Development of a Brief Rating Scale for the Formative Assessment of Positive Behaviors

DEVELOPMENT OF A BRIEF RATING SCALE FOR THE FORMATIVE ASSESSMENT OF POSITIVE BEHAVIORS

A Dissertation Presented

by

JAMES M. CRESSEY

Submitted to the Graduate School of the
University of Massachusetts Amherst in partial fulfillment
of the requirements for the degree of

DOCTOR OF PHILOSOPHY

May 2010

School Psychology

DEVELOPMENT OF A BRIEF RATING SCALE FOR THE FORMATIVE ASSESSMENT OF POSITIVE BEHAVIORS

A Dissertation Presented

by

JAMES M. CRESSEY

Approved as to style and content by:

_____
John M. Hintze, Chairperson

_____
Craig S. Wells, Member

_____
Richard P. Halgin, Member

_____
Christine B. McCormick, Dean
School of Education

DEDICATION

To my loving partner, Brian, who always inspires me to look towards the positive, and to my parents who instilled in me a love of learning.

ACKNOWLEDGMENTS

My utmost thanks go to my advisor and dissertation committee chair, John Hintze. Thank you for your mentorship, encouragement, and the high standards to which you have held me throughout my training. Your thoughtfulness and sense of humor have also made this process more than just a good education. Thank you to committee member Craig Wells, an excellent teacher and my first real guide into the infinite world of statistics. Thank you to Rich Halgin, who served as the perfect outside committee member, asking the questions that are impossible to think of when you are on the inside of your own research. This dissertation was also strongly influenced by my work with faculty members Amanda Marcotte, Bill Matthews, and Gary Stoner whose teaching and mentorship inspire me to keep a scientific mindset while staying passionate about service to others. My colleagues in the school psychology program have been essential supports, particularly Lin Tang and Ben Solomon who both helped me get over speed bumps in the road to completion, and Kristin Ezbicki who inspired me to start at all.

Many colleagues at Wediko Children's Services also made it possible for me to conduct this study, facilitating and supporting my access to schools and providing a valuable outside perspective on my research. Thank you to Jim Wade, Harry Parad, and my supervisors and colleagues who were so accommodating and supportive. Acknowledgements are also due to Dave Beauchamp, Jean Kenney, and the other school administrators who allowed me to collect data in their schools amidst many other duties and tough economic times. Thank you to the many teachers who donated their valuable time and thoughtfulness to participate in my study.

ABSTRACT

DEVELOPMENT OF A BRIEF RATING SCALE FOR THE

FORMATIVE ASSESSMENT OF POSITIVE BEHAVIORS

MAY 2010

JAMES M. CRESSEY, B.A., GEORGETOWN UNIVERSITY

M.Ed., PLYMOUTH STATE UNIVERSITY

Ph.D., UNIVERSITY OF MASSACHUSETTS AMHERST

Directed by: Professor John M. Hintze

In order to provide effective social, emotional, and behavioral supports to all students, there is a need for formative assessment tools that can help determine the responsiveness of students to intervention. Schoolwide positive behavior support (SWPBS) is one framework that can provide evidence-based intervention within a 3-tiered model to reach students at all levels of risk. This dissertation begins the process of developing a brief, teacher-completed rating scale, intended to be used with students in grades K-8 for the formative assessment of positive classroom behavior. An item pool of 93 positively worded rating scale items was drawn from or adapted from existing rating scales. Teachers (n = 142) rated the importance of each item to their concept of "positive classroom behavior." This survey yielded 30 positively worded items for inclusion on the pilot rating scale. The pilot scale was used by teachers to rate students in two samples drawn from general education K-8 classrooms: a universal tier group of randomly selected students (n = 80) and a targeted tier group of students with mild to moderate behavior problems (n = 82). Pilot scale ratings were significantly higher in the universal group than the targeted group by about one standard deviation, with no significant group

by gender interaction. Strong results were found for the split-half reliability (.94) and the internal consistency (.98) of the pilot scale. All but two items showed medium to large item-total correlations (> .5). Factor analysis indicated a unidimensional factor structure, with 59.87% of the variance accounted for by a single factor, and high item loadings (> .4) from 26 of the 30 factors. The unidimensional factor structure of the rating scale indicates its promise for potential use as a general outcome measure (GOM), with items reflecting a range of social, emotional, and behavioral competencies. Future research is suggested in order to continue development and revision of the rating scale with a larger, more diverse sample, and to begin exploring its suitability for screening and formative assessment purposes.

TABLE OF CONTENTS

Page

LIST OF TABLES

Table Page

LIST OF FIGURES

Figure Page

CHAPTER 1

PROBLEM BACKGROUND AND LITERATURE REVIEW

Introduction

This chapter will begin by establishing the theoretical foundations of this dissertation in behavioral assessment and positive behavior support (PBS). Next, a review of the relevant literature will be outlined and synthesized to describe formative assessment, its purposes, and its utility across academic and behavioral domains. The need for reliable, valid, and feasible tools for the formative assessment of positive school behaviors will be illustrated. Literature will also be reviewed that can provide guidance in the development and evaluation of proposed formative behavioral assessment tools. Last, the specific purposes of the study will be outlined and testable research questions will be stated.

Theoretical Foundations

School psychologists are faced with a diverse set of assessment methods, tools, and tests for the purpose of social, emotional, and behavioral assessment. The available resources for practitioners come from an equally diverse array of theoretical perspectives, including sub-fields of psychology and education that do not always converge in agreement. For example, social-emotional learning exists as its own research area with published assessment tools and interventions. Social skills, social competence, and social-emotional learning are all terms which share common ground and common history in the research literature and in school-based assessment practices. Likewise, functional behavioral assessment, applied behavioral analysis, and positive behavior support share their own common research lines, assessment tools, and intervention methods which are

somewhat different from the social-emotional learning approach. These two theoretical backgrounds are also represented by separate professional organizations. The Collaborative for Academic, Social, and Emotional Learning (CASEL) is one professional organization that represents the theoretical foundations of emotional intelligence and social-emotional learning which seeks to promote their perspective on assessment and intervention in schools. Likewise, the Association for Positive Behavior Support (APBS) represents the theoretical foundations of applied behavior analysis and positive behavior support, bringing their perspective to school-based assessment and intervention practices as well.

In reviewing the PBS and SEL literature bases, it is rare to find cross-referencing, collaboration, or dialogue that addresses the other perspective or body of research. School-based practitioners, however, are most likely to work with a combination of assessment tools and interventions in the field. They are faced with the need for assessments and interventions that will address the whole picture of students' skills and performance in these interconnected competencies. While researchers are more likely to stay within narrower lines of study and maintain a stricter theoretical perspective, practitioners are more likely to follow a pragmatic approach, combining tools and programs that work for their settings and populations. Current models of training for school psychologists encourage them to approach the practice of social, emotional and behavioral assessment from a clearly articulated theoretical foundation, through synthesis rather than eclecticism (Merrell, 2008a). In other words, with such diverse resources available, practitioners should combine methods and tools in a thoughtful way, not with a random or simply convenient approach. One purpose of this dissertation is to draw from

research from PBS and SEL backgrounds and to make use of existing assessment tools from both areas in order to begin development of a new instrument to measure positive classroom behavior.

That being stated, it seems necessary to choose one clearly articulated and cohesive body of research to review for this dissertation. Behaviorally-oriented assessment has established a strong record of success in schools, in particular over the past 35 years since special education services became federally mandated. Because federal laws required the use of Functional Behavioral Assessments (FBA), and later positive behavioral interventions and supports (PBS) for special education students, these practices became an important part of the practice of school psychology. More recently, PBS has been expanded into prevention-level services for all students, in general and special education, with the development of Schoolwide Positive Behavior Support (SWPBS). The key intervention practices of PBS are squarely oriented to behavioral intervention and assessment, but with a great deal of flexibility that allows for social-emotional learning (SEL) to be incorporated into its comprehensive system. PBS is also an area in which intervention practices are numerous and have demonstrated effectiveness, but where a need exists for continued research and development of reliable, valid, and feasible assessment methods and tools.

This dissertation will be grounded in a theoretical foundation of behavioral assessment and positive behavior support and will aim to provide some contribution to these areas of research. The purpose of the dissertation is to conduct an empirical investigation of positive behavioral formative assessment methods. Efforts will also be

made to synthesize assessment methods from social-emotional, social skills, and behavioral backgrounds in order to maintain a pragmatic approach to assessment.

Positive Behavior Support

Before reviewing the evidence and research related to formative assessment and behavioral assessment, some background information on positive behavioral interventions and supports (PBS) will be helpful. A thorough understanding of the PBS intervention approach is desirable before attempting to investigate the options for effective formative assessment methodologies.

History of Positive Behavior Support

Positive behavior support (PBS) describes an approach to behavioral intervention that focuses on the use of positive reinforcement, acknowledgement, and rewards, while eschewing the use of aversive behavior modification techniques, particularly for individuals with disabilities. PBS originally was developed as a movement that was started within the practice of applied behavior analysis (ABA). Singer and Wang (2009) characterize the initial PBS work as "a breakaway movement from ABA based on moral objections" (p. 21). During the 1980s, behavioral psychologists, special educators, and other mental health professionals were engaged in ongoing debates and controversies over the use of aversive behavioral interventions that included the delivery of punishment and pain. On one side of the debate was a group who felt strongly that aversive treatments were inappropriate and inhumane for individuals with severe developmental disabilities. The PBS approach was initiated during the late 1980s and became a distinct approach by 1987, when a federal research grant was issued by the U.S. Department of Education to fund a center to study the use of nonaversive behavioral support, soon to be

termed “positive behavior support” by the researchers (Dunlap, Sailor, Horner, & Sugai, 2009). During the 1990s, the PBS approach was applied widely with students with developmental disabilities, and expanded into use with other populations as well. It was a decade or so later that PBS began to be applied as a preventative, whole-school measure with general education students as well.

In response to the success of PBS with students across a range of special education categories, the 1997 reauthorization of the Individuals with Disabilities Education Act (IDEA) included new language requiring the use of “positive behavioral intervention strategies and supports” (PBIS) for any child in special education with emotional and behavioral problems (IDEA, 1997). The following year, in 1998, in response to this new call for more formal and widespread use of PBS, the U.S. Office of Special Education Programs (OSEP) created an online technical assistance center with resources for educators and administrators who are implementing PBS (Sugai et al., 2000). The *Journal for Positive Behavioral Interventions* emerged in 1999 as a dedicated publication to the research and practice of PBS. In 2003, an international professional organization called the Association for PBS (APBS) was formed and began to sponsor national conferences. As a critical mass of PBS-oriented researchers and practitioners began to form, so did the expansion of PBS into more preventative, school-wide systems. Subsequently, the first efforts to develop and implement SWPBS were begun in the late 1980s and early 1990s (Colvin, Kame’enui, & Sugai, 1993; Sugai & Horner, 2009; Walker, Horner, Sugai, Bullis, 1996).

