classroom to maximize learning.

Feedback as a Valuable Tool

Much interest has been focused on the need to highlight practices designed to help educators improve the safety and civility in the classroom. This has been

accomplished by dissemination of research promoting proactive interventions and positive interactions to encourage responsible student behavior. Specifically, researchers have suggested that teachers can initiate positive interactions by communicating high expectations for student success to all students, and providing frequent positive feedback to students to recognize their behavioral and academic success (Sprick et al., 2002). Specifically, teachers should make every effort to have the number of positive interactions towards any student exceed the number of negative interactions by a ratio of at least three positive for every negative interaction (Sprick, 2006).

Positive feedback is beneficial to a child's self-efficacy and is related to potentially more positive outcomes. Hattie's (1999) review of the literature found feedback to be among the highest influences that have a positive effect on student achievement, along with direct instruction, reciprocal teaching, and prior cognitive ability. The most effective forms of feedback identified in the study were those that were goal directed, provided reinforcement, and used technology to reinforce information (Hattie, 1999). Kluger and De Nisi (1996) illustrated that feedback must be clear and focused to the performance or task to increase its effectiveness. In particular, feedback is found to be more effective when it provides information on correct rather than incorrect responses, when it builds on prior learning, and it is dependent on task difficulty. The fundamental assertion in this argument is that feedback can be a powerful tool for educators and has shown positive effects for individuals and large groups when utilized correctly.

Positive feedback that specifically identifies the desired behavior has been

suggested to be exceptionally effective in promoting appropriate behavior (Chalk & Bizo, 2004). The authors investigated using feedback with elementary school children by analyzing on-task behavior, academic self-concept, and enjoyment of mathematics. The findings revealed that specific positive feedback rather than general feedback significantly increased academic self-concept and on-task behaviors. Therefore, clarity and specificity of feedback were identified as effective features of feedback.

Proponents for using effective feedback in the classroom have identified a few vital features needed to obtain optimal desired results. For this reason, in order to maximize the effects of feedback, the receptiveness of the consumer is vital (Burnett, 2002). In Burnett's (2002) study, elementary-aged children were surveyed. The findings indicate that the majority of students preferred positive feedback for effort rather than ability, and for academic success rather than behavior. Similarly, Sharp (1985) surveyed elementary students and identified that 26% of the students in the sample preferred public positive feedback when they were successful, 64% preferred private positive feedback from the teacher, and only 10% did not prefer positive feedback. Weeden and Winter's (1999) investigation of children's perceptions indicated that most students interviewed believed their confidence was increased by positive feedback and they valued critical feedback that gave information for improvement. On the contrary, the authors concluded that feedback that was solely critical of their effort and achievement was ineffective to motivate behavior change.

Effects on motivation. A common assertion is that feedback containing

positive elements can increase motivation, which has been positively associated with improvement in performance (Cameron & Pierce, 1994; Dev, 1997; Pintrich & Schunk, 2002). Meta-analytic studies investigating the positive effects of feedback have shown evidence that there are effective strategies involving feedback that increase intrinsic motivation (Cameron & Pierce, 1994; Deci et al., 1999; Shanab, Peterson, Dargahi, & Deroian, 1981). Moreover, positive feedback may be effectual because it often causes a positive emotional reaction, which has been associated with increased motivation (Delin & Baumeister, 1994; Ilies & Judge, 2005). However, it is important to note that these findings are not consistently strong and they indicate variability in effectiveness for different age groups. It is also important to note that these meta-analytic efforts have been criticized for methodological flaws in some of the studies (Henderlong & Lepper, 2002; Lepper, Henderlong, & Gingras, 1999). Thee flaws included conducting experimental studies without a control group (Sarafino, Russo, Barker, Consentino, & Titus, 1982), lack of clarity in variables (Cameron & Pierce, 1994; Deci et al., 1999), and data that were inconsistent with highlighted results (Cameron & Pierce, 1994; Deci et al., 1999; Eisenberg & Cameron, 1996; Kohn, 1996).

To emphasize the importance of positive feedback on motivation, researchers utilize a number of theories and perspectives to explain and support their results. For instance, Gray (1990) proposed that environmental stimuli influence emotional states and reinforce behavior and motivation. Gray's behavioral motivation theory suggests that two systems regulate motivations: the

behavioral activation system (BAS) and the behavioral inhibition system (BIS). The BAS regulates motivation and is triggered when an individual is rewarded or feels relief from punishment. The BIS regulates aversive motivation and is triggered when punished (Carver & White, 1994, p. 319). Within this theory, increasing positive feedback can be a valuable tool to increase appropriate behavior and intrinsic motivation because of the aforementioned trigger for motivation when a perceived reward is received.

Some learning contexts may potentially undermine a child's intrinsic motivation through the absence of feedback. According to self-determination theory (SDT), circumstances that promote feelings of competence during a particular activity can enhance intrinsic motivation for the desired behavior (Deci & Ryan, 1985; Ryan & Deci, 2000). Consequently, absence of positive feedback may not support an individual's need for acknowledgment of competence, thus devaluating their intrinsic motivation and potentially impeding learning (Deci et al., 1999). Likewise, Henderlong and Lepper (2002) suggested that it is plausible that students are motivated to continue to exhibit behavior after receiving positive feedback as a means to sustain positive attention and approval. However, they also noted that benefits are dependent on external, as opposed to internal motivation and may be short-lived following the feedback.

Rakoczy, Klieme, Burgermeister, and Harks (2008) examined how types of feedback influence student learning. The authors identified feedback that initiates cognitive and/or emotional processes often has a positive impact on motivation toward and accomplishment of a task. Ryan and Deci (2002) contend that

achievement coupled with identifying competence through positive feedback often results in reported positive experiences. Furthermore, the positive experiences may promote intrinsic motivation and moreover promote attainment or a deeper understanding of a desired behavior or skills (Vollmeyer & Rheinberg, 2005).

Effects on self-efficacy. Teacher's use of feedback in the classroom serves two distinct, yet complementary, objectives: (a) promoting students' educational advancements and (b) creating a prosocial environment that benefits all students (Patrick, Anderman, & Ryan, 2002). Teachers are in a powerful position to deliver feedback as a means to achieve these goals, along with improving academic performance and self-efficacy. Self-efficacy refers to an individual's judgment of their ability to develop and carry out plans and use feedback as needed to attain a goal. Zimmerman (2000) has suggested that self-efficacy reflects individual's motivation and learning because it is capable of signifying improvements in students' learning behaviors, specifically activity choices, effort, persistence, and emotional reactions.

Linnenbrink and Pintrich (2003) contended that students with increased academic engagement also often demonstrate increased self-efficacy in and outside the classroom. Likewise, Pintrich and Schunk (2002) have suggested that increases in students' self-efficacy often result in increased levels of effort, motivation, and perseverance behaviors. These findings are consistent with Shepard's (2000) analysis of research on assessment practices that highlight that students who regularly use self-efficacy strategies, such as using feedback to self-

evaluate, tend to demonstrate more motivated learning behaviors than students who do not practice self-evaluation. Students who use self-evaluation strategies use feedback to make the connection between performance and preparation, which promotes self-efficacy (Andrade, 2010; Stiggins, 2005). According to Bandura (1986), self-efficacy is strongest when it stems from success and positive feedback and when it implies that individuals have the ability to be successful. Thus, positive feedback could potentially make individuals believe that they can be successful, which could enhance self- efficacy and in turn lead to increased academic skills (Bandura, 1997; Bandura & Locke, 2003).

There is evidence to support that, over time, a relationship exists between teacher positive feedback and student self-appraisal (Montague & Renaldi, 2001). Montague and Renaldi (2001) conducted an analysis of the dynamics in a classroom with young children identified by their teacher as at-risk for developing learning and emotional-behavioral disorders. The study measured interactions, perceptions of self and teacher expectations, and duration of academic engagement. The findings indicated that at-risk students perceived themselves more negatively and viewed themselves as spending less time on task. Montague and Renaldi (2001) proposed the at-risk students perceived that teachers voiced negative feedback and expectations of them more often than their counterparts who were not identified as being at-risk. Consequently, increasing self-efficacy through simple strategies, such as increasing frequency of teacher positive feedback, may have the ability to make a substantial impact on student outcomes.

Based on their study, Ilies and Judge (2005) maintained that positive

feedback could directly influence self-efficacy. The authors investigated the effects of goal regulation by surveying participants' perspectives on the role of feedback, specifically on task performance. The research investigated (a) how performance feedback influences goals following negative and positive performance feedback, and (b) how types of feedback impact goal-setting behaviors. The authors reported that positive feedback has been shown to be associated with increases in self-efficacy behaviors, such as goal setting. Therefore, using positive feedback as a strategy in the classroom is an effective SWPBS practice to aid in the improvement of motivation and self-efficacy. Furthermore, these findings contribute to the existing evidence to support the use of feedback as a universal school-wide positive behavioral intervention to reinforce goal-setting behaviors and positive classroom environments.

Feedback to Promote a Positive Classroom

The SWPBS movement can best be attributed to the campaign to promote positive and safe behaviors and educational environments (Sugai & Horner, 2002). SWPBS encourages schools to differentiate strategies, curriculum, and instruction to meet the needs of diverse population. Additionally, SWPBS recommends teaching and supporting prosocial and educationally appropriate behaviors to meet students' needs. (Sandomierski et al., 2007). This emphasis on prevention marks a long overdue shift from ineffective reactive and punitive methods that have historically been used to address problems present in the classroom (Ervin et al., 2007; Stewart et al., 2005). SWPBS upholds consistent core principles of a proactive systematic: utilizing a data-driven approach,

promoting the maintenance of a safe and effective learning environments, and including prescriptive supports. Each of these aspects of SWPBS help to proactively and systematically encourage the mastery of skills needed to be a successful learner and citizen in school and society.

A multi-tier approach to prevention is intended to promote strategies to encourage, teach, and reinforce appropriate behavior through feedback. The groundwork of the SWPBS model emphasizes the needs for clarity of definitions. It is vital that a universal approach to prevention includes defining and teaching school-wide expectations (e.g., including three to five positively stated rules) and positively reinforces appropriate behavior (Sugai & Horner, 2002). Intervention and supports within the targeted level (Tier two) of SWPBS could include utilizing feedback in social skills and anger management programs and creating behavior report cards (Hawken & Horner, 2003; McIntosh, Campbell, Carter, & Dickey, 2009). Feedback strategies at the tertiary level of supports (SWPBS Tier three) could include individualized goal setting, use of positive feedback as a consequence for desired behaviors, and frequent progress monitoring for decision-making skills (Crone, Hawken, & Bergstrom, 2007; Lingo, Jolivette, & Barton-Arwood, 2009; Scott et al., 2005). Furthermore, teacher use of positive feedback could be developed as a universal, targeted, and individualized strategy in the classroom intended to increase desired behavior and reduce disruptive behavior. Consequently, the use of positive feedback as a regular practice could be seen as a highly effective and minimally intrusive strategy to promote classrooms that have a positive sustainable impact on students (Sugai & Horner, 2009).

Positive feedback as a consequence for appropriate behavior. To provide negative consequences for problem behavior in the classroom exhausts time and resources from everyone involved (PBISAz, 2008). Consequences that rely on reactive and punitive approaches to address problem behavior do not reinforce self-regulatory skills that may prevent future occurrences of the behavior (Osher et. al., 2007). Moreover, relying on negative consequences to eliminate problem behavior without exploring different strategies will likely fail to provide lasting behavioral improvements. For that reason, utilizing positive feedback can be deemed a valuable and sustainable practice for eliminating a perpetuated cycle of behavioral disruptions in the classroom.

Research has demonstrated that use of effective positive feedback can be a beneficial strategy to reinforce desired behaviors in the classroom (Sutherland et al., 2000). Furthermore, the use of feedback as a positive consequence for appropriate behavior has been shown to reduce disruptive activity levels and improve on-task behaviors and academic performances of students with attention and hyperactivity disorders (Fiore, Becker, & Nero, 1993).

Gipps et al. (2000) identified evaluative positive feedback as an exceptional strategy to motivate children. The findings of Gipps et al. suggested that teachers most often offered positive feedback as a consequence for correct answers, good work, effort, and independent thinking. Moreover, when the authors surveyed teachers' perceptions of feedback, the majority of the teachers stated that negative and positive feedback were vital consequences for learning, and most of the teachers recognized that positive evaluative feedback was

effective to address immediate behaviors. The teachers also recognized, however, that in order to learn from the feedback, it should be accompanied by clear, descriptive information based on successive information toward the goal (Gipps et al., 2000). These findings suggest that students positively respond to clear, explicit, positive expectations and reinforcement designed to increase desired behaviors. The same framework of expectations and reinforcement is a common framework when using positive feedback and consequences as universal SWPBS strategies to improve classroom behavior for all students, but especially to improve the behavior of those who demonstrate challenging behaviors.

Feedback with challenging behaviors. Despite the possible benefits of positive feedback, negative feedback continues to be used in the classroom. Disappointingly, classroom research indicates that teachers rely heavily on negative feedback and rarely use positive feedback in the general education setting (Beaman & Wheldall, 2000). The practice of using negative feedback seems even bleaker when used with students who demonstrate challenging behavior in the classroom. Shores and Wehby (1999) conducted research employing direct observation methods to investigate classroom interactions of students with EBD. The results overwhelmingly illustrated that teachers rarely provide positive feedback of any form to students with EBD. Thus, it can be concluded that teachers might demonstrate behaviors such as escape, avoidance, and/or negative reinforcements by reducing contact with children who exhibit challenging behaviors.