Schoolwide Positive Behavior Support

Concurrent with the progression of interest in PBS during the 1990s and 2000s, a shift in education has taken place toward prevention, response-to-intervention (RTI) methods, and a 3-tiered model of service delivery in academic as well as behavioral systems. SWPBS is an approach that combines the methods and principles of PBS with this emerging focus on universal prevention as well as the need for evidence-based practices in schools (Sugai, 2007). This alignment between SWPBS, prevention, and RTI helped to promulgate the potential of SWPBS as an effective system for schools and school districts to adopt. State-wide SWPBS initiatives have begun to emerge as the approach has demonstrated its effectiveness and efficiency, making it an attractive option for universal implementation. As of October 2008, a nationwide survey found that SWPBS is being implemented in 7,953 schools in the United States, more than half of which are elementary schools. There are 31 states with a statewide SWPBS team, and 47 states with some level of SWPBS implementation reported (Spaulding, Horner, May, & Vincent, 2008).

SWPBS is still a young, developing model of prevention and intervention, which continues to be refined through research. Sugai and Horner (2009) remind us that "SW-PBS is not a curriculum, intervention, or program. However, it is an approach designed to improve the adoption, accurate implementation, and sustained use of evidence-based practices related to behavior and classroom management and school discipline systems." (Sugai & Horner, 2009, p. 309). They go on to summarize the key theoretical and conceptual components of SWPBS in its present form. Five core components can be described as forming the foundation of SWPBS. Behavioral theory and applied

behavioral analysis (ABA) are the first and earliest influences on SWPBS. The use of positive reinforcement and functional behavioral assessment (FBA) are perhaps the strongest underlying influences of SWPBS in practice. Second, the focus on prevention is a key feature that distinguishes SWPBS from individually applied PBS. Third, an instructional focus permeates the interventions and behavioral teaching practices that comprise SWPBS. Fourth, SWPBS draws from evidence-based behavioral practices to ensure that effective, tested strategies are used in schools. Last, the tactic of a systems approach is a defining feature of SWPBS, making use of existing school resources and structures to infuse the culture and practices of the school system with the SWPBS approach (Sugai & Horner, 2009). Given these theoretical features of SWPBS, we now must describe the key features of SWPBS as it is implemented in practice.

Establishing Positive Behavioral Expectations

In SWPBS, rules for student behavior are made explicit, simple, and consistent. Three to five core expectations are chosen for the entire school. McCurdy, Manella, and Eldridge (2003) list, “Be Responsible, Be Respectful, Be Ready” as the core expectations of an urban elementary school that used SWPBS to reduce disruptive and anti-social behavior. These core expectations were established by the SWPBS team in collaboration, prior to the start of the first school year of SWPBS implementation. “Be Responsible, Be Respectful, Be Ready” was selected as the overarching set of expectations for the school. Then, each of these 3 expectations was explicitly defined in a matrix target behaviors for each environment of the school, such as the cafeteria, classroom, hallways, playground, etc. Specific behaviors such as “Use a quiet voice at all times” were phrased in the positive voice, rather than the use of “Do not” phrasing (e.g., “do not talk in a loud

voice"). Target behaviors were clearly posted in each school environment so that students know how and when to follow them.

Teaching Specific Target Behaviors

Posting a matrix of behavioral expectations on the wall alone is not a strong enough intervention to produce behavioral change and promote learning. Teachers must explicitly teach the target behaviors to their students, often at the beginning of the school year and in follow-up sessions throughout the year. Teachers in the school reported by McCurdy et al., (2003) planned behavioral lessons to be taught at the beginning of the school year, and booster sessions to follow-up at key times throughout the year. The expectations and target behaviors were taught by teachers to their students, in classroom settings as well as in other target environments of the school.

System to Acknowledge and Reinforce Positive Behavior

SWPBS provides acknowledgement or positive reinforcement for successfully meeting behavioral expectations. Acknowledgement systems can be similar to a traditional token economy historically used in behavioral intervention systems. In addition to tokens or tickets, acknowledgement is also provided to capitalize and emphasize positive social attention from teachers as an important prosocial source of positive reinforcement. "Top Dawg" tickets and "T.N.T." (teachers noticing talent) tickets are two examples of acknowledgement systems that have been used in middle schools (Metzler, Biglan, Rusby & Sprague, 2001). Students are then able to exchange their tickets to purchase prizes or use such in a school-wide raffle. A student who exhibits more serious problem behaviors or rule violations could be a candidate for individualized

intervention, which often consists of higher levels of positive reinforcement, explicit instruction, and modeling.

Procedures to Correct Misbehaviors

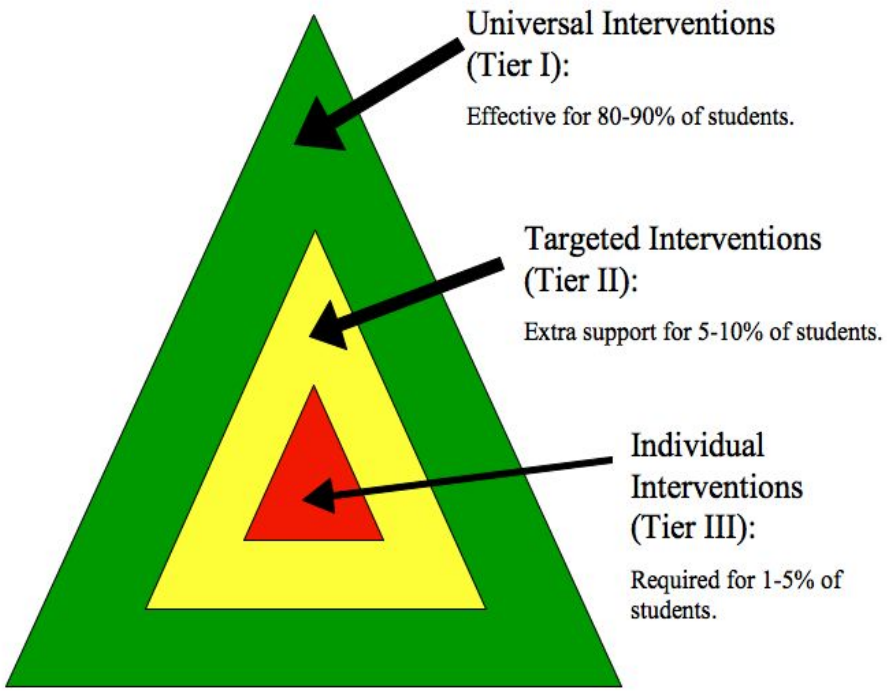
Equally important to a consistent system of acknowledgment is a consistent system of correction procedures that teachers and staff use to respond to problem behaviors. When SWPBS is implemented in a school, the existing policies for office discipline referrals, detentions and suspensions may still be kept as part of the system. However, teachers are encouraged and supported in their use of immediate corrective feedback after a behavioral problem has occurred. The instructional focus of SWPBS indicates that students should be provided with corrective feedback and reminders of the correct target behaviors they should be using in that time and place. Teachers are encouraged to respond to behavioral problems in a similar fashion as they respond to academic problems: with correction and teaching.

Three-tiered Model of SWPBS

As positive behavior support has expanded from use with individual students to a school-wide model of prevention and intervention, it has often been incorporated into a 3-tiered model of service delivery. The 3-tiered model was adapted from the field of public health and uses a population based framework for providing both academic and behavioral prevention and intervention programming. The graphic representation of the 3-tiered model of intervention is often presented as a triangle with three horizontal levels representing the three tiers. Figure 1 presents an alternative graphic, showing the tiers as concentric triangles, with the universal tier encompassing all students, the targeted tier as a subset of the universal, and the individualized tier at the center. This was designed in

order to emphasize the fact that universal interventions are provided to all students, with targeted and individualized interventions being added on as additional supports to the students who are identified as being in need of them.

Figure *1*. Three-tiered model of SWPBS with concentric triangles.



Thus, in a school using SWPBS, all students are served at the primary prevention level with universal programming and interventions. This tier of intervention is referred to as Tier I, the universal tier, or the primary tier in current literature. SWPBS seeks to focus a significant amount of effort into these primary levels of prevention, as described in the components above, in order to reach as many students as possible with a supportive and positive system.

Students who receive the universal tier of interventions but still exhibit mild to moderate levels of behavior problems are identified as being in need of targeted interventions, also referred to as Tier II or secondary tier interventions. The targeted tier of SWPBS interventions will be the primary focus of the literature review, and in particular, the assessment tools and methods which can be used to monitor the effectiveness of these interventions. Targeted interventions and assessment tools are typically of a more intense frequency, duration, and specificity than in the universal tier. For example, additional explicit teaching and reinforcement of target behaviors may be provided to small groups of selected students who demonstrate the need for additional repetitions. However, the interventions are not fully individualized for each student (Crone, Horner, & Hawken, 2004).

Students who are not successful with universal and targeted tiers of intervention are typically those presenting with the most severe, high-risk behavior problems. These students are in need of an individualized tier of support, also referred to as Tier III or tertiary intervention (Sugai, 2007). These students are typically in need of more comprehensive, individualized assessments. They are also more likely to be provided with more restrictive educational placements and special education services.

Data-Based Decision Making

Another important feature of SWPBS is the use of data collection to inform decisions about how to meet the needs of all students along the 3-tier continuum of service delivery. Data collection is often done using two systems generated specifically for use in SWPBS schools: the School-Wide Evaluation Tool (SET; Horner et al., 2004) and the School-Wide Information System (SWIS; Educational and Community Supports,

2007). The SET is used to measure the treatment integrity of SWPBS practices in teachers and staff. The SWIS is an online database that is used to record office discipline referrals (ODRs), suspensions, detentions, and other office records of student conduct problems. Once collected, data can be summarized detailed by student, by grade level, by referring teacher, by location in the school, by type of infraction, by time of day, and by time of year (month) (e.g., Clonan, McDougal, Clark & Davison, 2007). Data summaries are then used by a SWPBS team on a monthly basis to review overall progress toward desired goals and/or for formative intervention planning. (e.g., increase hallway supervision after meals, provision of additional support staff in particular grades, altering the bus dismissal routine to improve student behavior, etc.).

The emphasis that is placed on data-based decision making and formative assessment in a SWPBS approach is the reason that more research is needed to investigate and develop assessment methods and tools with reliability, validity, and feasibility. Applying the steps of the problem-solving model as articulated by Bransford and Stein (1984) and Deno (2002) requires practitioners to use measurement and assessment information at each step of the way. However, SWPBS teams apparently place most of their focus on the measurement of problem behaviors, via office discipline referrals (ODRs) and the analyses made possible by the SWIS database (Newton, Horner, Algozzine, Todd, & Algozzine, 2009). While ODRs provide appropriate information for the problem-solving process, there seems to be a missing correlate that measures the existence of positive behavior. For an approach that is focused squarely on establishing, teaching, and acknowledging the use of positive target behaviors and expectations, it is puzzling that the assessment methodologies of PBS are so oriented around negative

behaviors and problems. In the recently published *Handbook of Positive Behavior Support*, only one chapter out of 29 total chapters is devoted to assessment, and this chapter focuses on the data-based problem solving methods using ODRs that are described above (Newton et al., 2009). Other chapters in this volume incorporate the use of measurement and data collection for formative assessment purposes, however there is little emphasis placed on measuring positive behaviors. One example, Check-In, Check-Out (CICO; Crone et al., 2004) is presented next.

Where is the Positive Behavioral Assessment?

This dissertation proposed the question: Where is the "positive behavioral assessment" that one might assume to exist in tandem with the PBS intervention paradigm outlined thus far? As stated, PBS places a strong emphasis on formative assessment and data-based decision making, but this is done primarily with the use of problem-solving around conduct problems and ODRs in a school. To be sure, the clear identification of problem behaviors is important, particularly within the scope of a functional behavioral assessment. Problem behaviors must be operationally defined, and their antecedents and consequences identified in order to design behavioral interventions that will be successful. However, within the FBA process, once a replacement behavior is selected and the intervention begins, it is crucial to measure the student's performance of the positive replacement behavior. This step in the process seems to be marginalized within many systems of school-based assessment and intervention. When positive behaviors are measured formatively, the tools that are used have unknown reliability or dependability for the purposes of decision-making.

One supportive intervention, typically used at Tier II or III of a tiered model, that focuses on assessing and measuring positive behaviors, is called the Behavior Education Program (BEP), and more specifically, Check-In Check-Out (CICO), as defined in Crone, et al. (2004). Numerous studies are in publication that demonstrate the effectiveness of CICO as an intervention that can improve student behavior (Fairbanks, Sugai, Guardino, & Lathrop, 2007; Hawken & Horner, 2003; Hawken, 2006; March & Horner, 2002). However, to date, studies were not found that investigate the assessment component of CICO, by examining the psychometric properties of the measurement methods, termed Daily Progress Reports (DPRs). The assessment component of DPRs will be described below.

Check-In Check-Out

The CICO program, or BEP, (Crone et al., 2004) is a targeted intervention for students who are consistently identified as in need of behavioral support in a school, but who do not have more serious conduct problems that warrant an individualized, more intensive intervention. Students in CICO begin their day by checking in with an identified adult in the school. The adult gives them a Daily Progress Report (DPR) which they will carry with them throughout the day. The DPR is a feedback mechanism by which the student's teachers can rate his or her behavior throughout the day, at the end of each academic period. The DPR will typically have a place for each school period, and space for ratings on each of the 3-5 key behavioral expectations of the school (as part of SWPBS). The student is responsible for bringing his or her DPR to all classes and asking the teacher to fill it out for each time period. The DPR ratings shown in Crone et al.

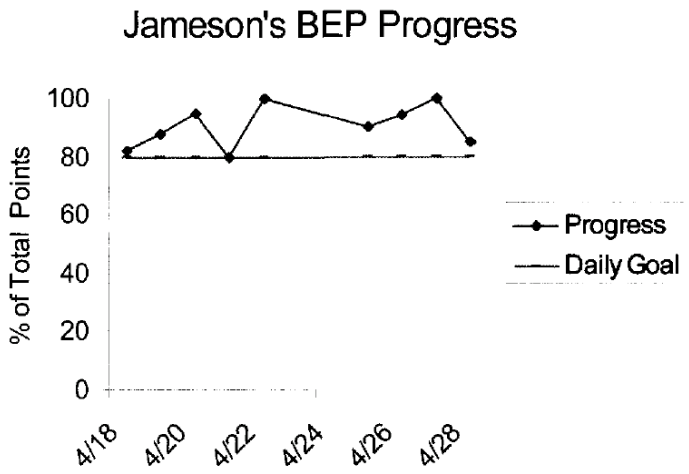
(2004) typically follow a three-level Likert scale from 0 to 2 or from 1 to 3, although one example shown has a two-level scale instead of three.

Teachers are trained to provide only positive feedback when filling out the DPR, finding some positive behavior the student did and make a positive, behavior, specific comment acknowledging the student's success. At the end of the day, the student checks out with the same identified adult from the check in. This staff member reviews the student' day briefly and also provide verbal positive feedback, and in some cases a reward would be part of the intervention as well. The student may also be assigned to bring the DPR home to show a parent or guardian and have it signed by them, providing a third potential for positive comments and acknowledgement of positive behaviors. The next morning, the signed DPR is brought to the check-in to be returned to the staff member.

CICO Ratings as Source of Assessment Data

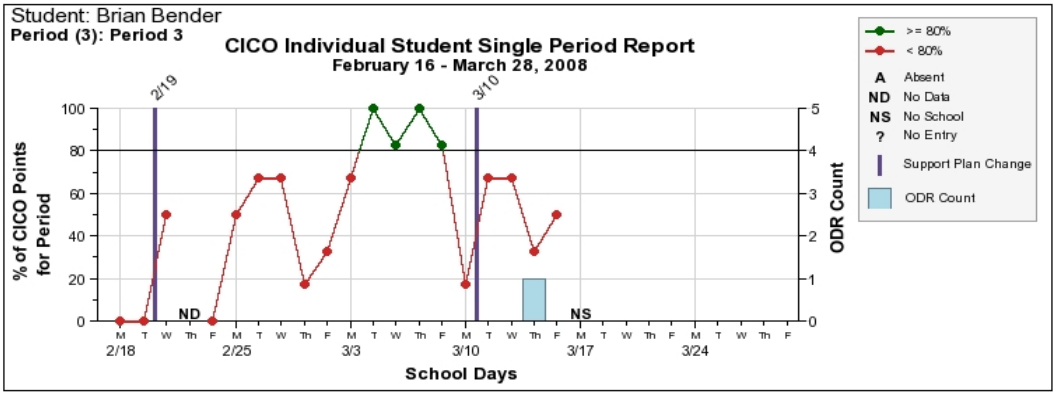
The BEP approach suggests that CICO ratings from students DPRs should be entered into a database or spreadsheet program each day and translated into graph formats. CICO ratings are thereby recommended for use as a formative assessment of students' demonstration of positive behaviors. As shown in Figure 2 below (Hawken, 2006), the percent earned out of the total possible DPR points for a student is entered each day. A goal of 80% is typically set as a benchmark. Thus, in the example below, Jameson is consistently achieving above the goal line for the 9 days shown.

Figure *2.* Sample graph of daily progress report scores.



Procedures are outlined for staff teams to use these data in monitoring students' progress. Interventions may be changed by the team when a student is not responding. Recently, an online data management system has been developed so that, instead of using a local spreadsheet to compile data and generate graphs, staff members can enter DPR ratings into the SWIS database through a web interface. As described earlier with respect to ODRs, the SWIS tool can provide reports across groups of students, or individual student reports. When an intervention change is made, that can be noted in the student's online file as well. Graphs such as the example in Figure 3 can be more comprehensive than in the Figure 2 rendition, with support plan changes noted with vertical lines, color coded data points to show scores above or below the goal line, and ODR data included as a bar graph oriented to the right hand y-axis.

Figure *3*. CICO-SWIS Report.



Support Plan Change	Description
02/19/2008	give choice to spend points daily
03/10/2008	Check in with Joe Binder

Thus, the DPR plays two roles: a feedback/reinforcement intervention, and a formative assessment of positive behavior. While this approach has demonstrated intervention effectiveness and treatment validity, the psychometric properties of this assessment information remain unknown. How reliable are these ratings? How much variance in the data can be attributed to sources other than the target child (e.g., rater effect, environmental and setting influences, time of day, type of scaling used)? How many days of ratings must be aggregated before a dependable decision can be made about the effectiveness of the intervention? These are important questions not yet addressed in the PBS research base. Research that determines how dependable these data are is crucial, due to the fact that schools are already beginning to use the data for decision-making purposes.

The psychometric properties of DPRs and similar tools will be discussed and reviewed in more detail later on in this chapter. First, a broader discussion and review of assessment paradigms and a review of formative assessment will be presented to orient the reader to important issues in assessment at large.

Shifting Assessment Paradigms

Within the framework of school-based behavioral assessment, there are several important purposes and perspectives to acknowledge. As has been true with academic, cognitive, and intellectual assessments, there is a renewed emphasis on linking behavioral assessment to research-based, effective intervention practices. School psychology has been undergoing a period of reform in recent decades that has shifted our assessment practices away from a sole focus on classification and diagnosis, and towards a focus on prevention and intervention (Ysseldyke, 2006). Increasingly, school psychologists are now trained to view themselves as data-oriented problem solvers (Merrell, 2008a). However, these reforms are still in progress, and traditional approaches to assessment are still in place that do not share this emphasis on prevention, intervention, and problem-solving.

Current Reforms in School-Based Assessment

When special education became a part of federal law in the 1970s, the role of the school psychologist became crystallized and married to the special education eligibility determination process. Under this new legal and procedural system, the purpose of a school psychologist's assessment was to classify students into eligible and non-eligible groups. The primary purpose of social-emotional and behavioral assessment was to determine whether or not a student met the criteria for an emotional and behavioral disorder (EBD), and was thereby eligible for special education. For a suspected learning disability, school psychologists' assessments were oriented around the determination of whether or not there existed a discrepancy between the student's IQ scores and academic achievement test scores. If eligibility is determined based on the assessment results,

placement in a special education setting is the final step in this process. While a school psychologist may make recommendations for treatment and intervention, this was not traditionally the focus of the assessment paradigm (Reschly, 1988).