Research in this line of inquiry has presented stable findings, which have suggested that teachers tend to react atypically or more negatively toward students who demonstrate challenging behaviors (Carr, Taylor, & Robinson, 1991; Greenwood, 1996; Gunter & Coutinho, 1997; Wehby et al., 1998). Similarly, Shores, Gunter and Jack's (1993) groundbreaking research on the topic of interactions between students with EBD and their teachers found teacher rates of positive feedback strategies for students with EBD were consistently low and occurred as rarely as once per hour. Despite evidence of current classroom practices that neglect to use positive feedback, the use of positive feedback is a highly recommended strategy for educating students suspected or identified as EBD (Kerr & Nelson, 2006). Sutherland et al. (2000) examined the effects of increasing positive feedback within a classroom dedicated to educating students with EBD. The study used feedback as an intervention and discovered that increases in on-task behavior for the target student and the class as a whole was concurrent with increases in rates of teachers' use of positive feedback.

These empirical findings provide supporting evidence that increasing teachers' positive feedback can be a valuable, universal, and targeted SWPBS strategy. Practices continually demonstrate that students with EBD learn to behave in socially appropriate behaviors because of effective use of feedback. For instance, Spence (2003) studied the role of effective feedback and reinforcement in social skill training. Results of this study emphasized the importance of maximizing effects of specific feedback in a constructive manner during social skill acquisition that highlights positive aspects of performance. Furthermore,

Lingo et al. (2009) investigated the effects of two types of feedback through a case study with a student identified as having EBD. The teacher in the study provided an intervention by alternating oral and visual feedback during instruction. The authors proposed that strategies combining oral and visual feedback improved appropriate behavior more than oral feedback alone. Therefore, the findings suggest that simple feedback framed in a clear, positive manner, either visually or orally, can be a vital strategy to increase appropriate behaviors (Lingo et al., 2009).

Exemplifying practical strategies that maximize positive behaviors to address challenging behaviors is an ongoing goal of researchers and practitioners alike. Using positive feedback strategies to teach and reinforce desired behaviors has been deemed an effective strategy for all students, but especially for those suspected of having EBD. For the most part, research has generated an abundance of evidence that supports claims at both ends of the feedback spectrum. The evidence is inconsistent and inconclusive regarding the effects of feedback; nevertheless, there is a consensus that certain features of feedback are effective in yielding promising positive results. As a result, it is imperative to examine and highlight the characteristics of effective feedback that have been determined to valuably improve learning and teaching.

Elements of Effective Feedback

In 1976, a researcher named Bruce Wyane Tuckman developed and tested a framework for using feedback to effectively promote behavioral change. Interestingly, the author and article did not receive wide acclaim, but the

framework created by the author has been replicated empirically using various means and terminologies that are reflective of the original proposed feedback framework. Many researchers have made conclusions and assertions as to features of feedback that are effective or ineffective (Butler & Winne, 1995; Hattie & Timperley, 2007; Johnston, 2004; Kluger & DeNisi, 1996; Tunstall & Gipps, 1996). The consensus seems to be that features of effective feedback focus on positive qualities of performance or behavior, as well as the processes or strategies used to successively achieve the goal. Overall, three themes have emerged regarding the effectiveness of feedback: providing feedback that is *clear*, *goal-directed* and presented in a *positively framed* manner.

Clear feedback. Three of the 12 rules established in Tuckman's (1976) framework for effective feedback are: (a) feedback needs to be clear, (b) feedback should be descriptive, and (c) operationally defined behavior is critical. Before the effectiveness of feedback can be measured, the deliverer and recipient need to know exactly what is expected of him or her. For example, if a researcher examines the relationship between positive feedback and on-task behavior, it is vital to define positive feedback and what it means to be on-task. Similarly, if we expect students to demonstrate behavioral change, then the teacher must be clear about the behavior that needs to be changed and must specify the alternative or expected behavior required (Cooper et al., 2007). Precise feedback is a simple practice that has shown positive results in reducing the gap between demonstrated and expected behavior or performance. Hattie and Timperly (2007) concluded that feedback is much more likely to be effective if the criteria for success are

specific and clear rather than general and vague. Therefore, when a goal and expectations are clarified through feedback, the attainment is often more manageable (Sweller, 1990).

Clarity is vital at the *task* and *process* levels, which informs the learner of the description of growth needed for goal attainment and the process or actions required to achieve the desired outcome. Providing clear and detailed criteria of expectations enable students to self-monitor, regulate, and adjust as required, which could promote self-efficacy (Nicol & Macfarlane-Dick, 2006). Therefore, to maximize the effectiveness of feedback, it is not as important to identify the inappropriate behavior as it is to clearly define the alternative or replacement behavior needed to achieve the goal (Cooper et al., 2007).

Goal-directed feedback. It has been suggested that goal-directed feedback is a powerful way to motivate students to learn skills and behaviors (Hattie & Timperley, 2007). There are many factors that can affect student performance, but perhaps one of the biggest is positively acknowledging growth toward goals. Scholars have suggested that certain goal-directed feedback strategies have shown promising effects to increase motivation, participation, and self-efficacy in at-risk students (Bempechat & Wells, 1989; Easton, 2002; Kronick, 1997).

Alfassi (2003) investigated the effectiveness of practices used to improve academic achievement, motivation, and confidence of students who are identified at risk for academic and behavioral failure. The study explored practices such as feedback aimed at developing goal-orientated and self-efficacy beliefs. The

findings revealed that practices promoting self-esteem yield significantly higher scores on achievement, self-efficacy, and motivation. Evidence of goal-directed improvements in self-efficacy behaviors include persistence, planning, and management (Martin, 2006). None of those behaviors are typically characteristic of students who are considered at-risk following prolonged academic and behavioral failure (Kauffman & Landrum, 2009). Instead, those students tend to display inhibiting behaviors, such as escape and avoidance, because of chronic experiences with negative academic and social outcomes. Lastly, it could be suggested that providing positive feedback could be deemed a positive strategy to encourage students to independently set and achieve goals. Such strategies could potentially increase self-efficacy and motivation, thus leading to positive outcomes.

Positively framed feedback. Artificial responses or saying work is satisfactory when it is unsatisfactory does not constitute positive feedback. Framing feedback in a positive way communicates respect to the student by describing how the strengths in a behavior or performance match the desired expectations (Sugai & Horner, 2009). Positive feedback statements have been shown to provoke positive emotional reactions that have been suggested to increase motivation and goal-setting behaviors (Delin & Baumeister, 1994; Ilies & Judge, 2005). This association between delivering positive strategies and increased improvements highlights the value of simple teaching strategies that can have long-lasting positive effects.

Studies that have examined the effects of feedback have continually

highlighted the importance of relationships between student satisfaction with the learning environment and teachers' use of positive feedback. The findings consistently purport that teachers' use of positive feedback in classrooms have illustrated consistent positive findings. This is especially true when teachers positively acknowledged students' performance through praise words and by clearly describing the behavior or goal that merits the acclaim (Baker, 1999; Hitz & Driscoll, 1989; Thomas, 1991). Moreover, positive feedback can be a simple, yet powerful, practice to promote sustainable positive growth in all students, including those with challenging behaviors.

Summary and Conclusions

Scholars and practitioners alike continue to seek evidence-based practices that yield positive outcomes in terms of behavior and academic achievement. SWPBS philosophy and strategies hold promise for reaching these goals, while establishing learning environments committed to positive academic and social growth of students. Successful inclusion of students with EBD in general education environments has been suggested to be considerably associated with teachers' ability and use of a variety of proactive individualized behavioral supports (Cook, Landrum, Tankersley, & Kauffman, 2003; Heward, 2003; Landrum, Tankersley, & Kauffman, 2003). Sophisticated techniques are not always necessary to support students with EBD in the general education setting. Moreover, the use of positive feedback could refine the traditional focus on whole group and individualized behavior management for all students (Sugai & Horner, 2009).

There is little understanding about educational experiences that are characteristic of students suspected of having EBD (Kauffman & Landrum, 2009). Because of teachers' power and impact on learning, the use of positive strategies could be a vital practice to improve interactions between at-risk students and teachers (Croninger & Lee, 2001). Prolonged failure and frustration is often evident with at-risk students; consequently, efforts to decrease negative experiences may result in positive growth.

Several gaps in the literature currently exist around the recommended and actual practice of using positive feedback strategies in the classroom, specifically with students identified as having EBD. While there is ample evidence of teacher reliance on negative feedback strategies toward students with EBD, no studies were found examining the differences in the extent of teachers' use of positive and negative feedback between students that are at-risk for EBD and those who are not. Teacher strategies have been examined across many dependent variables; however, there is a lack of information about actual discrepancies in the use of feedback for students who are high risk versus students who are low risk for EBD. The examination of teacher use of positive feedback is central to promote awareness of current positive practices intended to improve social and behavioral outcomes for all students.

Chapter 3

Method

The goal of this study was to examine teachers' use of positive and negative feedback toward students at risk for EBD. This chapter describes the settings, participants, and presents a detailed account of the observer training and instruments used during recruitment and research phases. The chapter concludes with data collection and data analysis procedures designed to measure the independent and dependent variables. For this study, the independent variable was the student risk level (high-risk and low-risk for EBD) and the dependent variable was teachers' use of positive and negative feedback.

In accordance with the policies of the Arizona State University Institutional Review Board (IRB) and the host school district, research approval was obtained prior to the inception of this study (see Appendix A for approval letters). Prior to participation, consent forms were obtained from principals at each school setting, teachers who volunteered to participate, and parents of potential participants. Once the involved parties granted permission, all students signed an assent form for potential participation in the study (see Appendix B for participation agreement forms).

Setting

The study was conducted in eight suburban public K-5 elementary schools in a school district outside a large southwestern city. The district was located approximately 20 miles from the city center. The district boundaries cover a moderate socioeconomic status area. The combined population of the

participating schools exceeded 6,000 students, and the district enrollment was over 9,000 students. The average population of the participating schools was 786 students. The student-teacher ratio in most classrooms was 1:21. Two schools in the sample qualified as Title One status for federal funds. The most drastic difference observed in the sample of schools was the variance in rates of free and reduced lunch (16% to 61%), which yielded an average of 35% of the population across the schools. The demographics of the district were Caucasian 77.1%, Hispanic 24.9%, African-American 3.8%, Native American .9% and other 18.0%.

The English language learner (ELL) population of the district was 6.9% and Spanish is the primary home language for the majority. The total population special education (8.6% of population) and diagnosed EBD (.04% of population) across the schools were within national average. The suspension rate of the participating schools was an average of .04 suspensions per academic day. Table 1 provides a detailed breakdown of the participating schools' characteristics.

Table 1

Characteristics of Participating Schools

School	School Population	Free & Reduced Lunch Eligible (% of Population)	Suspension & Expulsion (% of Population)	Special Education Population (% of Population)	EBD Rates (% of SPED Population)	Student/ Teacher Ratio	Title 1 School
1	908	34.8	.04	7.8	.07	21.3	No
2	670	32.9	.02	8.6	.02	19.4	No
3	639	36.4	.00	10.2	.02	24.2	No
4	824	61.2	.05	10.9	.10	21.4	Yes
5	638	16.9	.04	6.4	.04	22.4	No
6	876	39.1	.09	7.9	.01	20.7	No

7	749	39.6	.07	10.6	.03	19.3	Yes
8	987	21.7	.01	6.5	.06	22.1	No

Participants

Teachers. Teachers were recruited for the study at each participating school and were then screened to determine eligibility for participation. The criteria for participation included (a) teachers' willingness to provide their class-wide behavioral screening data used to systematically screen for behavioral and academic needs and (b) having two or more students in their classroom scoring in the high-risk and low-risk for EBD range on the screening instrument. Teachers who met the criteria for participation were selected for observation, which served as the primary data collection method. Seventy-two teachers volunteered and 56 teachers successfully met both criteria and were recruited for participation. Participating teachers were entered into a raffle for one of the four gift certificates, which were offered to entice and reward them for their participation.

The sample of teachers had very consistent demographics. The preponderance of the teacher's taught second and fifth grade. Ninety-one percent of the teachers held an elementary education licensure and 94% were women. Much of the sample had a bachelor's degree (44%) followed by those who obtained a master's degree (33%). The majority of the teachers were Caucasian (89.1%), followed by those who were Hispanic (5.4%), Other (3.5%), and African American (1.7%). Table 2 describes the participating teachers' demographic characteristics.

Table 2

Demographic Characteristics of Participating Teachers

Characteristic	*N*	% of sample
Grade Assigned		
K	6	10.7
1	6	10.7
2	13	23.2
3	8	14.2
4	10	17.8
5	13	23.2
Teaching License Type		
Early Childhood	5	8.9
Elementary Education	51	91.1
Highest level of education		
Bachelor's Degree	25	44.6
Bachelor's +	7	12.5
Master's Degree	19	33.9
Master's +	5	8.9
Ethnicity		
Caucasian	50	89.2
African American	1	1.7
Hispanic	3	5.4
Native American	2	3.5
Gender		
Male	3	5.4
Female	53	94.6

Note. $N = 56$.

Students. Each teacher who volunteered for the study was requested to complete the Student Risk Screening Scale (SRSS) to access concerns regarding the students in their classrooms. The SRSS was used to identify a pool of potential target students to be in the high-risk and low-risk groups. After all required parties granted permission for inclusion in the study, one student from the high-risk pool and one student from the low-risk pool were randomly selected as target students from each participating teacher's classroom. Selection of one

high-risk student and one low-risk student from each classroom resulted in 112 total student participants for the study. Table 3 describes the participating students' demographic data.