This disconnect between assessment and intervention has been a key concern targeted for reform in recent years. School psychologists today are being trained under an evolving model that places a stronger focus on intervention than ever before. The most recent edition of *School Psychology: A Blueprint for Training and Practice III* from the National Association of School Psychologists (NASP; Ysseldyke, et al., 2006) reflects many of the reforms that have taken place in the field in the past decade or so. In the new paradigm of school psychology, all assessment activities should be linked to prevention and intervention. School psychologists, along with educators, are responsible for helping to improve academic and behavioral outcomes for students. Assessment methods are shifting to reflect a new emphasis on what has been termed "treatment validity" (Fuchs & Fuchs, 1998). When assessment is geared around treatment validity and intervention planning, we can say that the goal is assessment *for* learning, rather than the assessment *of* learning. This leads us to the difference between formative and summative assessment.

What is Formative Assessment?

Rather than describing specific methods or tools, the terms formative and summative refer to two different purposes of assessment. The purpose of formative assessment is to plan a course of instruction or intervention based on the current level of performance of a student or group of students. Measurement is used before the intervention begins, and/or throughout the intervention, to monitor students' progress

towards learning or behavioral targets (Deno, 2002; Thorndike, 2005). The purpose of summative assessment, on the other hand, is to determine the level of skill, achievement, or behavior that has been reached after instruction or intervention.

When prevention is a primary goal, formative assessment must be a primary assessment strategy. In both academic and behavioral areas, intervention decisions must be made early and often when students are struggling. While there are fewer models for formative assessment of behavioral progress, academic assessment methods have been developed more thoroughly. A review of the literature on academic formative assessment will provide us with useful and effective models that could be adapted for behavioral application.

Academic Formative Assessment

Curriculum-Based Measurement

Formative assessment has become increasingly acceptable and useful for teachers in the academic sphere of assessment and intervention. Since the 1970s, curriculum-based measurement (CBM) has been used as a formative assessment tool for the basic academic skills of oral reading, spelling, writing, and math computation Deno (2002). The original focus of CBM as applied to formative assessment was in special education. Educators were in need of progress monitoring tools for students who were working towards basic academic skill goals as part of an Individualized Education Program (IEP). The early work of Deno (1985) and colleagues (Shinn, 1989) sought to develop assessments that met certain criteria for monitoring student progress. The measures were designed to have: (1) links to the curriculum, (2) brief administration time, (3) multiple parallel forms, (4) low production cost, and (5) sensitivity to academic skill improvement

over time (Shinn, 1989). Other key characteristics of CBM include the use of active, production-type responses from students, such as oral reading or written text. This illustrates the conceptual and procedural link between CBM and behavioral assessment. In many ways, CBM is a direct measurement of academic behavior, in the natural context of the classroom. Some behavioral assessment methods reviewed in a later section will be quite similar in nature and will meet many of the above criteria for effective progress monitoring tools.

A more recent development in academic formative assessment is the Dynamic Indicators of Basic Early Literacy Skills (DIBELS; Kaminski & Good, 1998). Like the original CBM measures described above, the DIBELS measure production-type responses with early literacy skills. DIBELS also meets the criteria for curriculum relevance, brevity, parallel forms, low cost, and sensitivity to change over time. DIBELS, CBM, and other measures that are well-suited for formative assessment in academic skills are increasingly finding favor in the development of response-to-intervention (RTI) service delivery models (Shapiro, 2009). Their usefulness as progress monitoring tools in the growing RTI approach has brought CBM measures further into the realms of general education and prevention than ever before. Measures of early academic skills such as DIBELS are uniquely geared towards prevention, focusing on screening as a formative assessment method and a strategy for finding at-risk students in need of support as early as Kindergarten (Kaminski & Good, 1998).

GOM and SSMM

Curriculum-based measurement is an example of General Outcome Measurement (GOM), which will be distinguished as a different, albeit related method from Specific

Subskill Mastery Measurement (SSMM). Fuchs and Deno (1991) outline the two methods of assessment and make a case for the use of GOMs when there is a need for measurement of progress towards long-term goals and global outcomes, and a need for standardized measurement that produces critical indicators of performance.

According to Fuchs and Deno (1991), SSMM was born out of the behaviorally-oriented measurement systems of the 1960s. SSMM, while instructionally relevant, focuses on formatively assessing the mastery of individual, discrete skills. Like a CBM, SSMM probes would be brief and easy to use in a classroom. However, the scope of what the probe measures is narrow and specific, focusing on a skill that is being taught. When a skill (such as decoding vowel pairs) is mastered, the next skill is measured and taught with a new SSMM test. While this type of formative assessment is instructionally relevant in the short run, it is suggested that there may be problems associated with the lack of measurement of long-term goals and global outcomes. GOM was introduced in response to this concern with SSMM. GOM was developed as a formative assessment method that would, like SSMM, measure change over time on important, instructionally relevant skills. However two key features distinguish GOM as a different approach than SSMM. First, GOMs seek to measure long-term goals and global outcomes. Instead of measuring a student's skills only with the academic skills being taught at present (decoding vowel pairs in the SSMM example), a GOM may sample word reading and decoding skills from across the year-long curriculum. For example, students may be given a list of words to decode with vowel pairs, r-controlled vowel, short, and long vowels. For second or third grades, GOM may seek to measure their ability to read sentences and paragraphs using the subskills of word decoding. In this way, repeated use

of a GOM as a formative assessment measure would provide a consistent indicator of the student's progress towards global, long-term goals. Fuchs and Deno (1991) suggest that GOMs can provide a piece of relevant instructional planning information that SSMM cannot.

The second characteristic differentiating GOM from SSMM is the standardization of equivalent, parallel forms that can be used for repeated formative assessment of the aforementioned global outcomes. The repeated use of a standard measure avoids the measurement shifts that come with SSMM, which must frequently change its items and scope to match the current specific skill being taught (Fuchs & Deno, 1991). Much of the research that has been conducted in the development and research of CBM and DIBELS has addressed the importance of equivalent parallel forms. Research has focused on the psychometric properties of GOMs, seeking to achieve the goal of showing growth over time with a minimum of erroneous measurement shifts (Fuchs, Fuchs, Hamlett, Walz, & Germann, 1993; Hintze & Shapiro, 1997; Hintze, Daly, & Shapiro, 1998; Hintze, Shapiro, & Lutz, 1994).

The link between these academic formative assessments and intervention planning is strong, because they are generated with the curriculum and the classroom in mind. More importantly, empirical research has directly demonstrated the treatment utility of CBM measures and their ability to improve educational outcomes for students (Fuchs, 1989; Fuchs & Fuchs, 1986, 1998). While researchers continue to calibrate and improve the technical adequacy and treatment validity of these academic measures, there exists a strong base of converging evidence that they are effective and useful. Less definitive is the research and evidence surrounding the use of formative assessment

measures for behavior. More research is needed that seeks to accomplish some of the goals reached through the lines of research described above in the area of academic formative assessment.

Behavioral Assessment Methods

Merrell (2008a) summarizes the methods that are most commonly used by school psychologists when conducting a comprehensive, broad-band assessment of a student's behavior. It is recommended that a comprehensive assessment should be multimethod, multisource, and multisetting in scope. This review, however, will focus on the setting of the classroom, and the teacher as the source of information. Some of the most common behavioral assessment methods will be reviewed. Methods will be highlighted that are well-suited for the formative assessment of positive behaviors. Empirical research will be reviewed that provides guidance for researchers and practitioners who seek reliable and valid methods for formative assessment purposes. Before outlining these specific methods, a brief discussion of theoretical issues in traditional and behavioral assessment will be introduced.

Behavioral vs. Traditional Assessment

In an article by Goldfried and Kent (1972), differences are outlined between behavioral and traditional personality assessment paradigms. A key feature of traditional personality assessment is the attempt to measure underlying, consistent personality traits that are believed to be stable characteristics of individual persons. In this perspective, a person's behavior is expected to be consistent and stable, shaped by underlying personality traits, regardless of contextual and situational variables. Behavioral assessment, on the other hand, seeks to measure behavior in context, with the recognition

that environmental variables play an important role in shaping behavior. Thus, traditional assessment places more emphasis on nomothetic comparisons between students (inter-individual), while behavioral assessment emphasizes idiographic comparisons of a student's current performance with their own past and future performance (intra-individual). Traditional assessment is also more highly inferential than behavioral assessment.

The three aspects of traditional and behavioral assessment that may be most relevant for the purposes of this review are the purpose, the directness and the timing of the assessment. Regarding purpose, it is suggested that traditional personality assessment is oriented to the diagnosis and classification of students, whereas behavioral intervention is more focused on describing the target behaviors and maintaining conditions, in order to plan for intervention. Regarding directness, the methods associated most closely with traditional assessment are indirect, such as informant reports and self reports including interviews and rating scales. Behavioral assessment methods are more likely to be direct, such as direct observations of a student's behavior in the natural context. Regarding timing, traditional assessment is typically conducted pre-intervention, for diagnostic purposes, and sometimes post-intervention. Behavioral assessment is more likely to be ongoing and use repeated measurement throughout the course of an intervention. (Goldfried & Kent, 1972).

To be certain, important changes in the dominant paradigms of school-based assessment have occurred since the era during which Goldfried and Kent wrote the aforementioned article. The use of behavioral assessment has been codified into special education procedures with the mandate for FBA and PBIS in law (IDEA). In a

comprehensive assessment of a student's behavior that might be conducted by a contemporary school psychologist, the use of both indirect and direct assessment methods would always be used. A combination of the above perspectives and methods is most common in the present day (Merrell, 2008a). However, the theoretical disagreements mentioned above with regard to etiology and inference are still not resolved in our field.

For this review, the focus will be on assessment methods which are most suitable for the formative assessment of positive behavior. Rating scales, systematic direct observation, and direct behavior ratings will be reviewed from a behavioral assessment perspective.

Rating Scales

Behavior rating scales are a prominent source of information used by school psychologists in conducting comprehensive evaluations (Merrell, 2008a). With respect to the above discussion of traditional versus behavioral assessment, rating scales have most often been developed with a traditional perspective, following the assumption that parents and teachers will provide ratings that represent stable "traits" in a child's personality. However, the information gathered from rating scales may be used by psychologists within a more behaviorally oriented framework. Rating scales can be used to estimate a student's behavior within a certain context and plan for intervention around that pattern of environmental and behavioral variables (Chafouleas, Riley-Tillman, & Sugai, 2007).

Most rating scales also focus on negative problem behaviors, symptoms, syndromes, and pathologies. The subscales and summary scores of most rating scales are geared around diagnosing a disorder or representing a syndrome. Some positively worded items and subscales are present in published rating scales, and these items will be our

focus for the purposes of positive behavioral assessment. Another important characteristic of most published rating scales is their level of usefulness for repeated measurement. The majority of scales are geared around a single administration, for the purposes of a comprehensive assessment by a psychologist. Few published scales are designed specifically for repeated measurement or formative assessment. Some publishers do report the validity of their scales for repeated measurement, and these will be presented below as well.

Rating scales are one type of informant report, meaning that a rater close to the target student (parent, teacher, therapist, or other service provider) completes the rating scale and returns it to a school psychologist who summarizes the ratings. Students who are old enough may sometimes complete a self-rating. For our purposes, we are interested in teacher-completed rating scales. Rating scales that are meant to assess a student's overall functioning are referred to as broad-band scales, while other scales that are meant to assess a more specific area of social, emotional, or behavioral functioning are referred to as narrow-band scales. Both types of rating scales will be reviewed and examples will be provided.

Broad-band Rating Scales

Two popular broad-band teacher-completed rating scales include the Achenbach System of Empirically Based Assessment (ASEBA; Achenbach & Rescorla, 2001) and the Behavior Assessment Scale for Children, Second Edition (BASC-2; Reynolds & Kamphaus 2004). The BASC-2 provides a general level of adaptive and maladaptive functioning, and is not meant for frequent, repeated use (Riley-Tillman, Chafouleas, & Briesch 2007; Salvia & Ysseldyke, 2001). Most of the scales that the BASC-2 yields

when scored are negative and symptom-oriented in nature (e.g., Hyperactivity, Depression, Aggression). However, the BASC-2 does yield three scale scores that are positive (Adaptability, Functional Communication, and Social Skills) and are based on sets of 6 to 9 positively worded items (e.g., “Encourages others to do their best”).

The ASEBA does purport to be sensitive enough for repeated administrations over time, in order to detect changes in behavior as a response to intervention, for example (Edelbrock & Achenbach, 1984; Salvia & Ysseldyke, 2001). The scales given by the Teacher Report Form (TRF) of the ASEBA when scored are either syndromal and negative (e.g., Social Problems, Attention Problems) or based on DSM diagnoses (e.g., AD/HD, Oppositional Defiant Disorder). All of these scales are based on negatively worded items, such as “Disrupts class discipline” and “Destroys his/her own things”. There is one brief positively presented scale on the TRF, called the Adaptive Functioning Scale, which is based on just 4 positively worded questions.

Narrow-band Rating Scales

The Conners Rating Scale-Revised (Conners, 1997), is one example of a narrow-band rating scale that specifically seeks to assess the presence of problem behaviors as symptoms of ADHD. The Conners has been used extensively as a pre- and post-intervention measure of the effects of medication on ADHD symptoms (McMahon, Wells, & Kotler, 2006). Frequent, multiple administrations have been researched, with results indicating that scores seem to drift upward over time, indicating higher levels of symptoms over time that probably do not exist; however, teachers’ rank ordering of students remained consistent (Diamond & Deane, 1990).

A narrow-band scale that does have a focus on positive behaviors is the Social Skills Improvement System (SSIS; Gresham & Elliott, 2008). While there is a Problem Behaviors scale on the SSIS, the primary focus of the assessment is on the existence of positive behaviors, which are summarized by the Social Skills subscales (Communication, Cooperation, Assertion, Responsibility, Empathy, Engagement, and Self-Control). The items that make up these subscales are positively worded; for example, “Shows concern for others” and “Follows your directions”. The SSIS is also linked to an intervention program and the rating scales are meant to be used as a repeated measurement of social skills growth over time.

The School Social Behavior Scales, Second Edition (SSBS-2; Merrell, 2002) is a similar assessment tool to the SSIS, with both a positive scale (Social Competence) and a negative scale (Antisocial Behavior). Under the Social Competence scale are three subscales: Interpersonal Skills, Self-Management Skills, and Academic Skills, each of which is based on 8-14 positively worded items such as “Will give in or compromise with peers when appropriate” and “Makes appropriate transitions between different activities”. Research was not found that investigated the use of the SSBS as a repeated measure of change over time.

The Social-Emotional Assets and Resiliency Scales (SEARS; Merrell, 2008b) is a set of rating scales that is currently in development at the University of Oregon. While subscales have not yet been identified, 54 positively worded items are included in the pilot version of the teacher scale. Examples include “Works well with other students on group projects” and “Stays in control when he/she gets angry”.

Psychometric Properties of Rating Scales

Published rating scales such as those reviewed here are generally found to demonstrate adequate levels of reliability (test-retest, internal consistency, and interrater reliability being the most common), particularly when compared with assessment methods such as unstructured interviews and projective-expressive techniques (Merrell, 2008a). This is most likely due to the scale construction process that is followed by most developers, in which multiple quantitative analyses are used to produce a reliable end result (Gable & Wolf, 1993).

Systematic Direct Observation

One of the most common behavioral assessment methods is systematic direct observation (SDO), which actually includes several methods of observing student behavior. Volpe, DiPerna, Hintze, and Shapiro (2005) outline some of the published and established observation codes, and their psychometric properties. These SDO assessment tools use both positively and negatively worded target behaviors. As a method, SDO is not inherently geared towards a focus on positive or negative behaviors. The Behavioral Observation of Students in School (BOSS; Shapiro, 2004), for example, includes target behaviors such as Active and Passive Engaged Time, as well as Off-Task Passive, Motor, and Verbal.

The psychometric properties of behavioral assessment methods, particularly systematic direct observation, have been a topic of recent research in school psychology (Clark, 2008; Hintze & Matthews, 2004). The debate between traditional and behavioral approaches is discussed with respect to SDO in particular. According to Hintze (2005), some behaviorists might argue that, because behavioral assessment methods are oriented

to idiographic, context-specific measurement, we should not apply the same standards for psychometric accuracy (i.e., reliability and validity) that are applied to traditional tests and measures meant for nomothetic comparisons. However, Cone (1977, 1978) argues that the measurement methods used in behavioral assessment, e.g., systematic direct observation, should have these psychometric standards applied to them, because they are measurement methods, regardless of the theoretical and conceptual differences that surround these issues. Generalizability theory (Cronbach, Gleser, Nanda, & Rajaratnam, 1972) was proposed as a suitable alternative to classical test theory in assessing the psychometric properties of behavioral assessment methods. Since that time, only a few studies have used generalizability theory in this way (Clark, 2008; Hintze & Matthews, 2004).

The Behavioral Assessment Grid (BAG)

Cone's (1978) Behavioral Assessment Grid (BAG) is illustrated as a three-dimensional cube representing three aspects of the behavioral assessment process: the content measured, the methods used, and the types of generalizability (reliability or validity) being established. Six universes of generalization are defined along this third axis: (1) scorer, (2) item, (3) time, (4) setting, (5) method, and (6) dimension. Each of these may be considered as generalizability theory's answer to one particular aspect of traditional concepts of reliability and validity (Cone, 1977). Table 1 illustrates these corresponding terms.

Table 1

Reliability and Validity as Determined in Generalizability Theory

Universes of Generalization	Types of Reliability and Validity
scorer generalizability	interobserver agreement
item generalizability	internal consistency; construct validity
time generalizability	test-retest reliability
method generalizability	convergent validity
setting generalizability	criterion-related validity
dimension generalizability	discriminant validity

Generalizability of Systematic Direct Observation

Hintze and Matthews (2004) examined the generalizability and dependability of systematic direct observation (SDO) across time and setting. Momentary time sampling was studied, using 15-second intervals and 15-minute long observations to measure on task/off task behavior. Observations were conducted twice a day for 10 consecutive school days. The results of this study showed that the SDO data yielded generalizability coefficients of G=.62 (absolute, for intra-individual comparisons) and G=.63 (relative, for inter-individual comparisons. These were considered to be low levels of reliability for the amount of time and effort needed to collect the measurement data, and in consideration of the fact that many school psychologists would conduct only one SDO session as part of a typical comprehensive behavioral assessment. Further analysis by way of a decision study showed that four observations per day for 20 days may be necessary before the SDO data would achieve an acceptable level of reliability (G=.83).

The Hintze and Matthews (2004) results were only applicable to the measurement of on task/off task behavior, and the target behavior was not operationally defined. Clark (2008) expanded on this work by using a more explicit definition of the behavior in her study. This study also examined the generalizability of SDO, but instead of selecting time of day and setting as the facets of interest, Clark (2008) studied the variability that would be attributable to the number of items (15 second time intervals) in each observation, holding scorer, time, setting, method, and dimension constant. With n=102 second grade students, and 60 consecutive 15 second time intervals recorded during Math instruction, 88% of the variability was found to be attributable to measurement error, while only 12% was caused by person variability. Number of items was not a significant source of variability. While the generalizability coefficients yielded by the study (G=.88) showed evidence of reliable data, the high amount of unexplained variability indicated that these SDO data should not be viewed as generalizable or dependable in the final analysis of their validity (Clark, 2008).

The findings of Hintze and Matthews (2004) and Clark (2008) are relevant to the present study, because SDO is often considered to be a reliable and dependable option for the formative assessment of behavior in schools. However, the empirical research described here indicates that caution is warranted when interpreting SDO data for decision-making purposes. Further research on the generalizability of SDO is also desired to investigate other target behaviors and other facets that may contribute to the identified patterns of variability.

Direct Behavior Ratings (DBRs)

Another method of school-based behavioral assessment that can be used for formative assessment with positive behaviors is the Direct Behavior Rating (DBR). This is a term proposed by researchers (Chafouleas, Christ, Riley-Tillman, Briesch, & Chanese, 2007) to describe a class of tools that are often used by classroom teachers to monitor student behavior, give feedback, and/or organize positive reinforcement plans. Teachers typically use a DBR to rate a student's behavior directly after a certain time period (an hour long academic period, for example), to which the rating applies. In this way, a DBR lies in between a rating scale and a behavioral observation in its level of directness (Chafouleas et al., 2007).