Table 3

Demographic Characteristics of Target Students

	Low Risk		High Risk	
Characteristic	N^a	% of low-risk sample	N^b	% of high- risk sample
Ethnicity				
Caucasian	33	58.9	33	58.9
African American	3	5.3	10	17.8
Hispanic	15	26.7	12	21.4
Other	5	8.9	1	1.8
Gender				
Male	46	82.1	48	85.7
Female	10	17.8	8	14.3

Note. $N = 112$.
[a]$N = 56$ low-risk students. [b]$N = 56$ high-risk students.

Measures

Student Risk Screening Scale (SRSS). In order to identify the high-risk and low-risk students within the classroom, each participating teacher provided their SRSS scores, which is a class-wide screening and assessment conducted annually. The information from the SRSS provides valuable data regarding teachers' concerns and students' behaviors (Drummond, 1994). The SRSS is a brief screening instrument that is commonly used in schools. The tool was

designed to detect children who are at-risk for antisocial behaviors. The SRSS uses a 4-point Likert-type scale that requires the classroom teacher to rate each student on the following behavior descriptors: steals, lies/cheats/sneaks, behavior problems, peer rejection, low achievement, negative attitude, and aggressive behavior. Teachers assign a score (0–3) to each student in the class in relation to the seven behavioral criteria stated. Total scores on the SRSS range from 0 to 21. Scores of 9 to 21 indicate high risk, 4 to 8 moderate risk, and 0 to 3 low risk.

Feedback coding system. Teacher use of positive and negative feedback was measured using an adaptation of a student and teacher event sequence observation system created by Nelson and Roberts (2000). The system was originally designed to record ongoing reciprocal behaviors between a teacher and a student in classroom settings. However, for the purposes of this study the teacher behavior codes were solely selected and adapted to include a series of five descriptors of teachers' actions, which were coded as positive and negative feedback during data collection. The descriptors selected for data collection were reprimands, ultimatums, consequences, leave requests, and approvals (See Appendix C).

Nelson and Roberts (2000) provided operational definitions of the seven codes. *Reprimands* were coded when the teacher asked the target student to stop a problem behavior (e.g., "Stop hitting" or "Stop teasing"). *Ultimatums* were coded when the teacher provided the target student a verbal choice to stop a problem behavior or the student would encounter a response cost (e.g., "If you don't stop . . . then I will . . ." or "I need you to be quiet or . . ."). *Consequences* were coded

when the teacher gave the target student a designated consequence for a problem behavior (e.g., loss of a privilege or points). A *leave request* was coded when the teacher asked the target student to leave the classroom due to problem behavior (e.g., requests to go to the principal's office or to the hall outside the classroom). *Approval* was coded when the teacher used positive actions to acknowledge the target student's appropriate behavior or reacted in a positive manner toward the target student's appropriate behavior (e.g., providing points for a positive behavior program or tangible response such as a sticker or points, social response such as a smile, "Thank you," "I like your behavior when you . . ." or "Good job"). For the purposes of the current study, the designated codes were placed into one of two groups: positive feedback toward target students and negative feedback toward target students. Positive feedback included all observed strategies and behaviors that constituted approval. Negative feedback included teacher behaviors that constituted reprimands, ultimatums, consequences, and leave requests.

School-wide Evaluation Tool (SET). The School-wide Evaluation Tool (SET) was conducted to measure each participating schools' current levels of SWPBS behavior support. The SET is a research instrument designed to evaluate the extent to which a school is implementing SWPBS. Renowned researchers in the field of education have recognized seven key features that contribute to the success of SWPBS (Sugai, Lewis-Palmer, Todd, & Horner, 2001). The seven features include (a) expectations defined, (b) behavioral expectations taught, (c) acknowledgement procedures, (d) correction procedures, (e) monitoring and

evaluation, (f) management, and (g) district-level support. The evaluation tool gathers information through multiple sources, including observations, brief staff and student interviews, and a review of permanent products (i.e., discipline handbook, school improvement plan and goals, social skills curriculum and materials, and office discipline referral data). The SET results on the seven features are generally used to determine annual goals for SWPBS, to evaluate and revise on-going improvement efforts, and to compare annual accomplishments that can be attributed to successful SWPBS implementation (See Appendix C).

SET data were formally obtained from all but one school participating in the study. The data from seven participating schools allowed for a descriptive analysis of their school's current status of SWPBS implementation. On the seven features assessed, schools that obtain at least 80% for both SET total and Expectations Taught subscale scores are considered to be implementing SWPBS at a satisfactory level (Horner, Todd, Lewis-Palmer, Irvin, Sugai, & Boland, 2004). Schools that failed to meet SWPBS criteria were those scoring less than 80% on both the SET total and Expectations Taught subscale. However, in the present study none of the schools exceeded the 80% criteria for SWPBS implementation.

Classroom Management Self-assessment – Revised. Additional descriptive data of SWPBS implementation were obtained at the commencement of the study by using a self-assessment tool to determine teachers' perceptions on their use of class wide positive behavior supports. The tool is designed to measure teachers' perceptions of the use of effective classroom management practices and

the extent to which the practices are in place. The self-assessment measure consists of 10 items where teachers determine if the items are present within their assigned classrooms. This measure yielded a total score, which resulted in three descriptors: super classroom management (10-8 present items), so-so (7-5 present items), or improvement needed (< 5 present items). The purpose of the assessment was to determine if the teachers' views of classroom practices aligned with SWPBS implementation as measured by the SET. Fifty-two of the 56 total participating teachers completed the online self-assessment survey (see Appendix C for measures used in the study).

Observer Training

Description of observers and observer training. Three graduate students from Arizona State University, two school psychologists, and one researcher with a doctorate degree in special education collected data for the study. These six individuals who participated as observers constituted the research team. The observers were trained using the codes adapted from an observational coding system constructed by Nelson and Roberts (2000). The observers were trained for two weeks prior to data collection. Data collectors were given training on definitions examples of positive and negative feedback. Training was conducted using videotapes of actual and simulated classroom situations, group discussions to clarify operational definitions, and successful completion of mastery quizzes. Data collectors were required to demonstrate a passing performance on three precoded, instructional videos of classrooms. Mastery was attained when the observer achieved an established mastery criterion of 90% accuracy.

Interobserver agreement. During the data collection phases, interobserver agreement was calculated for 25% of the observation sessions with the target high-risk and low-risk students. Agreement for occurrences of feedback was computed by dividing the total documented occurrences of positive and negative feedback obtained by both observers multiplied by 100. The principal researcher calculated the interobserver agreement after all data were collected. Across the five observers, interobserver agreement ranged from 90% - 100% with an average of 96%.

Procedures

Data collection. The data collection procedures occurred in three phases: (1) phase one—identifying target low-risk and high-risk students, (2) phase two—obtaining information about the baseline of each teachers' normative use of feedback, and (3) phase three—collecting data on target high-risk and low-risk students. Further steps included gathering and determining accompanying descriptive data about the sample, which will be discussed in Chapter 5. Each participating teacher's classroom was observed 12 times during the fall semester of the 2010-2011 school year, with all research phases spanning six weeks. The duration of each observation session lasted 20 minutes.

Phase one consisted of collecting completed SRSS by participating teachers for all students in their classroom. This information was used to identify study-eligible students based on the aforementioned criteria of risk. Of those students identified as high-risk and low-risk for EBD, one student from each group was randomly selected to be a target student. Only the data collectors and

investigator were aware of the target high-risk and low-risk student in each classroom. The target students were announced to the data collectors immediately following phase two.

Phase two of the data collection was the normative use of feedback portion of the study. In order to maintain statistical integrity, every teacher was coded on his or her natural use of positive and negative feedback in the classroom. As previously discussed, the variables coded for the study included: reprimand, ultimatum, consequence, leave request, which comprised the negative feedback variable, and positive feedback included all operationally defined behaviors that constitute approval. The data obtained during this phase provided an average of each teacher's use of positive and negative feedback toward any student in the classroom population. Normative data were obtained during two, 20-minute observation sessions per teacher.

Phase three consisted of ten data collection sessions where target high-risk and low-risk students were observed. Each teacher was observed for 200 minutes. The data collectors were instructed to vary the day and times of their observations to contribute to a more reliable estimate of overall feedback use. The data collection phase consisted of documenting each time the teacher exhibited a codable feedback behavior toward each target high-risk and low-risk student during a 20-minute observational session. Inter-rater reliability checks were conducted during a minimum of 25% of all observational sessions.

Following the completion of data collection, data were entered into the PASW Statistics GradPack 18 software, which was used to run all statistical

procedures employed in this study. Descriptive data were obtained from the schools, including the school's implementation level of SWPBS using the SET and school-wide discipline and special education data. Following the conclusion of the data collection, participating teachers were asked to complete an online survey, the Classroom Management Self-assessment—Revised, in order for the researcher to obtain the teachers' perceived use of management strategies in the classroom.

Data analysis. A *t*-test descriptive analysis was conducted across the data and aggregated by risk level, teacher, and school. The ratio in teacher use of positive and negative feedback was calculated to examine the mean differences toward students in the high-risk and low-risk groups. Graphs were created and graphical analyses were conducted to examine the trend of occurrences of the variables for high-risk and low-risk students. Furthermore, procedures were employed to examine trends in the rate of feedback to determine if there is a predictable rate of feedback delivered. The r^2 for positive and negative feedback was calculated to explore statistical trends in teachers' use of feedback toward the high-risk and low-risk groups. Lastly, the analysis of descriptive data included examining trends in schools' SET scores and teachers' Classroom Management Self-assessment – Revised scores. The results of these analyses are reported in Chapter 4.

Chapter 4

Results

The purpose of this study was to examine teachers' use of positive and negative feedback with students identified as high-risk and low-risk for EBD. This chapter will directly address the data analysis and results of the study, which will be followed by a complete interpretation and discussion of the findings in Chapter 5. This chapter will begin with normative use of teachers' feedback to the student population at large. Then, noted statistical differences in feedback between high-risk and low-risk groups will be detailed. Lastly, a descriptive analysis of implementation of SWPBS will be presented.

Normative Feedback Data

As described in Chapter 3, a normative data phase was introduced as the first phase of the study. This information provided a statistical baseline showing the teachers' natural use of positive and negative feedback with the student population at large within each participating teachers' classroom. This phase was conducted prior to the identification of target high-risk and low-risk students. The normative phase of the study was included to provide initial and supporting data on teachers' uses of feedback with the student population at large. During the two observation sessions, feedback data were collected for each participating teacher. As presented in Tables 4 and 5, the results of the normative data regarding teachers' use of positive feedback revealed a slightly higher rate (7.13 occurrences per 20-minute observation session) than the ratio for negative feedback (6.91 occurrences per 20-minute observation session). Additional

information regarding participating schools' is reported in Table 5 for supplemental comparative analysis of their overall use of positive and negative feedback.

Table 4

Mean Occurrences of Positive and Negative Feedback by Teacher Toward Student Population at Large in the Normative Phase

		Positive Feedback		Negative Feedback	
	N	*M*	*SD*	*M*	*SD*
Teacher normative use of feedback	56	7.13	6.92	6.91	7.33

Table 5

Mean Occurrences of Positive and Negative Feedback by Teacher Toward Student Population at Large in the Normative Phase Dissected by School Including SET Scores.

		Positive Feedback		Negative Feedback		SET
School	*N*[a]	*M*	*SD*	*M*	*SD*	*Score*
1	4	8.87	11.32	14.12	13.52	32
2	4	18.12	3.40	15.00	4.55	76
3	4	4.93	5.30	5.50	3.60	72
4	11	7.40	7.01	4.95	4.36	42
5	5	15.00	6.28	17.70	10.73	58
6	13	4.61	3.86	4.26	2.73	---*
7	9	3.33	1.78	3.05	1.09	25
8	6	4.25	3.75	3.75	1.72	53

[a] Represents the number of participating teachers or classrooms per school.

* Score was not collected due to school's refusal to formally participate in SET collection.

Additional analysis of feedback was conducted to examine teacher demographic variables. Differences were observed across grades taught. The graph below provides a visual depiction of differential use of feedback by grade. Data suggest that on average, the teachers of the lower grades provide more positive and negative feedback than teachers in the upper grades, which is depicted by the trend line in Figure 2.

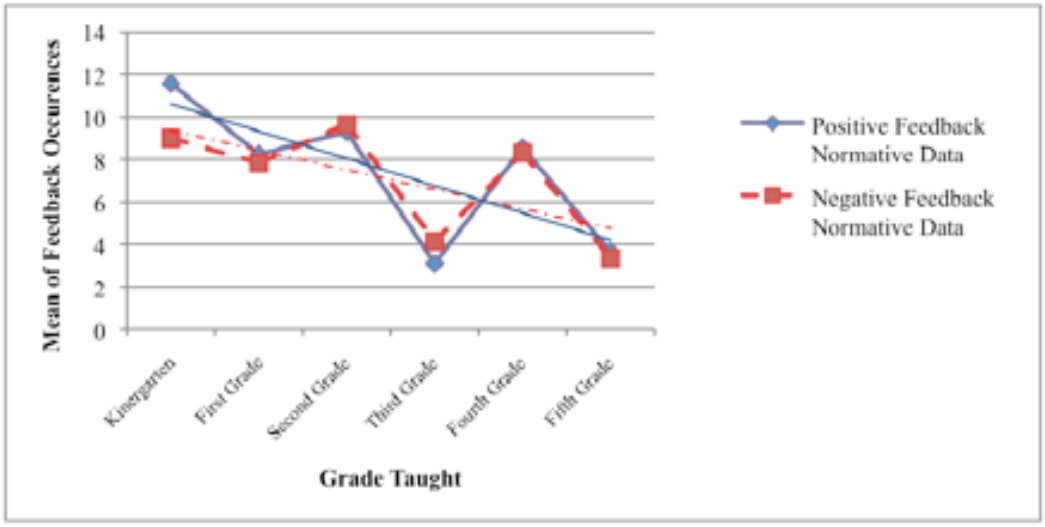

Figure 2. The mean occurrences of positive and negative feedback during the normative phase in grade levels kindergarten through fifth grade.

Hypothesis Test and Analysis

The hypothesis of this study was that the rate of feedback would be disproportionally balanced, with fewer occurrences of positive feedback than negative feedback given to students identified as high-risk for EBD. Accordingly, the hypothesis was tested using statistical methodologies to compare quantifiable differences in teachers' use of feedback. The following section will outline and highlight the findings of the study and discuss the extent to which they supported

the hypothesis. Mean difference and trend line analyses were conducted to examine variations of feedback use between high-risk and low-risk groups.

Difference Between Positive and Negative Feedback Use

This phase consisted of ten observations counting the occurrences of positive and negative feedback delivered by the teacher directly toward each target high-risk and low-risk student during the observation sessions. Data in Tables 6 and 7 present the rate of teachers' use of positive and negative feedback across all ten sessions according to the risk status of the target students. Differences between the high-risk and low-risk groups are further disaggregated and are presented by school and teacher in Appendix D. Data revealed a significantly higher use of negative rather than positive feedback toward the high-risk students, which yielded an average of one positive feedback occurrence to every two negative feedback occurrences. No significant differences between the high-risk and low-risk groups were observed with regard to positive feedback. Significant differences between the high-risk and low-risk groups will be elaborated on and interpreted thoroughly in Chapter 5.

T-Test findings exposed significant differences in teachers' use of negative feedback across the population of target high-risk and low-risk students ($p < .001$). The results suggest substantial elevations in teachers' use of negative feedback with target high-risk students, but this was not the case for the low-risk students. Additionally, there was a notably wider range in ratios of teachers' use of negative feedback toward the target high-risk populations of students (4:8), the high-risk group received on average four positive feedback occurrences for every

eight negative feedback occurrences during an observation session. A much narrower range was observed in teachers' use of positive to negative feedback with regard to the low-risk group (3:1).

Table 6

Mean Occurrence of Positive and Negative Feedback by Risk Level and Reported Significance Level

	Low Risk[a]		High Risk[b]		
	M	*SD*	*M*	*SD*	Sign.
Positive Feedback	3.73	4.20	4.78	5.63	.264
Negative Feedback	1.25	1.56	8.71	8.40	.000*

Note. Mean represents average occurrence of feedback observed across ten 20-minute observation sessions.
[a]*n* = 56 students. [b]*n* = 56 students.
**p* < .001.

Table 7

Mean Occurrences of Positive and Negative Feedback by Risk Level and School

		Low Risk[a]		High Risk[b]	
School	*N*[c]	*Positive Feedback*	*Negative Feedback*	*Positive Feedback*	*Negative Feedback*
1	4	2.75	2.75	5.00	16.00
2	4	15.50	2.25	11.24	17.00
3	4	6.25	1.50	10.75	9.50
4	11	1.54	1.00	3.54	4.00
5	5	6.00	2.20	8.20	15.40
6	13	2.84	0.69	3.92	7.29

7	9	1.44	0.66	2.11	4.66
8	6	2.33	1.16	1.66	8.66

Note. Mean represents average occurrence of feedback observed across ten 20-minute observation sessions.
[a]*n* = 56. [b]*n* = 56, the number of students per risk group.
[c]*N* = 56, the total number of participating teachers.

Low-risk students. The data were computed according to risk level to examine differences in teacher use of feedback toward the students across the high-risk and low-risk population of students. On average, the students identified as low-risk for EBD received 3.73 occurrences of positive feedback across the data collection phase. For the same group of students, the overall occurrences of negative feedback obtained a mean of 1.23 occurrences per 20-minute observation session. Comparatively, the low-risk students received a significantly higher ratio of positive feedback to negative feedback (3:1) than what was observed in the general student population during the normative data phase of the study. See Figure 3 for a graphical depiction of the total rate of feedback received by each low-risk student.

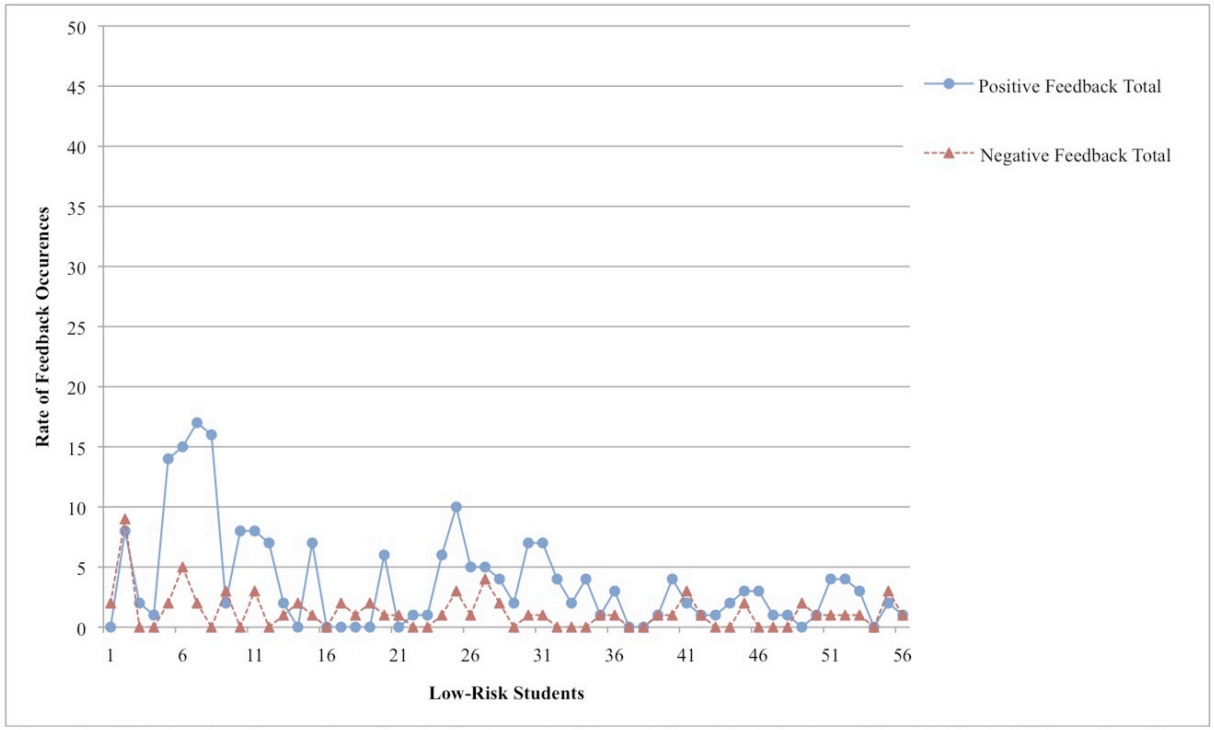

Figure 3. Total rate of positive and negative feedback received by each low-risk student. $n = 56$, which is the total number of low-risk students.

Procedures were employed to examine potential trends in the rate of feedback to determine if there is a pattern or predictable rate of feedback delivered. The r^2 for positive and negative feedback was calculated to assess how well future outcomes are likely to be predicted by data. R^2 refers to the proportion of variability in a data set that is accounted for by the statistical model. The trend line analysis revealed less fluctuation in the use of negative feedback ($r^2 = .019$) and more fluctuation in the use of positive feedback for the low-risk group ($r^2 = .06$). However, the analysis of the trend line for both variables revealed a cubic trend in data with very low statistical stability. In this case, a cubic relationship suggests that the trend in feedback occurrences has many inflection points, which further suggests that the rate changes direction often and does not yield a reliable trend line or rate of prediction for future occurrences.

High-risk students. As anticipated by the hypothesis, the high-risk group received significantly more negative feedback than positive feedback. On average, high-risk students received more positive feedback ($M = 4.78$) than the low-risk students ($M = 3.73$). An elevated frequency in occurrences of negative feedback helped to identify significant findings, which revealed a mean of 8.71 occurrences per 20-minute observation session across the data collection phase. These findings revealed that the high-risk students received an average of eight more occurrences of negative feedback per 20-minute observation session than the low-risk students. Overall, students identified as high-risk for EBD received one positive feedback occurrence for every two negative feedback occurrences.

Figure 4 presents a graphical depiction of the total rate of feedback received by each high-risk student.

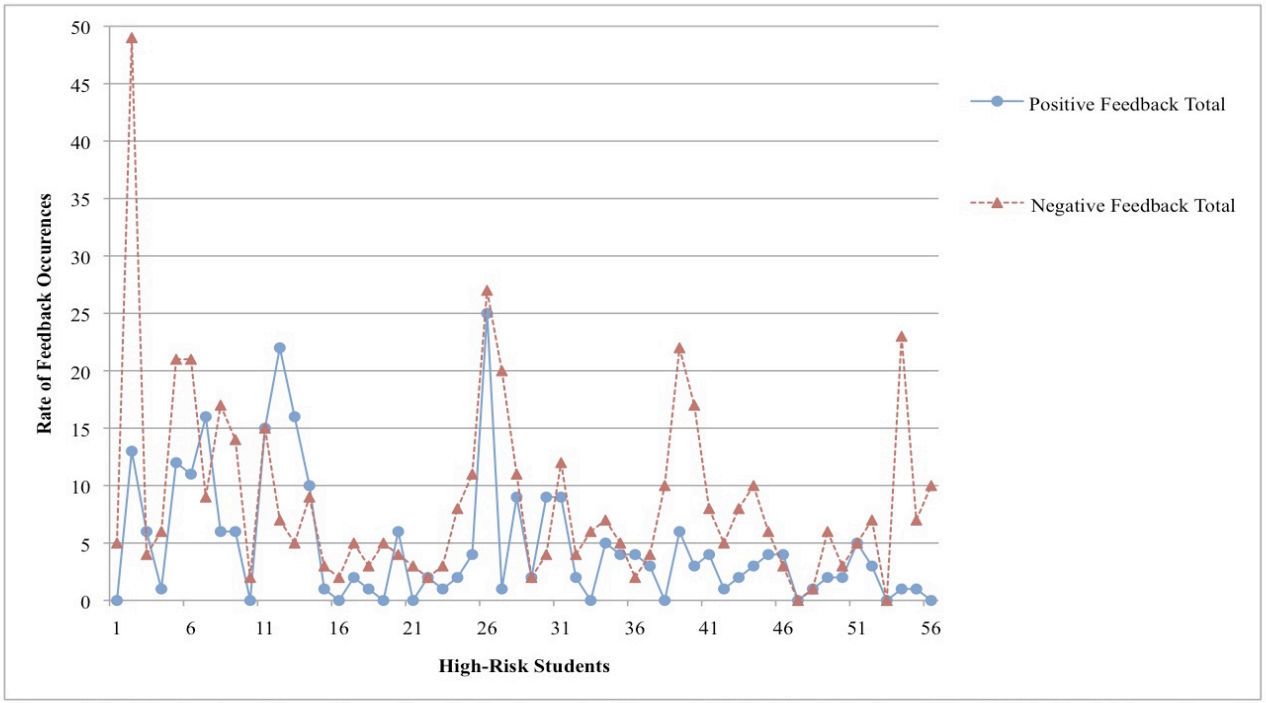

Figure 4. Total rate of positive and negative feedback received by each high-risk student. $n = 56$, which is the total number of high-risk students.

The same statistical procedure was conducted for the high-risk students in respect to a trend line analysis. In the case of the high-risk students, the r^2 for positive and negative feedback was calculated to examine the prediction power for future outcomes in the data. Trend line analysis revealed less fluctuation in the use of positive feedback ($r^2 = .075$) and more fluctuation for the negative feedback given to the high-risk group ($r^2 = .004$). Again, the analysis of trend line for both variables revealed a cubic trend in the data with very low statistical stability. Thus, the relationship does not demonstrate adequate prediction power.

Summary

The research question embedded in the present study proposed to measure the mean differences and differential trends in teachers' use of positive and negative feedback with students who are suspected to be high-risk and low-risk for EBD. The hypothesis tested in this study stated that the rate of feedback would be disproportionally balanced toward students identified high-risk for EBD with fewer occurrences of positive feedback and more occurrences of negative feedback on average. The data derived in this study confirmed the hypothesis by revealing significant differences in teachers' use of negative feedback between high-risk and low-risk groups. Further interpretation and implications of the findings will be discussed in Chapter 5.

Chapter 5

Discussion

The differential treatment of students at-risk for EBD in educational settings has been related to a host of poor outcomes both educationally and socially. In comparison to other students with disabilities, students with EBD are more likely to be placed in restrictive settings, experience a greater reoccurrence of academic and social failure, and are more likely to drop out of school (Center for Effective Collaboration and Practice [CECP], 2000). The current study investigated the factors that contribute to the suspicion that students who are identified as high-risk for EBD have markedly different educational experiences than their peers. It is important to determine whether prolonged negative educational experiences could arguably exasperate existing problem behavior in the classroom. However, limited research exists that directly measures disparity in teachers' use of positive and negative feedback across a population of high-risk and low-risk students. The foundation of the present study was to highlight the disparities in teachers' use of feedback.