The Daily Progress Reports (DPRs) described earlier as part of Check In/Check Out in the Behavior Education Program (Crone et al., 2004) are one example of a DBR tool that is being used for the formative assessment of positive behaviors. In addition to Daily Progress Report and Direct Behavior Rating, similar measurement tools have been termed Home Notes (Blechman, Taylor, & Schrader, 1981), Daily Report Cards (Drew, Evans, Bostow, Geiger, & Drash, 1982; Pelham, 1993; Schumaker, Hovell, & Sherman, 1977), Performance-based Behavioral Recording (Steege, Davin, & Hathaway, 2001), and Daily Behavior Report Cards (Chafouleas, McDougal, Riley-Tillman, Panahon, & Hilt, 2005; Chafouleas, Riley-Tillman, & MacDougal, 2002; Chafouleas, Riley-Tillman, & Sassu, 2006; Riley-Tillman et al, 2007; Wright, 2002). Technology has been used in order to record these ratings as shown in the SWIS tool, and additionally, online resources from www.interventioncentral.org are available for creating DBRs and downloading spreadsheet templates to monitor a student's progress (Wright, 2002). Most

of this research has focused on the effectiveness of DBRs when used as a positive behavioral intervention, as described in the CICO/BEP intervention. The converging evidence from this area of research indicates that when students are given frequent behavioral feedback and positive reinforcement by their teachers using DBRs, there is an increase in their use of positive behaviors.

Psychometric Properties of DBR Data

Recently, it has been suggested that DBRs have the potential to provide data for school psychologists and educators who wish to use them as assessment tools (Chafouleas et al., 2002). Consequently, researchers have begun to examine the psychometric properties of DBRs. One of the first studies of this kind (Chafouleas et al., 2005) found a moderate association between the DBR ratings of teachers and SDO measurement by an outside observer. This study used one target behavior (off-task behavior) and compared the results of the two methods of measurement. The DBR format used in this study included a 0-5 scale with the following descriptors:

Figure *4.* DBR scale (Chafouleas et al., 2005.)

Off-Task: Student Is Not Oriented Toward the Teacher Nor Actively Engaged in Instructional Activities.

0	No off-task behavior observed
1	Student engaged in off-task behavior *occasionally* during (1–20% of) the period
2	Student engaged in off-task behavior during *some* (21–40%) of the period
3	Student engaged in off-task behavior during *approximately half* (41–60%) of the period
4	Student engaged in off-task behavior during *most* (61–80%) of the period
5	Student engaged in off-task behavior during the *majority* (81–100%) of the period

In addition to DBR ratings, SDO was conducted using the same target behavior. SDO results were then converted into 0-5 DBR ratings in order to calculate agreement

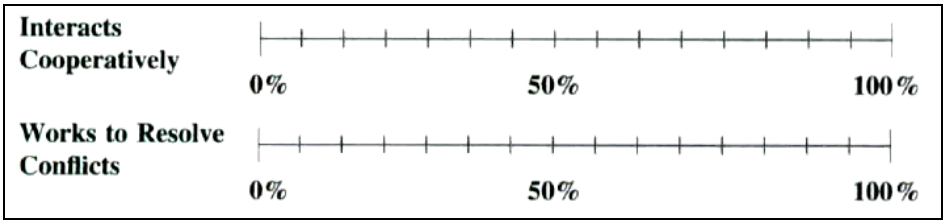
between the methods. Using this scale, and with this target behavior, a moderate association was found between DBR and SDO methods. Between 82 and 87% of the ratings were within a 1 point difference of each other across methods. Overall, between 23 and 45% of the variance was shared across methods.

A subsequent study (Chafouleas, Riley-Tillman, Sassu, LaFrance, & Patwa, 2007) was conducted using similar methods, but measuring on-task instead of off-task behavior. In this study, there were also two phases: baseline and intervention, which involved a positive behavioral intervention being linked to the students' performance as rated by the DBR. Three raters were used: one teacher using DBR, an observer using DBR, and an observer using SDO. Agreement between the DBR results between the teacher and the observer was determined by comparing the effect sizes that would be calculated from baseline to intervention phases for the three students in the study. Effect sizes based on the DBR ratings by the two raters were similar for all students, (differences were .01, .10, and .15), indicating that similar decisions might be made based on either data. The effect size due to SDO, however, was not similar to the DBR ratings (differences ranging from .28 to .54) and would likely result in different decisions in practice.

Further research is still needed to determine under what conditions, if any, DBR data might be reliable and valid. As was reviewed with SDO studies, generalizability theory has been applied in DBR studies to learn more about the sources of variability in the data. Chafouleas et al., (2007) used generalizability theory to investigate how many repeated DBR ratings might be required to produce dependable results using DBRs. The researchers also took a new direction in this study by measuring social behaviors, rather than on off task behavior, and focusing on preschoolers. The target behaviors (Works to

Resolve Conflicts and Interacts Cooperatively) were defined and behavioral examples and non-examples were given. The DBR ratings were conducted on a different scale than in previous studies. Raters were asked to make a mark anywhere on a continuous line which had 15 intervals, but only descriptors anchoring the points 0%, 50%, and 100%. A percentage was drawn from these ratings by measuring the distance from zero in millimeters that the rater marked with an X.

Figure 5. DBR using a continuous line scaling method (Chafouleas et al., 2007).



This method of scaling was chosen to avoid any psychometric problems that might be associated with the use of an ordinal scale. Four teachers completed DBR ratings of 15 students at the end of each 30-minute observation period, twice a day, for 13 days. Thus, generalizability studies were able to estimate the variance associated with person, rater, day, setting, and the interactions of those facets, for each of the two target behaviors. In their full-scale analysis, a large effect was found attributable to rater variability (41% and 20% of the variance on Works to Resolve Conflicts and Interacts Cooperatively). In looking at the four raters individually, different profiles emerged, with two of the raters appearing to use overall higher ratings, and two of the raters tending to use overall lower ratings. The amounts of variability associated with Day and Setting facets were small (below 8%), as were the many interactions that were estimated (e.g., Day x Setting, Person x Rater x Day). Dependability studies showed a projection that it would take 7 to

10 DBR ratings before these data would yield a reliable set of information for screening or other decision making purposes, with a reliability level equal to or greater than .70 (7 ratings) and .90 (10 ratings).

This study (Chafouleas et al., 2007) was reviewed in detail, in order to provide background information about the use of generalizability theory in estimating the psychometric properties of a formative assessment tool for positive behaviors. The results are of interest because they indicate the possibility of gathering dependable data from this assessment method. Strengths include the fact that preschool teachers completed the ratings while performing their other duties during a typical day. The measurement of positive behaviors and the feasibility of the method are also strengths. However, more research is needed to determine how generalizable and dependable DBR ratings are when different scaling methods are used. The use of a 105 mm continuous line scale, with only 3 anchors (0%, 50%, and 100%) may have been suitable for a research program, but may be less appropriate for practitioners who wish to use the data. Typical DBRs used in schools are more likely to be rated on Likert scales of 0-2, 1-3, or 1-5. It remains to be seen whether or not the findings of these generalizability and dependability studies would hold true for the DBRs most frequently used in the field.

Item wording was the target of investigation in another DBR study (Riley-Tillman, Chafouleas, Christ, Briesch, & LeBel, 2009). Two factors of item wording were studied: positive versus negative, and global versus specific. Two behaviors were rated using DBRs: Academic Engagement/Disengagement and Well-behaved/Disruptive. The raters in this study were 145 undergraduates who were presented with four 3-minute video clips of a second grade target student to observe. As in the previous study, raters

marked a continuous line at the point which they felt best represented the amount of behavior that was observed, with anchors at 0%, 50%, and 100%. The videos had also been observed and coded by graduate students using the Multi-Option Observation System for Experimental Studies (MOOSES; Tapp, 2004), which uses real-time coding in 1 second intervals to calculate a "true score" for percentage of each behavior in each clip. Agreement between DBR ratings and the true score was calculated to analyze the data for this study. For Academic Engagement, the most accurate ratings were those using a positive item wording, and a global definition of the behavior. For Well-behaved/Disruptive, the most accurate ratings were found with either positive or negative wordings, and a global definition of the behavior.

Summarizing the DBR Research

If DBR research continues along these lines, and provides more supportive evidence for the reliability and validity of DBRs, they may become a dependable tool for formative assessment purposes. In a nationwide study (Chafouleas et al., 2006) surveying teachers who use DBRs, 60% of teachers rated student behaviors at least once daily, but only 32% used the data from their DBRs to monitor behavior over time. There appears to be a great deal of data that is already being collected in schools that shows initial promise for formative assessment, if that data proves reliable, and if systems are developed to summarize the data in meaningful ways. In a book chapter that makes recommendations to practitioners using DBRs, Chafouleas et al., (2007) suggest that only assessment data from "systematic DBRs" should be treated as reliable sources of information. As Hintze and Matthews (2004) delimited systematic direct observation as a different method from other, less structured types of direct observation, the authors of the book chapter seek to

provide standards for what should constitute a "systematic DBR". The four criteria are as follows: (1) the behavior of interest is operationally defined, (2) observations conducted using standardized procedures, (3) DBR is used at a specific time and place and predetermined frequency, and (4) data are scored and summarized in a consistent manner.

The purpose of the present study will be discussed next, outlining the specific contributions that will be made to the research area of formative behavioral assessment.

Purpose of the Dissertation

The overall purpose of this dissertation was to begin development of a General Outcome Measure (GOM) for the formative assessment of positive classroom behaviors. The need for a GOM that can demonstrate progress towards important behavioral outcomes has been established. Likewise, the need for assessment tools that focus on positive behaviors has also been demonstrated. The desired final product of this research is an assessment tool that can be used by teachers for frequent progress monitoring of their students' use of positive behaviors.

However, before determining if an assessment tool will be appropriate for formative assessment purposes, the tool must be developed methodically and its psychometric properties must be understood. It is necessary to develop the pilot rating scale and conduct a single administration to a group of students, allowing analyses to be performed that will fine-tune the instrument before it is piloted again as a formative assessment tool, with repeated administrations over time.

Thus, the scope of this dissertation could not encapsulate the full process of scale development from start to finish, if the desired final outcome is an effective progress monitoring tool. Rather, the present study sought to begin the process of creating an

instrument using the first ten steps of Gable and Wolf's (1993) model as a guide (Table 2). This resource was used to guide the process of scale development for this dissertation. Based on the results of the present study, further iterations of the pilot scale may be studied and the remaining steps of scale development may be applied in future studies.