Feedback has long been acknowledged as being a highly valuable ABA strategy teachers could use to influence and improve learning (Hattie & Timperely, 2007) and is a vital medium to help children improve performance (Bandura, 1991; Fedor, 1991; Fedor et al., 2001; Ilgen et al., 1979). This study incorporated many of Baer et al. (1968) dimensions of ABA to further explore teachers' use of feedback toward at-risk populations. The research was deliberately conducted in an *applied* school setting to measure observable

behavioral strategies used by teachers, such as the use of positive and negative feedback. The research was conducted in a *technological* manner to encourage future replication. The inclusion of these ABA dimensions permitted more generalizability of the findings on teachers' use of feedback in everyday educational settings.

The present study employed descriptive and inferential statistics to explore the difference in rates of teachers' use of feedback, namely discrepancies in positive and negative feedback with students who are identified as high-risk and low-risk for EBD. Descriptive variables within the study focused on the qualities of SWPBS evident in schools, special education populations, suspension rates, and teachers' self-evaluations of positive classroom strategies. This chapter integrates, summarizes, and discusses the results reported in Chapter 4. To achieve a thorough discussion, the chapter provides details about the outcome of the normative feedback data, present the differences in feedback trends between risk groups, and concludes with a discussion of limitations and implications for further research and professional practice.

Normative Feedback Data

Literature on the topic of feedback highlights many assumptions and declarations regarding the ideal rate of positive to negative feedback delivered by teachers to their students (Lathem, 1992; Sprick, 2006). The judgment of educational theorists, such as Randall Sprick, have recommended that teachers strive for at least a 3:1 positive to negative interaction ratio with their students (Sprick, 2006). Based of these recommendations, it was deemed vital to

incorporate normative data on teachers' natural use of feedback into this investigation. Prior to exploring the main research question, normative data were gathered on each participating teacher to measure their natural usage of positive and negative feedback with a student population at large.

Positive feedback is a useful technique when it is administered to individuals or to a large group (Sugai & Horner, 2002). Behavioral research has shown that students who observe others receiving positive feedback are more likely to be motivated by the desire to receive the same feedback (Klimas & McLaughlin, 2007; Ollendick et al., 1983). Despite the fact that positive feedback is viewed as a very useful universal SWPBS strategy (Bandura, 1991; Fedor, 1991; Fedor et al., 2001; Hattie & Timperely, 2007; Ilgen et al., 1979), the findings of this study revealed that teachers are not routinely emphasizing greater use of positive feedback in the classroom. Normative data for all participating teachers resulted in equal occurrences of positive and negative feedback for a student population at large during an average 20-minute period. Collectively, the participating teachers demonstrated consistent frequencies and trends in their natural use of positive and negative feedback.

Demographic characteristics of the teachers and their normative feedback data exhibited differences; however, it should be noted that these differences were not statistically significant. The grade level data suggested that participating teachers who taught in lower grades (kindergarten, first, and second) delivered relatively more feedback on average than teachers assigned to teach higher grades (third, fourth, and fifth). More specifically, teachers in lower grades tended to

deliver higher rates of both positive and negative feedback. Practices of lower grade teachers generally include a higher rate of positive feedback because they focus on acquisition and reinforcement of skills (Gipps et al., 2000), whereas in higher grades the focus is more on building on previous learning and generalizing skills.

Behavioral and educational research has demonstrated that students who receive positive feedback are more likely to be motivated and engaged and experience academic success (Illies & Judge, 2005; Pintrich & Schunk, 2002). Despite the known benefits of feedback, research has shown disconnects between recommendations made in the literature and actual practice (Kaufman, 1996; Strain et al., 1983). Similarly, the findings of this study indicate that generally teachers are not delivering positive feedback at the rate recommended by the literature for all students (Lathem, 1992; Sprick et al., 2002; Sprick, 1981, 2006). More specifically, the rate of positive feedback is really dire for students in the at-risk population. Notable trends were observed in teachers' differential use of feedback and will be further elaborated on below.

Difference in Feedback Between Students High-risk and Low-risk for EBD

The most prominent finding of the present study was that a significantly higher rate of negative feedback rather than positive feedback was used with high-risk students. Overall, those identified as high-risk for EBD received one positive feedback occurrence for every two negative feedback occurrences per every 20 minutes. More specifically, teachers' use of negative feedback with the high-risk population occurred on average at a rate of eight more occurrences per

observation session than with the low-risk population. Statistically significant differences were found in teachers' use of negative feedback between high-risk and low-risk students. Differences between the high-risk and low-risk groups with respect to positive feedback were not statistically significant.

As previously mentioned, the basis for comparison in feedback rates and ratios is derived from the literature, which suggests an ideal ratio of three positive interactions to one negative interaction with any student (Sprick, 2006; Sprick et al., 2002); however, this is a conservative recommendation comparatively across research (Latham, 1992). Although the recommended ratio was attained in teachers' feedback ratio with the low-risk group, the high-risk students received negative feedback at a much higher rate. Specific trends in feedback were compared by risk group (see Figure 5) and will be discussed further in the following text.

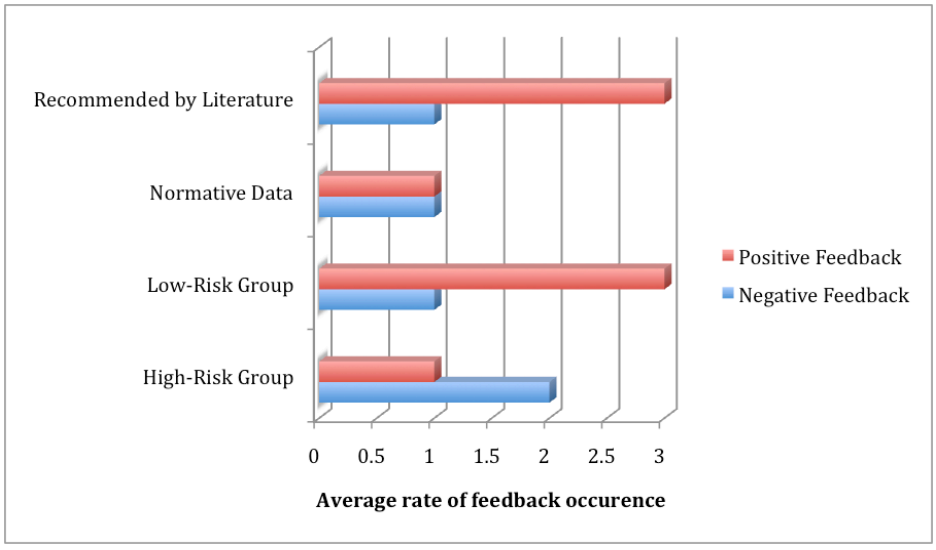

Figure 5. Differences between the rate of feedback recommended by the literature and the averages of the observed rates of feedback.

As mentioned in Chapter 1, the prolonged lack of positive feedback and overreliance on negative feedback by teachers toward at-risk students functions as a detrimental cycle that results in habitual negative interactions and relationships (Burnett, 2002). Students who are suspected to be at-risk for EBD often have indiscernible barriers embedded in their educational experience, such as more disputes with peers and teachers, less supportive classrooms and an absence of positive feedback (Hamre & Painta, 2001). The lasting impact of these experiences on students have been related to habitually lower academic scores, deficits in social skills, and high risk of school failure and later adjustment problems (Kaufman & Landrum, 2009).

Low-risk group. As previously stated, results for the low-risk group revealed acceptable ratios of positive to negative feedback similar to the rates recommended in the literature (Lathem, 1992; Sprick 1981, 2006; Sprick et al., 2002). According to Sprick (2006), positive feedback should be delivered three times higher than that of negative feedback, which existed with the low-risk group. Most participating teachers used positive feedback with the low-risk group at a consistently higher rate than negative feedback. Approximately 15% of the teachers demonstrated a 7:1 ratio indicating a significantly higher rate of positive feedback with the low-risk group. The teachers who showed a higher rate for positive feedback were also the teachers who had among the highest normative positive feedback data with the population at large. Additionally, these teachers were teaching in schools that obtained higher SET scores in the sample. Although

these findings were not statistically significant, they may have implications for educational institutions to encourage promoting positive teaching practices.

High-risk group. The high-risk group revealed the most distressing findings of the study. High-risk students received significantly more negative than positive feedback by teachers at an average rate of one positive feedback occurrence to every two negative feedback occurrence. With regard to negative feedback, there was a drastic difference between the feedback received by high-risk and the low-risk students: an average of eight more occurrences of negative feedback were delivered to high-risk students by teachers every 20 minutes. The findings were consistent with studies that have suggested that teachers tend to have atypical negative reactions toward students demonstrating negative behaviors (Carr et al., 1991; Greenwood, 1996; Gunter & Coutinho, 1997; Wehby et al., 1998), which could cause schools to become an aversive environment for students already at-risk for educational failure (McEvoy & Welker, 2000).

The results of the current study are comparable with past research studies that have investigated the use of positive feedback with EBD student populations. For example, Shores, Jack, et al. (1993) demonstrated that students in the EBD population receive positive feedback as rarely as once per hour. This was also the case with the findings of the study conducted by Wehby et al. (1998). These authors recognized that positive feedback towards students with EBD was virtually nonexistent. Moreover, research has repeatedly indicated that teachers rarely provided positive feedback towards students that demonstrate problem behavior in the classroom (Shores & Wehby, 1999; Strain et al., 1983). The

present study demonstrated that the high-risk group did in fact receive more positive feedback (M = 4.78) on average than the low-risk group (M = 3.73). However, it is important to note that the occurrences of positive feedback were at a considerably lower rate than the rate of negative feedback (M = 8.71) delivered to the high-risk group. Thus, it could be speculated that the effects of the positive feedback, although more elevated than their low-risk counterparts, could arguably be nullified by the extraordinarily high rate of negative feedback received by them.

This study exposed teachers' infrequent use of positive strategies and overreliance on negative feedback with students at risk for EBD. Several studies have indicated similar results that positive feedback is used at a low to nonexistent rate with students with EBD (Burnett, 2002; Gable et al., 1983; McEvoy & Welker, 2000; Shores, Jack, et al., 1993; Wehby et al., 1998, 1995). Unfortunately, teachers' overreliance on consequences and negative feedback has historically been more common in classrooms than use of positive feedback and strategies (Gable et al.; Knitzer et al., 1990; Shores, Jack et al., 1995). These issues of are great concern because it can be argued that teachers' predominant use of negative feedback without positive feedback and instruction could exasperate learning or performance problems by creating confusion for at-risk students.

Supplemental Descriptive Data

The focus of the current study was teachers' use of positive and negative feedback. Nevertheless, within an organized educational system there are

potential elements that can ultimately affect the strategies that teachers use. Procedures were included in the study that helped to obtain teachers' perceived use of positive strategies, school-wide implementation of positive strategies, and suspension and special education data for the participating schools. These complex and comprehensive pieces of information provide supplemental descriptive data may impact teachers' use of feedback.

SET data. SET data were used for descriptive comparison purposes to determine if a relationship existed between a school's implementation levels of SWPBS and teachers' use of positive and negative feedback. It is especially important to note that none of the schools exceeded SET criteria of 80%, which indicated that the schools in the sample did not meet SWPBS status. The examination of SET scores did not reveal a positive trend in SET and positive feedback data. There was no evidence to suggest that SET scores had any relationship with teacher use of positive feedback.

Teacher self-assessment. For supplemental information at the classroom level, the Classroom Management Self-assessment-Revised was included in the study to analyze differences in teachers' perceived use of positive classroom management strategies. The data revealed that 93% of the teachers who participated in the self-evaluative survey scored themselves as having all positive strategies in place. The remaining 7% of teachers evaluated themselves as not having some of the positive strategies in place.

The item on the survey that resulted in the most negative responses was the statement: "I provide more frequent acknowledgement of appropriate

behaviors than inappropriate behaviors" (Simonsen, Fairbanks, Briesch, & Sugai, 2006, p. 3). This finding matches with the observation data. The three other questions that received high numbers of negative responses were items that inquired 'if teachers are maximizing structure and predictability in the classroom', 'have multiple strategies to acknowledge appropriate behavior', and 'have posted positively stated rules or expectations in the classroom'. For all additional questions, each respondent reported that the item was present in his or her teaching practice repertoire and in the classroom.

Suspension rates. At each participating school, discipline and suspension data for the 2009-2010 academic school year were collected. In-school and out-of-school suspension data were analyzed for trends in discipline occurrences and consequences. Suspension data were aggregated by events, which yielded a percentage of average incidents per day on campus. The average further highlights schools' routine for consequence practices. Punishable discipline events that resulted in suspension have occurred on an average of .04 events per academic day. This equates to approximately less than one discipline offense resulting in suspension per academic day. The range across the participating schools was .00 to .09 discipline events resulting in suspension on an average school day. A comparative analysis across schools revealed that the majority of the participating schools relied much more heavily on in-school suspension (.03 per academic day) as opposed to out-of-school suspensions (.01). There were no expulsions reported. SET data revealed that the schools receiving the lowest scores also tended to have the highest rates of in-school suspension. Particularly,

one school that suspended .07 students per day also obtained a SET score of 25. Overall, only data trends were observed, and no significant relationships were revealed. Future research on examining relationships between suspension and feedback data may lend further information on potential outcomes in relation to teacher use of consequences, and positive and negative feedback.

Special education and the EBD population. Special education rates were included in the investigation to create a comprehensive comparative analysis of trends. Of the participating schools, special education rates averaged 8.61% of the student population. The special education population in the sample of all participating schools ranged from 6.4 to 10.9% of all students. These students were formally identified and received services on individualized education plans. The special education data were consistent with most of the recent prevalence data for special needs, which suggests that 9.5% of students in schools receive special education services under IDEA (U.S. Department of Education, 2005). Of all students receiving special education supports, the prevalence estimates for EBD are approximately .07% (U.S. Department of Education, 2005). The schools in the study sample revealed EBD prevalence ranging from .01 to .10.

Limitations and Implications for Future Research

Every research project has a certain amount of inherent error that often creates more questions for future investigation. This is especially the case for studies that involve human sampling and behaviors. These issues should be explored and detailed as potential limitations to avoid making inaccurate

assumptions about the findings. The observed limitations in the study and subsequent research implications will be further discussed.

There were four areas of noted limitations within the study, some foreseen and others unforeseen, all of which have resulted in identification of further lines of inquiries. First, the student risk population was generated from a behavior screening measure. Error is often inherent in tools and in measurement due to inconsistencies in teachers' perceptions of student behavior and comprehension of the behavioral construct assessed. Teacher reports are inevitably subject to rater bias, halo effects, practice effects, and other problems associated with rating scales (Abikoff, Courtney, Pelham, & Koplewica, 1993; Conners, 1986). Future research that employed multiple or comprehensive measures of EBD risk would reduce assertions of problems that are resulting in perspective of problem behavior.

The second limitation identified in the study was a lack of disaggregation in feedback responses during data collection. Teachers' feedback was assessed based on predetermined operational definitions detailing behaviors that constitute positive and negative feedback. This limitation did not allow for further exploration in teachers' reliance on particular strategies within the definitions of feedback behaviors, such as examining differences in rates of reprimands and ultimatums delivered compared to consequences and leave requests. Future studies should elaborate on this detail by dissecting the frequency and subtypes of positive and negative feedback received, particularly the feedback received by groups or individual students in the study.

The third observed limitation in the study pertained to the inconsistent perspectives embraced by the participating schools regarding positive educational practices. The initial goal of the research was to examine differences in feedback between risk groups in SWPBS schools. During the screening process, 80% of the schools claimed to have been implementing SWPBS at the time of the study. However, the findings of the study based after conducting the SET indicated the contrary. Additional inquiries that separate the data by schools that do implement SWPBS and those who do not would benefit from future research on positive strategies promoted within the culture of a school.

The fourth limitation involved the experimental procedures employed for randomization. Due to the aforementioned criteria to determine high-risk and low-risk, matching the target students by demographics during the random assignment procedure was not possible. However, the high-risk and low-risk students were matched by gender and ethnicity in 43% of the classrooms. Despite the attempt to account for this, the demographics of the students in the study generated potential future research questions. Comparison of risk groups and ethnicity revealed that the majority of the high-risk and low-risk samples were Caucasian males. The African-American population resulted in 3.5 more students in the high-risk group than the low-risk group and all were males. There were no statistically significant correlations found between demographics and feedback rates. However, trends observed by ethnicities revealed disproportionate reliance on negative feedback toward the African-American students that were in the low-risk group (1:2). This was contrary to the findings identified in this study for all

other ethnicities, which ranged anywhere from 2:1 to 4:1 rate of feedback for the low-risk group. Variations in feedback to students with similar demographic characteristics should be highlighted as potential variables for future investigations within this line of inquiry.

The present study used several methods to obtain a comprehensive analysis of teachers' differential use of feedback. However, limitations identified in the study should be thoroughly noted prior to assumptions made about data. The ability to generalize results is the cornerstone of every study and it is where science translates change in practices. Thus, replication studies would benefit the research and practice communities by highlighting more trends in feedback and identify exemplary positive teaching practices.

Implications for Practice

This study provided an opportunity to explore differences in educational experiences of at-risk students by examining teachers' use of positive and negative feedback. Teachers' differential treatment of students at-risk for EBD was the most significant, yet undesirable finding in this study. The findings have profound implications on educators' demonstrated use of strategies that may exasperate problem behavior. The research highlighted one aspect of the educational experience for a student at-risk for EBD: the use of negative feedback by their teacher.

Research has exemplified feedback as a tool for educators (Bandura, 1991; Fedor, 1991; Fedor et al., 2001; Hattie & Timperley, 2007; Ilgen et al., 1979). Despite the fact that feedback can be an effective teaching tool, it has been shown

that educators do not routinely incorporate ideal rates of positive feedback into regular teaching practices and strategies (Beaman & Wheldall, 2000). Positive feedback is especially absent for students who demonstrate challenging behaviors, such as those identified as high-risk for EBD, as was examined in the present study. Repeatedly, students in the high-risk population do not experience the positive aspects of feedback (Itskowitz et al., 1988) and are all too often the recipients of the preponderance of teachers' negative attention (Shores, Jack, et al., 1993), which could potentially be a contributing factor, or tipping point, for students high-risk for educational failure.

As revealed in this study, teachers tend to be more reliant on the use of negative feedback with students who are identified as high-risk for EBD. Students in the high-risk group failed to receive adequate rates of positive feedback in comparison to their low-risk classmates. Paradoxically, research on the EBD populations often proclaim the importance of teaching prosocial and appropriate behaviors to reduce educational failure (Howard et al., 2005; Koegel et al., 1999; Lovaas, 1987; McGee et al., 1999), and to improve the outcomes for students who are already on an abysmal trajectory (CECP, 2000); however, it could be speculated that practitioners either are not hearing the messages about the benefits of positive feedback for that student population, or it is being purposely omitted from most teachers' repertoire of practices.

The implications of these findings on professional practice are vast. Teachers have powerful influences on the educational experience of students, and this is especially true for students that are high-risk for EBD. The study

highlighted a single strategy that occurs everyday in classrooms that could potentially remediate or exasperate problem behavior. Using positive feedback as a universal strategy to teach appropriate behavior has shown to be an ideal practice to maximize prosocial behaviors in school to attempt to eliminate a problem behavior before it begins (Sugai & Horner, 2002), however the findings of the present study did not reveal that teachers are regularly utilizing this valuable strategy in the classroom.

The findings in this study suggest that schools fail to create a support system for high-risk students, who are not identified as having EBD. This neglect furthermore supports that the direct actions of schools and teachers could fundamentally be related to a host of poor outcomes experienced by EBD students, both educationally and socially. This study reinforces the need for continuous assessment methods for educators that incorporate assessment of classroom environment through teachers' use of positive strategies. Moreover, making educators aware of their actions through analyzing their own feedback data may help reduce their propensity to rely on negative feedback. Thus, greater awareness could lead to greater action.

Personal Reflections

This inquiry developed from suspicions presented from other studies and was inspired by an actual student whose principal labeled him a *tipping point child* and whose experience, unfortunately, was confirmed by the findings in this study. The principal used tipping point child to reference students that can be perceived as high-risk for EBD. The following is a brief scenario of how teaching

practices, such as the use of positive and negative feedback, may have more power than perceived.

Benny transferred into the new school mid-year. His history had shown frequent moves and an extremely inconsistent educational experience. These issues, among a host of others, made it very difficult for Benny to make friends and be amicable with his teachers. Upon enrollment, the principal had two available classroom options for this young man. Option one was Ms. Reede's classroom; this teacher broadly incorporated positive strategies of SWPBS into her practices so every student experienced positive feedback on a daily basis. Then there was classroom option two. Option two was Ms. Green's classroom, which appeared typical in structure at first glance; however, closer inspection revealed significant overreliance on negative feedback toward any student that demonstrated what Ms. Green very loosely viewed as a problem behavior.

The principal had a decision to make: either put Benny in Ms. Reede's classroom where he would likely thrive in a positive learning experience for the rest of the year, or option two. The principal considered one more thing. It was known that the following year he would be in a different grade level where the teachers collectively did not rely on positive feedback as a strategy, and it was speculated that next year Benny could possibly regress to where he started. Despite evidence of the success of positive feedback practices, the principal chose Ms. Green's classroom because by the end of the year, he would likely be referred, tested and placed for EBD, which according to the principal is where a tipping point child needs to learn appropriate behavior. Unfortunately, the

principal dictated his fate. This scenario described Benny's educational experience and his later outcome, which was a self-contained placement for students with EBD, which is not uncommon to that of most high-risk students. Subsequently, it is paramount to accentuate research and practices that have the potential to make such a substantial impact on at-risk students, such as teachers' consistent use of clear, goal-directed, positive feedback as a universal strategy for all students.

This study did not provide new, groundbreaking information. If anything, it sadly confirmed what was already known. The differential treatment in children exists and should be investigated explicitly as a means to bring attention and knowledge. Such awareness should serve as the guiding force to institute positive feedback practices and to consequently reduce the number of students who have walked in Benny's shoes. As Henry Brooks Adams said, "A teacher affects eternity; he can never tell where his influence stops," thus it is vital to highlight the power that teachers' words and actions have on the lives and development of children. Awareness that differential actions and words can make long-lasting impressions may be the most powerful lesson learned from this study.

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APPENDIX A

APPROVAL LETTERS

Litchfield Elementary School District #79

August 22, 2010

To Whom It May Concern on the ASU IRB:

Katie Sprouls has approached our district for participation in a research study for her dissertation. Katie is a PhD student in special education at Arizona State University, and is working under the supervision of Dr. Sarup Mathur, associate professor of education at ASU. She has requested Litchfield Elementary School District's participation dependent upon ASU IRB approval to obtain data. We approve the methods and question she has presented and to screen schools and students within the district with the School-wide Evaluation Tool and Student Risk Screening Scale to examine her research question.

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Please direct any questions you might have to either me or Katie Sprouls at the above email.

Sincerely,

Dr. Heather L. Cruz
Assistant Superintendent
Litchfield Elementary School District

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ASU Knowledge Enterprise Development

Office of Research Integrity and Assurance

To:	Sarup Mathur ED
for **From:**	Mark Roosa, Chair SM Soc Beh IRB
Date:	09/03/2010
Committee Action:	**Expedited Approval**
Approval Date:	09/03/2010
Review Type:	Expedited F7
IRB Protocol #:	1008005427
Study Title:	Examining Teacher Use of Feedback in School-wide Positive Behavioral Intervention and Supports (SWPBS) and Traditional Settings
Expiration Date:	09/02/2011

The above-referenced protocol was approved following expedited review by the Institutional Review Board.

It is the Principal Investigator's responsibility to obtain review and continued approval before the expiration date. You may not continue any research activity beyond the expiration date without approval by the Institutional Review Board.

Adverse Reactions: If any untoward incidents or severe reactions should develop as a result of this study, you are required to notify the Soc Beh IRB immediately. If necessary a member of the IRB will be assigned to look into the matter. If the problem is serious, approval may be withdrawn pending IRB review.

Amendments: If you wish to change any aspect of this study, such as the procedures, the consent forms, or the investigators, please communicate your requested changes to the Soc Beh IRB. The new procedure is not to be initiated until the IRB approval has been given.

Please retain a copy of this letter with your approved protocol.

APPENDIX B

PARTICIPITATION AGREEMENT FORMS

CHILD Assent Form

Title: Examining teacher use of feedback in School-wide Positive Behavior Intervention and Supports (SWPBS) and traditional settings.

I have been informed that my parent(s) have given permission for me to participate in a study about daily classroom behaviors.

I will be asked my permission to be observed during the study. I will not be asked to do anything or spoken to by the researchers. The researchers will be in my classroom between 8 and 12 times for 20 minutes per session.

My participation in the project is voluntary. I know that I can stop at any time I want to and it will be okay if I want to stop.

_____ _____

Sign your name here Print your name here

_____

Date

ASU IRB Approved
Sign OS for Mevic Ross
Date 9/3/10 – 9/2/11

INFORMED CONSENT FORM (SOCIAL BEHAVIORAL)
MINIMAL RISK
ARIZONA STATE UNIVERSITY

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Parent Permission Form

Examining teacher used strategies with students in School-wide Positive Behavior Intervention and Supports (SWPBS) and traditional settings.

INTRODUCTION

The purposes of this form are to provide you (as a prospective research study participant) information that may affect your decision as to whether or not to participate in this research and to record the consent of those who agree to be involved in the study.

RESEARCHERS

Katie Sprouls, PhD graduate student under the direction of Dr. Sarup Mathur, professor in the Mary Lou Fulton Teachers College at Arizona State University.

STUDY PURPOSE

The purpose of the research is to examine teacher classroom management strategies.
I am inviting your child's participation, which is entirely voluntary. If you choose not to have your child participate or to withdraw your child from the study at any time, there will be no penalty (it will not affect your child's grade, treatment/care, etc). Likewise, if your child chooses not to participate or to withdraw from the study at any time, there will be no penalty. The results of the research study may be published, but your child's name will not be used.

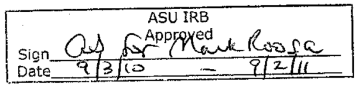
DESCRIPTION OF RESEARCH STUDY

If you decide to participate, then your child will join a study involving research of observing teacher classroom management strategies with students. The teachers in the district use the Student Risk Screening Scale for routine identification of students in need of interventions as a regular early intervention school activity. The researcher following the volunteering teachers' completion of the scale will obtain the SRSS data. The teachers complete the screening after 30 days following start of the school. After students were screened, students were randomly selected for participation. Students randomly selected in each classroom will be subject to observations of the teachers toward selected students.