Table 2

Steps in Affective-Instrument Development (Gable & Wolf, 1993)

Step	Activity
1	Develop conceptual definitions
2	Develop operational definitions
3	Select a scaling technique
4	Conduct a judgmental review of items
5	Select a response format
6	Develop directions for responding
7	Prepare a draft of the instrument and gather preliminary pilot data
8	Prepare the final instrument
9	Gather final pilot data
10	Analyze final pilot data
11	Revise the instrument
12	Conduct a final pilot study
13	Produce the instrument
14	Conduct additional reliability and validity analyses
15	Prepare a test manual

As outlined in the literature review, many positively worded rating scale items have already been researched and utilized in existing rating scales. However, a more thorough investigation was warranted to determine which items are most representative of how teachers and school staff conceptualize "positive classroom behavior." Thus, one primary purpose of the dissertation was to collect empirical evidence from educators and

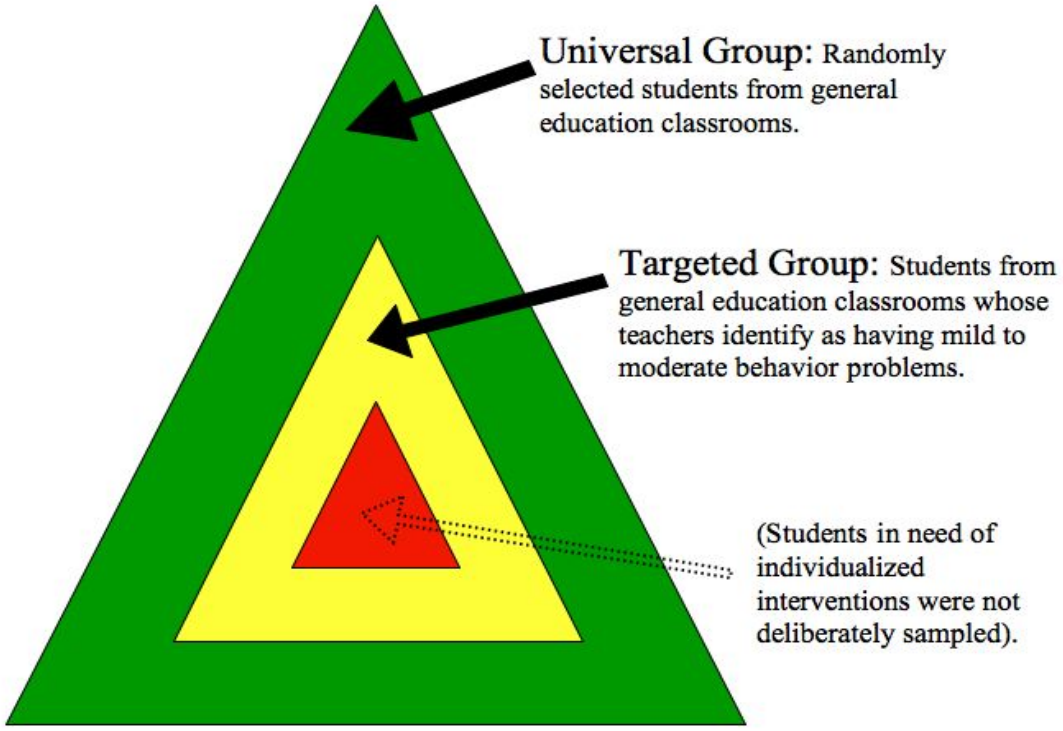
other school-based practitioners about their conceptual and operational definitions of the construct at hand. There is a large item pool in the existing literature which was narrowed down to a smaller number of selected items. The first phase of the dissertation accomplished the first four steps in the scale development model, resulting in a small item pool for the development of a new rating scale.

The second purpose of the dissertation was to conduct a pilot administration of the newly conducted rating scale and determine the psychometric properties of the data. This entailed following steps 5-10 of the Gable and Wolf (1993) model. The purposes of these analyses were to identify outlier items that may need to eliminated from the scale, to identify the reliability of the scale, and to investigate the factor structure of the rating scale data. A general outcome measure (GOM) typically seeks to measure a global, general construct like "positive classroom behavior." This raises the question of whether or not the rating scale data would be unidimensional or multidimensional in terms of its factor structure. In other words, do the ratings of the items tend to cluster together into one general factor, or do they tend to cluster into multiple, smaller factors? Exploratory factor analysis was used to determine whether responses to the rating scale yield a unidimensional or a multidimensional factor structure. Individual item loadings also provided meaningful information about the properties of the scale.

A final purpose of the dissertation was to examine the ratings of students from two different samples. It was important to determine if the rating scale will reflect the differences between these two groups of students: one group consisting of randomly selected students from general education classrooms, and a second group consisting of students in general education classrooms whose teachers identify as having mild to

moderate classroom behavior problems. These populations of students are often described with respect to the level of intervention they require within a 3-tiered model, namely the universal tier and the targeted tier (Figure 6). Thus, the two student populations being sampled and compared in this study were students who are adequately served by universal intervention and students who may be in need of targeted intervention.

Figure *6.* Universal and targeted groups sampled for pilot rating scale administration.



Research Questions

To achieve the aforementioned purposes, this dissertation sought to address the following research questions:

1. What positively worded rating scale items will teachers and other school staff identify as being most representative of their concept of "positive classroom behavior"?
    a. Which items will most teachers rate with the highest level of importance?
    b. Will teachers demonstrate significant consensus in their responses?
2. Using the newly formed pilot version of this scale, what do the results of a pilot study show in terms of factor structure and psychometric properties?
    a. Are there any outlier items associated with very high or low mean ratings, standard deviations, or item-total correlations?
    b. How strong is the internal-consistency reliability of the scale?
    c. Are there significant differences in the ratings of students from the randomly selected group versus the group of students identified as having mild to moderate behavior problems?
    d. Do the data have a unidimensional or multidimensional factor structure?
    e. What are the item loadings of the rating scale items?
3. What is the maximum number of rating scale items that teachers would be willing to complete for one or two students in their class, once or twice a week?

CHAPTER 2

METHODOLOGY

Setting and Participants

Sample Size

The participants for the present study (*n*=162) were teachers and other school staff members from several school districts in the northeast United States. The secondary participants were the target students assessed using the pilot rating scale (*n*=162). More than 300 teachers were provided with the opportunity to participate in the surveys, either using a paper survey format or an email link to the online survey. Voluntary participation at some schools resulted in a low response rate to the online surveys, whereas other schools had close to 100% response rates using both paper and online versions of the survey. Thus, the final number of participants yielded a smaller sample than was desired. Gable and Wolf (1993) recommend that instruments be piloted with a sample size of at least 6 times the number of items on the instrument, and at most 10 times the number of items. With a pool of 30 initial rating scale items, between 180 and 300 teacher respondents would be the target sample size range. However, Bryant and Yarnold (1995) also conducted research to estimate the effects of sample size on factor analytic results. Their results suggest that the minimum sample size for effective factor analysis is 5 times the number of items. Based on this lower recommendation, the present study would be just above the minimum sample size of 150.

Recruitment Methods

A sample of teachers and other school staff members was recruited from public elementary, middle, and K-8 schools in the Northeast US. School districts were invited to

participate through principals, special education administrators, and other contact persons at the target districts or schools. Contact persons were provided with a summary of the research proposal, a sample of the teacher survey, and a written statement of informed consent, privacy, and confidentiality. School districts were recruited and invited to participate with efforts being made to obtain a sample that is diverse with respect to student variables such as race/ethnicity, socioeconomic status, and urban/rural/suburban areas. Districts were contacted through professional email lists, professional organizations, and the professional contacts of the primary researcher. Sponsorship for the study was also provided by Wediko Children's Services, a nonprofit organization based in Boston, MA that provides clinical, educational, and assessment services to schools and families. Wediko was also the internship placement of the primary researcher during the data collection phase of the study. Several school districts whose students receive services through the Wediko agency were contacted with a research invitation and a letter explaining that the study would be used for a dissertation in school psychology being completed by a doctoral intern working with the agency.

Incentives for Participation

School administrators, district-level research offices, and survey participants were informed of two incentives for participation. School districts and school buildings whose staff members participated in significant numbers were offered the results of the teacher survey individually prepared based on their data alone. Schools who are interested in collecting data to plan or review their schoolwide positive behavior support systems may find the results of this survey helpful. They would receive a short summary of the positive target behaviors which the faculty of their school consider to be the most

important behaviors. Participating schools would also receive a copy of the full results and the pilot rating scale at the end of the study. Individual participants were also provided with an incentive to participate. Participants who completed both phases of data collection would have their email addresses entered into a raffle to win a gift card to Border's bookstore worth $25, $75, or $100.

Teacher Respondents

Teachers and other school staff working with students in grades Kindergarten to eighth grade were asked to participate in the study by completing surveys. Classroom teachers were the primary target participants of the study, however all other school staff members were invited to participate as well, including paraprofessionals, special educators, related service providers, and administrators. This was done in order to gather thorough empirical data about how teachers and other school staff would perceive and rate positive student classroom behaviors. In planning for the pilot scale administration, this teacher sample also allowed for a representative sample of student ratees from general education classrooms in grades Kindergarten to 8.

Target Students

Students were sampled from two populations, forming two groups of ratees, the universal group and the targeted group. The first group, which may be referred to as the universal group, was randomly sampled from general education classrooms. A second group, which may be referred to as the targeted group, was sampled using a prescribed teacher nomination procedure (described fully in a later section). Students were only rated in the second phase of data collection, whereas the first teacher survey was only concerned with teachers' attitudes and perspectives about classroom behavior. These two

groups were sampled in order to evaluate the research questions and determine how the pilot rating scale would function when different types of students were rated. The potential use of the finished scale as a screening or progress monitoring tool depends on the exploration of these two groups during scale development. However, students with more serious behavior problems, who are in need of individualized intervention, would typically require more comprehensive and individualized assessment tools. Thus, the study does not include a sample from this population of students as part of the comparison.

Procedure

Item Pool Development

The first phase of this dissertation consisted of compiling rating scale items drawn from existing, published rating scales. A large preliminary item pool was developed, with efforts being made to include rating scale items that reflect social-emotional, social skill, and behavioral approaches to assessment. The initial pool consisted of 173 positively worded rating scale items. Table 3 shows the sources of the rating scale items.

Items were then eliminated from the original pool for several possible reasons. First, 46 duplicate or near duplicate items were identified and eliminated. Three items were eliminated because they were irrelevant to the construct of positive classroom behavior or to the school setting. There were nine items which required the rater to make high-level inferences or indirect judgments of the target students and were therefore eliminated. Next, 22 items were eliminated based on the fact that they were too vague or potentially confusing to the rater. This left 93 items to be included in the item pool. Items were then revised in order to create consistent language, pronouns, and item formatting.