If you say YES, then your observations in the classroom will last approximately six weeks. Your child's participation in the study will occur in their classroom at their school in the Litchfield Elementary School District. Your child will be in the classroom where observational data is being obtained. Approximately 120 other students in the district will be participating in this study.

RISKS

There are no known risks from taking part in this study, but in any research, there is some possibility that you may be subject to risks that have not yet been identified.



BENEFITS
Although there may be no direct benefit to your child, the possible benefit of your child's participation is to better understand classroom practices and interactions. There are no foreseeable risks or discomforts to your child's participation.

CONFIDENTIALITY
All information obtained in this study is strictly confidential. The observations and all data will be coded and kept confidential. Your child's identification will be protected when the results are used. All raw data will be destroyed upon coding and entry for data analysis. The results of this study may be used in reports, presentations, or publications but no names will be known or used

WITHDRAWAL PRIVILEGE
Participation in this study is completely voluntary. It is ok for you to say no. Even if you say yes now, you are free to say no later, and withdraw from the study at any time. If you choose to withdraw your child from the study at any time, there will be no penalty (it will not affect your child's grade, treatment/care, etc). Likewise, if your child chooses not to participate or to withdraw from the study at any time, there will be no penalty. The results of the research study may be published, but your child's data will not be used.

COSTS AND PAYMENTS
There is no payment for your participation in the study.

VOLUNTARY CONSENT
Any questions you have concerning the research study or your participation in the study, before or after your consent, will be answered by:

Dr. Sarup Mathur
Farmer Building 418C
Arizona State University
Tempe, AZ 85287-1811
Sarup.mathur@asu.edu
Phone: 480-965-6893
Fax: 480-965-4849

Katie Sprouls
Katie.sprouls@asu.edu
Phone: 623-703-2834
Fax: 623-478-1863

If you have questions about your rights as a subject/participant in this research, or if you feel you have been placed at risk; you can contact the Chair of the Human Subjects Institutional Review Board, through the ASU Office of Research Integrity and Assurance, at 480-965 6788.

This form explains the nature, demands, benefits and any risk of the project. By signing this form you agree knowingly to assume any risks involved. Remember, your participation is voluntary. You may choose not to participate or to withdraw your consent and discontinue

participation at any time without penalty or loss of benefit. In signing this consent form, you are not waiving any legal claims, rights, or remedies. A copy of this consent form will be given (offered) to you.

Your signature below indicates that you consent to participate in the above study.

_____	_____	_____
Parent Signature	Printed Name	Date

INVESTIGATOR'S STATEMENT

"I certify that I have explained to the above individual the nature and purpose, the potential benefits and possible risks associated with participation in this research study, have answered any questions that have been raised, and have witnessed the above signature. These elements of Informed Consent conform to the Assurance given by Arizona State University to the Office for Human Research Protections to protect the rights of human subjects. I have provided (offered) the subject/participant a copy of this signed consent document."

Signature of Investigator_____ Date_____

TEACHER INFORMATION LETTER

Title: Examining teacher use of feedback in School-wide Positive Behavior Intervention and Supports (SWPBS) and traditional settings.

Date: September 10, 2010

Dear Teacher:

I am a graduate student under the direction of Professor Dr. Sarup Mathur in the College of Education at Arizona State University. I am conducting a research study to examine teaching strategies used in different school settings. The study will entail measuring teachers use of various classroom management strategies.

I am inviting your participation, which will involve researchers observing in your classroom during regular educational activities for a period of 20-minute intervals over the course of 6 weeks (12 visits max). Your involvement in the study would include providing the researcher with a copy of the Student Risk Screening Scale completed on your class. The second step of the study will be a series of brief observations in your classroom conducted by a researcher. There will be no fewer than eight 20-minute observations and a maximum of twelve 20-minute observations. The observations and all data will be confidential and your identification will be protected when the results are used for publications and presentations.

One researcher will be observing silently in your classroom. The researcher will not speak to you or your students. You have the right not to participate, and if you agree you have the right to stop your participation at any time.

Your participation is entirely voluntary; you have the right to stop your participation at anytime. If you choose not to participate or to withdraw from the study at any time, there will be no penalty. There are no foreseeable risks or discomforts to your participation.

All observations will be coded, anonymous and confidential. The results of this study may be used in reports, presentations, or publications but your name will not be known.

If you have any questions concerning the research study, please contact the research team with the information below. If you have any questions about your rights as a subject/participant in this research, or if you feel you have been placed at risk, you can contact the Chair of the Human Subjects Institutional Review Board, through the ASU Office of Research Integrity and Assurance, at (480) 965-6788. Please let me know if you wish to be part of the study.

Research Team
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APPENDIX C

MEASURES USED IN STUDY

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Positive Behavior Support

Classroom Management: Self-Assessment Revised

Brandi Simonsen, Sarah Fairbanks, Amy Briesch, & George Sugai

Center on Positive Behavioral Interventions and Supports
University of Connecticut

Version: April 7, 2006

Classroom Management: Self-Assessment[1]

Classroom Management Practice	Rating
1. *I have arranged my classroom to **minimize crowding and distraction***	Yes No
2. *I have **maximized structure and predictability** in my classroom (e.g., explicit classroom routines, specific directions, etc.).*	Yes No
3. *I have posted, taught, reviewed, and reinforced 3-5 **positively stated expectations** (or rules).*	Yes No
4. *I provided **more frequent acknowledgement** for appropriate behaviors than inappropriate behaviors (See top of page).*	Yes No
5. *I provided each student with **multiple opportunities to respond** and participate during instruction.*	Yes No
6. *My instruction **actively engaged** students in observable ways (e.g., writing, verbalizing)*	Yes No
7. *I **actively supervised** my classroom (e.g., moving, scanning) during instruction.*	Yes No
8. *I **ignored** or provided **quick, direct, explicit reprimands/redirections** in response to inappropriate behavior.*	Yes No
9. *I have **multiple strategies/systems** in place to **acknowledge** appropriate behavior (e.g., class point systems, praise, etc.).*	Yes No
10. *In general, I have provided **specific feedback** in response to social and academic behavior errors and correct responses.*	Yes No
Overall classroom management score: *10-8 "yes" = "**Super**"* *7-5 "yes" = "**So-So**"* *<5 "yes" = "**Improvement Needed**"*	# Yes_____ –

School-wide Evaluation Tool
(SET)
Version 2.1

Data Collection Protocol

- ✓ Conducted annually.
- ✓ Conducted before school-wide positive behavior support interventions begin.
- ✓ Conducted 6-12 weeks after school-wide positive behavior support interventions are implemented.

School-wide Evaluation Tool
(SET)

Overview

Purpose of the SET

The School-wide Evaluation Tool (SET) is designed to assess and evaluate the critical features of school-wide effective behavior support across each academic school year**.** The SET results are used to:

1. assess features that are in place,
2. determine annual goals for school-wide effective behavior support,
3. evaluate on-going efforts toward school-wide behavior support,
4. design and revise procedures as needed, and
5. compare efforts toward school-wide effective behavior support from year to year.

Information necessary for this assessment tool is gathered through multiple sources including review of permanent products, observations, and staff (minimum of 10) and student (minimum of 15) interviews or surveys. There are multiple steps for gathering all of the necessary information. The first step is to identify someone at the school as the contact person. This person will be asked to collect each of the available products listed below and to identify a time for the SET data collector to preview the products and set up observations and interview/survey opportunities. Once the process for collecting the necessary data is established, reviewing the data and scoring the SET averages takes two to three hours.

Products to Collect

1. _____	Discipline handbook
2. _____	School improvement plan goals
3. _____	Annual Action Plan for meeting school-wide behavior support goals
4. _____	Social skills instructional materials/ implementation time line
5. _____	Behavioral incident summaries or reports (e.g., office referrals, suspensions, expulsions)
6. _____	Office discipline referral form(s)
7. _____	Other related information

Using SET Results

The results of the SET will provide schools with a measure of the proportion of features that are 1) not targeted or started, 2) in the planning phase, and 3) in the implementation/ maintenance phases of development toward a systems approach to school-wide effective behavior support. The SET is designed to provide trend lines of improvement and sustainability over time.

School-wide Evaluation Tool
(SET)
Implementation Guide

School _____ **Date** _____

District _____ **State** _____

Step 1: Make Initial Contact

A. Identify school contact person & give overview of SET page with the list of products needed.
B. Ask when they may be able to have the products gathered. Approximate date: _____
C. Get names, phone #'s, email address & record below.

Name_____ Phone_____

Email_____

Products to Collect

1. _____ Discipline handbook
2. _____ School improvement plan goals
3. _____ Annual Action Plan for meeting school-wide behavior support goals
4. _____ Social skills instructional materials/ implementation time line
5. _____ Behavioral incident summaries or reports (e.g., office referrals, suspensions, expulsions)
6. _____ Office discipline referral form(s)
7. _____ Other related information

Step 2: Confirm the Date to Conduct the SET

A. Confirm meeting date with the contact person for conducting an administrator interview, taking a tour of the school while conducting student & staff interviews, & for reviewing the products.
Meeting date & time: _____

Step 3: Conduct the SET

A. Conduct administrator interview.
B. Tour school to conduct observations of posted school rules & randomly selected staff (minimum of 10) and student (minimum of 15) interviews.
C. Review products & score SET.

Step 4: Summarize and Report the Results

A. Summarize surveys & complete SET scoring.
B. Update school graph.
C. Meet with team to review results.
Meeting date & time: _____

School-wide Evaluation Tool
(SET)
Scoring Guide

School _____ **Date** _____

District _____ **State** _____

Pre _____ **Post** _____ **SET data collector** _____

Feature	Evaluation Question	Data Source (circle sources used) P= product; I= interview; O= observation		Score: 0-2
A. Expectations Defined	1. Is there documentation that staff has agreed to 5 or fewer positively stated school rules/ behavioral expectations? (0=no; 1= too many/negatively focused; 2 = yes)	Discipline handbook, Instructional materials Other _____	**P**	
	2. Are the agreed upon rules & expectations publicly posted in 8 of 10 locations? (See interview & observation form for selection of locations). (0= 0-4; 1= 5-7; 2= 8-10)	Wall posters Other _____	**O**	
B. Behavioral Expectations Taught	1. Is there a documented system for teaching behavioral expectations to students on an annual basis? (0= no; 1 = states that teaching will occur; 2= yes)	Lesson plan books, Instructional materials Other _____	**P**	
	2. Do 90% of the staff asked state that teaching of behavioral expectations to students has occurred this year? (0= 0-50%; 1= 51-89%; 2=90%-100%)	Interviews Other _____	**I**	
	3. Do 90% of team members asked state that the school-wide program has been taught/reviewed with staff on an annual basis? (0= 0-50%; 1= 51-89%; 2=90%-100%)	Interviews Other _____	**I**	
	4. Can at least 70% of 15 or more students state 67% of the school rules? (0= 0-50%; 1= 51-69%; 2= 70-100%)	Interviews Other _____	**I**	
	5. Can 90% or more of the staff asked list 67% of the school rules? (0= 0-50%; 1= 51-89%; 2=90%-100%)	Interviews Other _____	**I**	
C. On-going System for Rewarding Behavioral Expectations	1. Is there a documented system for rewarding student behavior? (0= no; 1= states to acknowledge, but not how; 2= yes)	Instructional materials, Lesson Plans, Interviews Other _____	**P**	
	2. Do 50% or more students asked indicate they have received a reward (other than verbal praise) for expected behaviors over the past two months? (0= 0-25%; 1= 26-49%; 2= 50-100%)	Interviews Other _____	**I**	
	3. Do 90% of staff asked indicate they have delivered a reward (other than verbal praise) to students for expected behavior over the past two months? (0= 0-50%; 1= 51-89%; 2= 90-100%)	Interviews Other _____	**I**	
D. System for Responding to Behavioral Violations	1. Is there a documented system for dealing with and reporting specific behavioral violations? (0= no; 1= states to document; but not how; 2 = yes)	Discipline handbook, Instructional materials Other _____	**P**	
	2. Do 90% of staff asked agree with administration on what problems are office-managed and what problems are classroom–managed? (0= 0-50%; 1= 51-89%; 2= 90-100%)	Interviews Other _____	**I**	
	3. Is the documented crisis plan for responding to extreme dangerous situations readily available in 6 of 7 locations? (0= 0-3; 1= 4-5; 2= 6-7)	Walls Other _____	**O**	
	4. Do 90% of staff asked agree with administration on the procedure for handling extreme emergencies (stranger in building with a weapon)? (0= 0-50%; 1= 51-89%; 2= 90-100%)	Interviews Other _____	**I**	

Feature	Evaluation Question	Data Source (circle sources used) P= product; I= interview; O= observation	Score: 0-2
E. Monitoring & Decision-Making	1. Does the discipline referral form list (a) student/grade, (b) date, (c) time, (d) referring staff, (e) problem behavior, (f) location, (g) persons involved, (h) probable motivation, & (i) administrative decision? (0=0-3 items; 1= 4-6 items; 2= 7-9 items)	Referral form (circle items present on the referral form) **P**	
	2. Can the administrator clearly define a system for collecting & summarizing discipline referrals (computer software, data entry time)? (0=no; 1= referrals are collected; 2= yes)	Interview Other _____ **I**	
	3. Does the administrator report that the team provides discipline data summary reports to the staff at least three times/year? (0= no; 1= 1-2 times/yr.; 2= 3 or more times/yr)	Interview Other _____ **I**	
	4. Do 90% of team members asked report that discipline data is used for making decisions in designing, implementing, and revising school-wide effective behavior support efforts? (0= 0-50%; 1= 51-89%; 2= 90-100%)	Interviews Other _____ **I**	
F. Management	1. Does the school improvement plan list improving behavior support systems as one of the top 3 school improvement plan goals? (0= no; 1= 4th or lower priority; 2 = 1st- 3rd priority)	School Improvement Plan, **P** Interview Other _____ **I**	
	2. Can 90% of staff asked report that there is a school-wide team established to address behavior support systems in the school? (0= 0-50%; 1= 51-89%; 2= 90-100%)	Interviews Other _____ **I**	
	3. Does the administrator report that team membership includes representation of all staff? (0= no; 2= yes)	Interview Other _____ **I**	
	4. Can 90% of team members asked identify the team leader? (0= 0-50%; 1= 51-89%; 2= 90-100%)	Interviews Other _____ **I**	
	5. Is the administrator an active member of the school-wide behavior support team? (0= no; 1= yes, but not consistently; 2 = yes)	Interview Other _____ **I**	
	6. Does the administrator report that team meetings occur at least monthly? (0=no team meeting; 1=less often than monthly; 2= at least monthly)	Interview Other _____ **I**	
	7. Does the administrator report that the team reports progress to the staff at least four times per year? (0=no; 1= less than 4 times per year; 2= yes)	Interview Other _____ **I**	
	8. Does the team have an action plan with specific goals that is less than one year old? (0=no; 2=yes)	Annual Plan, calendar Other _____ **P**	
G. District-Level Support	1. Does the school budget contain an allocated amount of money for building and maintaining school-wide behavioral support? (0= no; 2= yes)	Interview Other _____ **I**	
	2. Can the administrator identify an out-of-school liaison in the district or state? (0= no; 2=yes)	Interview Other _____ **I**	
Summary Scores:	A = /4	B = /10	C = /6	D = /8	E = /8
	F = /16	G = /4	Mean = /7		

Administrator Interview Guide

Let's talk about your discipline system

1) Do you collect and summarize office discipline referral information? Yes No If no, skip to #4.
2) What system do you use for collecting and summarizing office discipline referrals? (E2)
   a) What data do you collect? _____
   b) Who collects and enters the data? _____
3) What do you do with the office discipline referral information? (E3)
   a) Who looks at the data? _____
   b) How often do you share it with other staff? _____
4) What type of problems do you expect teachers to refer to the office rather than handling in the classroom/ specific setting? (D2)

5) What is the procedure for handling extreme emergencies in the building (i.e. stranger with a gun)? (D4)

Let's talk about your school rules or motto

6) Do you have school rules or a motto? Yes No If no, skip to # 10.
7) How many are there? _____
8) What are the rules/motto? (B4, B5)

9) What are they called? (B4, B5)

10) Do you acknowledge students for doing well socially? Yes No If no, skip to # 12.

11) What are the social acknowledgements/ activities/ routines called (student of month, positive referral, letter home, stickers, high 5's)? (C2, C3)

Do you have a team that addresses school-wide discipline? If no, skip to # 19

12) Has the team taught/reviewed the school-wide program with staff this year? (B3) Yes No
13) Is your school-wide team representative of your school staff? (F3) Yes No
14) Are you on the team? (F5) Yes No
15) How often does the team meet? (F6) _____
16) Do you attend team meetings consistently? (F5) Yes No
17) Who is your team leader/facilitator? (F4) _____
18) Does the team provide updates to faculty on activities & data summaries? (E3, F7) Yes No
    If yes, how often? _____
19) Do you have an out-of-school liaison in the state or district to support you on positive behavior support systems development? (G2) Yes No
    If yes, who? _____
20) What are your top 3 school improvement goals? (F1)

21) Does the school budget contain an allocated amount of money for building and maintaining school-wide behavioral support? (G1) Yes No

Additional Interviews

In addition to the administrator interview questions there are questions for Behavior Support Team members, staff and students. ***Interviews can be completed during the school tour.*** Randomly select students and staff as you walk through the school. Use this page as a reference for all other interview questions. Use the interview and observation form to record student, staff, and team member responses.

Staff Interview Questions
Interview a minimum of 10 staff

1) What are the _____ (school rules, high 5's, 3 bee's)? (B5)
   (Define what the acronym means)
2) Have you taught the school rules/behavioral expectations this year? (B2)
3) Have you given out any _____ since _____? (C3)
   (rewards for appropriate behavior) (2 months ago)
4) What types of student problems do you or would you refer to the office? (D2)
5) What is the procedure for dealing with a stranger with a gun? (D4)
6) Is there a school-wide team that addresses behavioral support in your building?
7) Are you on the team?

Team Member Interview Questions

1) Does your team use discipline data to make decisions? (E4)
2) Has your team taught/reviewed the school-wide program with staff this year? (B3)
3) Who is the team leader/facilitator? (F4)

Student interview Questions
Interview a minimum of 15 students

1) What are the _____ (school rules, high 5's, 3 bee's)? (B4)
   (Define what the acronym means.)
2) Have you received a _____ since _____? (C2)
   (reward for appropriate behavior) (2 months ago)

TEACHER NAME			Student Risk Screening Scale (SRSS)					
	0 = Never							
	1= Occasionally							
	2 = Sometimes							
	3 = Frequently							
	Use the above scale to rate each							
	item for each student							
			Lie, Cheat,	Behavior	Peer	Low Academic	Negative	Aggressive
	Student Name	Steal	Sneak	Problem	Rejection	Achievement	Attitude	Behavior

DATA COLLECTION FORM

Teacher Name:
Classroom Number:
Data Collector Name:

Date/Session Number & Target Student	*Make a hash mark for every occurrence of observed code toward target student 1 and 2 during observation interval.	Reprimand	Ultimatum	Consequence	Leave request	Approval
	Baseline Session - Date					
	Baseline Session - Date:					
	Session 1 – Date:					
	Target Student 1					
	Target Student 2					
	Session 2 – Date:					
	Target Student 1					
	Target Student 2					
	Session 3 – Date:					
	Target Student 1					
	Target Student 2					
	Session 4 – Date:					
	Target Student 1					
	Target Student 2					
	Session 5 – Date:					
	Target Student 1					
	Target Student 2					
	Session 6 – Date:					
	Target Student 1					
	Target Student 2					
	Session 7 – Date:					
	Target Student 1					
	Target Student 2					

DATA COLLECTION FORM

Teacher Name:
Classroom Number:
Data Collector Name:

	Session 8 – Date:					
	Target Student 1					
	Target Student 2					
	Session 9 – Date:					
	Target Student 1					
	Target Student 2					
	Session 10 – Date:					
	Target Student 1					
	Target Student 2					

KEY:

1. Reprimand: Reprimand is recorded when the teacher asked the student to cease a disruptive behavior of concern (e.g., "Stophitting" or "Stop teasing ... ").

2. Ultimatum: Ultimatum is recorded when the teacher gave the student a verbal choice to stop a disruptive behavior of concern or the student would experience a designated response cost (e.g., "If you don't stop ... then I will..,"; or "I need you to be quiet or..").

3. Consequence: Consequence is recorded when the teacher gives the student a designated consequence for a disruptive behavior of concern (e.g., loss of a privilege or points).

4. Leave Request: Leave request is recorded when the teacher asked the student to leave the classroom because of a disruptive behavior of concern, including requests to the principal's office or to the hall outside the classroom.

5. Approval: Approval was recorded when the teacher responded in a positive manner to the student's behavior (appropriate) (e.g., social response such as a smile, "Thank you"; &"Good job" or tangible response such as a sticker or points).
(Nelson & Roberts, 2000)

APPENDIX D

DISAGGREGATION OF DIFFERENCES BETWEEN HIGH-RISK AND LOW-RISK GROUPS PRESENTED BY SCHOOL AND TEACHER

Mean occurrence of Positive and Negative Feedback by Teacher with Low-Risk Students.

		Low-Risk Students			
		Positive Feedback [a]		*Negative Feedback* [b]	
School	Teacher	*M*	*SD*	*M*	*SD*
1					
	A	.00	.00	.20	.63
	B	.80	.63	.90	1.52
	C	.20	.42	.0	.0
	D	.10	.32	.0	.0
2					
	A	1.40	1.43	.20	.63
	B	1.50	1.18	.50	.97
	C	1.70	1.06	.20	.42
	D	1.60	.97	.0	.0
3					
	A	.20	.63	.30	.67
	B	.80	.63	.0	.0
	C	.80	1.62	.30	.48
	D	.70	.67	.0	.0

Low-Risk (continued)					
		Positive Feedback		*Negative Feedback*	
School	Teacher	*M*	*SD*	*M*	*SD*
4					
	A	.20	.42	.10	.32
	B	.0	.0	.20	.42
	C	.70	1.06	.10	.32
	D	.0	.0	.0	.0
	E	.0	.0	.20	.42
	F	.0	.0	.10	.32
	G	.0	.0	.20	.42
	H	.60	1.26	.10	.32
	I	.0	.0	.10	.32
	J	.10	.32	.0	.0
	K	.10	.32	.0	.0
5					
	A	.60	.70	.10	.32
	B	1.00	1.56	.30	.48
	C	.50	.97	.10	.32
	D	.50	1.08	.40	.52
	E	.40	.70	.20	.42

Low-Risk (continued)					
		Positive Feedback		*Negative Feedback*	
School	Teacher	*M*	*SD*	*M*	*SD*
6					
	A	.20	.42	.20	.63
	B	.70	.67	.10	.32
	C	.70	.82	.10	.32
	D	.40	.70	.0	.0
	E	.20	.42	.0	.0
	F	.40	.52	.0	.0
	G	.10	.32	.10	.32
	H	.30	.48	.10	.32
	I	.0	.0	.0	.0
	J	.0	.0	.0	.0
	K	.10	.32	.10	.32
	L	.40	.52	.10	.32
	M	.20	.42	.30	.67
7					
	A	.10	.32	.10	.32
	B	.10	.32	.0	.0
	C	.20	.42	.0	.0
	D	.30	.48	.20	.42

Low-Risk (continued)					
		Positive Feedback		*Negative Feedback*	
School	Teacher	*M*	*SD*	*M*	*SD*
	E	.30	.67	.0	.0
	F	.10	.32	.0	.0
	G	.10	.32	.0	.0
	H	.0	.0	.20	.63
	I	.10	.32	.10	.32
8					
	A	.40	.52	.10	.32
	B	.40	.52	.10	.32
	C	.30	.48	.10	.32
	D	.0	.0	.0	.0
	E	.20	.42	.30	.67
	F	.10	.32	.10	.32

[a] n = 10 total observation sessions, [b] n = 10 observation sessions.

Means occurrences of Positive and Negative Feedback by Teacher with High-Risk Students.

		High-Risk Students			
		Positive Feedback [a]		*Negative Feedback* [b]	
School	Teacher	*M*	*SD*	*M*	*SD*
1					
	A	.0	.0	.50	1.27
	B	1.30	1.16	4.90	5.09
	C	.60	.70	.40	.97
	D	.10	.32	.60	.97
2					
	A	1.20	.92	2.10	.99
	B	1.10	1.66	2.10	1.79
	C	1.60	.97	.90	.88
	D	.60	.84	1.70	1.25
3					
	A	.60	1.07	1.40	1.96
	B	.0	.0	.20	.63
	C	1.50	1.78	1.50	1.65
	D	2.20	1.23	.70	1.25
4					
	A	1.60	1.26	.50	.85
	B	1.00	.94	.90	1.29

High-Risk (continued)					
		Positive Feedback		*Negative Feedback*	
School	Teacher	*M*	*SD*	*M*	*SD*
	C	.10	.32	.30	.48
	D	.0	.0	.20	.42
	E	.20	.42	.50	.85
	F	.10	.32	.30	.67
	G	.0	.0	.50	1.08
	H	.60	.84	.40	.70
	I	.0	.0	.30	.48
	J	.20	.42	.20	.42
	K	.10	.32	.30	.48
5					
	A	.20	.42	.80	1.03
	B	.40	.97	1.10	1.29
	C	2.50	1.96	2.70	2.00
	D	.10	.32	2.00	1.83
	E	.90	.88	1.10	1.45
6					
	A	.20	.42	.20	.63
	B	.90	1.10	.40	.52
	C	.90	.99	1.20	1.23

High-Risk (continued)					
		Positive Feedback		*Negative Feedback*	
School	Teacher	*M*	*SD*	*M*	*SD*
	D	.20	.42	.40	.70
	E	.0	.0	.60	.97
	F	.50	.97	.70	1.34
	G	.40	.70	.50	.71
	H	.40	.70	.20	.42
	I	.30	.95	.40	.70
	J	.0	.0	1.00	1.49
	K	.60	.97	2.20	1.40
	L	.30	.67	1.70	1.57
	M	.40	.52	.80	1.03
7					
	A	.10	.32	.50	1.08
	B	.20	.42	.80	1.03
	C	.30	.48	1.00	1.63
	D	.40	.70	.60	.97
	E	.40	.70	.30	.48
	F	.0	.0	.0	.0
	G	.10	.32	.10	.32
	H	.20	.63	.60	.84

High-Risk (continued)					
		Positive Feedback		*Negative Feedback*	
School	Teacher	*M*	*SD*	*M*	*SD*
8	I	.20	.42	.30	.67
	A	.50	.71	.50	.71
	B	.30	.48	.70	1.25
	C	.0	.0	.0	.0
	D	.10	.32	2.30	2.41
	E	.10	.32	.70	1.06
	F	.0	.0	1.00	1.41

[a] n = 10 total observation sessions, [b] n = 10 observation sessions.

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