Thirty-nine items were reworded in some way, leaving 54 items unchanged. These 93 items were then prepared for judicial review by teachers and other school staff members.

Table 3

Sources of Rating Scale Items Used in Preliminary Item Pool

Original Source	# items
The Social-Emotional Assets and Resiliency Scales (SEARS; Merrell, 2008b)	54
Skills Improvement System (SSIS; Gresham & Elliott, 2008)	43
Behavior Assessment Scale for Children, Second Edition (BASC-2; Reynolds & Kamphaus 2004), Teacher Rating Scale for Children (TRS-C), ages 6-11	40
School Social Behavior Scales, Second Edition (SSBS-2; Merrell, 2002)	32
Achenbach System of Empirically Based Assessment (ASEBA; Achenbach & Rescorla, 2001), Teacher Report Form (TRF), ages 6-18	4

Teacher Survey: Judicial Review of Items

The goal of the first phase of data collection was to determine which items are most representative of the concept of "positive classroom behavior", from the perspective of classroom teachers. Teachers were asked to rate the importance of each of the 93 rating scale items according to how representative the item is of their concept of "positive classroom behavior." The introduction to the survey included a statement of the purpose of the study, the time commitment for participants, and a statement about voluntary participation as required by the institutional review board (see Appendix A for sample survey). Six demographic questions followed, in which participants were asked to describe their role in the school, grade levels taught, levels of education and experience, school district and school building.

The instructions were then given for teachers to rate importance of the 93 rating scale items. The instructions were stated as follows:

> Please read each behavioral item and think about how important the item is to your concept of 'positive classroom behavior.' Your responses will help to decide which items should go on the new rating scale. Items that you rate as more important will be more likely to be included on the pilot rating scale. Items you rate as less important will be more likely to be eliminated.

For this survey, a 5-point Likert scale measuring the respondent's opinion about the importance of each item was used, selected from Gable and Wolf (1993). The chosen Likert scale did not include numerical descriptors, but listed five options from left to right, reading "Unimportant," "Of Little importance," "Moderately important," "Important," and "Very important." The rating scale items were presented in random order, subdivided into groups of fifteen in order to break up the survey among pages. The directions were repeated once in the middle of the survey as a reminder.

The survey was administered using the online survey tool SurveyMonkey, found at www.surveymonkey.com. SurveyMonkey is a web-based tool that allows a researcher to input questions of various types to create a survey. Likert-type questions can be designed with various scaling methods and response formats. Open-ended questions may also be created. The survey is then made available to respondents through an email link. Data are aggregated by the SurveyMonkey website and may be downloaded as an Excel spreadsheet or comma-separated value file for use with SPSS and other statistical programs.

Paper versions of the survey were also made available to schools or individuals who requested them. Responses to the first survey were collected between September 18th, 2009 and November 23rd, 2009. Results were then analyzed according to the data

analytic plan and used to develop the second survey, consisting of the pilot rating scale, which will be described below.

Professional Review of Pilot Rating Scale

Efforts were made to conduct an expert review of the pilot rating scale before administering it to students for the first time. This procedure is recommended (Gable & Wolf, 1993) in order to build the content validity of a pilot scale and fine-tune the selected items. The teacher survey provided information about how teachers would respond to the rating scale items, but it was still considered important to get the perspectives of experts in the field of positive behavior support, including researchers in special education and school psychology. Four individuals were contacted by email with a copy of the pilot scale and asked to provide feedback. The professionals who were contacted were researchers associated with university-based centers, school-based consulting groups, and state-wide centers for positive behavior support technical assistance. However, none of these contacts had responded as of the data analysis phase of this study. In the absence of their responses, and in order to gather some informal feedback before administering the pilot scale, several practicing school psychology interns, school psychologists, and special education teachers familiar with positive behavior support did agree to review the rating scale and provide feedback. No items were changed or deleted based on their reviews, but formatting changes to the scale were made.

Pilot Rating Scale Administration

The second phase of data was collected between December 14th, 2009 and January 8th, 2010. In this phase, teachers were asked to rate students using the newly

constructed pilot rating scale. This part of the study was also administered online using SurveyMonkey. When participants entered the survey program, they were provided with a similar introduction to the teacher survey, explaining the purpose of the study and providing a statement about voluntary participation. Participants were also informed that no teacher or student names or other identifying information would be requested as part of the study. Demographic information was collected about the teacher participant, and then each respondent was randomly assigned to "Group 1" (the universal group) or "Group 2" (the targeted group). The following page instructed the respondent on how to select a student to rate using the pilot rating scale. Student selection procedures for both groups are described below.

Universal Group Student Selection Procedure

Universal group teachers were assigned to rate students from the overall student population. A random student selection procedure was created using the available features in SurveyMonkey. Teachers were guided through a process of randomly selecting a student to rate according to the following steps. Teachers were asked to obtain a class list from the class group they work with at 10:30 A.M. on Mondays. Teachers who do not see a class group at that time were instructed to choose the group they see closest to that time. A specific time and day was chosen in order to narrow down the number of students each teacher would have to select from to just one class group. While elementary school teachers often teach the same group of children all day, middle school teachers are likely to see multiple groups throughout the day. This procedure also reduced the likelihood that two teachers in a school would select the same student to rate, which would contribute undesirable intercorrelation into the data set.

Teachers were then provided with a randomly generated number between 1 and 30. They were asked to reference their class list, alphabetized by last name, and select the student who falls at that place in the list. If the respondent was assigned a number higher than the number of students in the class, they were instructed to select the last student on the list.

For administrators and other support staff who do not work with individual classroom groups, a variation of this random selection procedure was given. They were asked to view a student roster for the whole school. Respondents were then provided with a random letter of the alphabet and asked to narrow down their selection to students whose last name begins with that letter. Then, they were given a randomly generated number and asked to count down their list to choose a student to rate.

Targeted Group Student Selection Procedure

Targeted group teachers were assigned to rate students with mild to moderate classroom behavior problems. In order to sample students from this specific population, a prescribed teacher nomination process was used to select the students. This procedure is a modification of part of the screening process used in the Systematic Screening for Behavior Disorders (SSBD; Walker & Severson, 1992). As in the universal group, teachers were asked to begin by obtaining an alphabetized class list from the class group they work with at 10:30 AM on Mondays. Teachers were then asked to write down on a piece of paper the names of five students in their class whom they would describe as having mild to moderate externalizing behavior problems. Externalizing behavior problems were defined for teachers using the definition provided in the SSBD:

> Externalizing behavior problems are defined as behavior problems directed outwardly by the student toward the social environment and usually involving

> behavioral excesses, for example: aggression, noncompliance, rule-breaking, hyperactivity, extreme distractibility, defying the teacher, not following school-imposed rules, having tantrums, stealing, etc.

Teachers were asked to rank order these five students from most serious (1) to least serious (5) behavior problems. Respondents were then randomly assigned to rate one of these five students using a feature of SurveyMonkey that would generate a random number between one and five. This procedure was created in order to obtain a random distribution of students at the first, second, third, fourth, and fifth positions on teachers' lists. This allowed for the sampling of students at each level of severity within the top five most concerning students of each class.

This ranking and random selection procedure was intended to generate a sample of students with mild to moderate behavior problems for the targeted group. If teachers were asked to simply choose one student from their class that fit the description of externalizing behavior problems, it would be likely to result in a sample of students with more serious behavior problems. These students would be more likely to require individualized assessment and intervention services, skewing the sample away from the targeted tier and more towards the individualized tier. The procedure used for the targeted group was intended to avoid this problem and include students with milder behavior problems into the sample.

As in the universal group, a variation of the sampling procedure was provided for administrators and other support staff in the school who could not select from a class group. These staff were allowed to create a rank-ordered list of five students who they encounter or work with on a regular basis and were randomly assigned to choose one of these five students.

Pilot Rating Scale Items

After a student had been selected for each participant to rate, respondents were asked to begin completing the pilot rating scale. Respondents were first asked to identify the target student's gender, grade level, and whether or not the student was categorized as general education, special education with IEP, or a student with a 504 plan. Directions were then given for rating the target student:

> Instructions: Please read the following list of behaviors and think about the student whose behavior you are rating. Based on the student's behavior over the past several months, mark a response for every item. You must answer every item, so give your best estimate if you are unsure about an item.

The 30 rating scale items were then presented, along with a 4-point Likert scale. Consistent with other published rating scales such as the BASC-2 and ASEBA, the levels of the Likert scale were presented without numerical descriptors, reading from left to right, "Almost Never," "Sometimes," "Often," and "Almost Always."

Feasibility Ratings and Teacher Feedback

At the end of the rating scale, respondents were asked three questions to help evaluate the feasibility and face validity of the pilot rating scale. First, teachers were asked whether or not it would be a reasonable time commitment for them to complete a rating scale like this one a weekly basis for one or two students with mild to moderate behavior problems. Teachers could respond yes or no regarding the feasibility of the time commitment. Then, teachers were asked to state the maximum number of rating scale items they would be willing to complete for 1-2 students on a weekly basis. This question was provided with the entry format of a numerical text box and no given range. Last, teachers were asked to add any qualitative comments they wished to make about this project in a text box.

Data Collection Materials

The initial materials that were obtained for this study were the published rating scales and pilot instruments that could be found in order to create the initial item pool. Rating scales were obtained through practicing school psychologists, school psychology training programs, conference presentations, and from the websites of the developers and publishers of the rating scales.

The first survey was administered in two formats. The online version of the survey was administered using SurveyMonkey (Figure 7). Schools or individuals who requested a paper version of the survey were provided with hard copies generated through SurveyMonkey. Data from these hard copy surveys were then entered into the SurveyMonkey website in order to aggregate the data into one database. The hard copy version of the first survey is found in Appendix A which includes all questions and responses that were included in the online version as well. Appendix A also includes the introductory statements of privacy, confidentiality, informed consent, and voluntary participation.

The second phase of data collection, consisting of the pilot rating scale administration, was administered exclusively online, again through the SurveyMonkey online tool (Figure 8). The capability of the online tool to provide random assignment of the participants to groups, as well as random assignment of numbers and letters for the selection of target students was a major factor in restricting the administration to the online format only. Appendix B provides the full format of the pilot rating scale, including the instructions and procedures for both groups to select a target student, the rating scale items, and the final teacher survey questions.

Figure *7.* Online survey format for teacher survey.

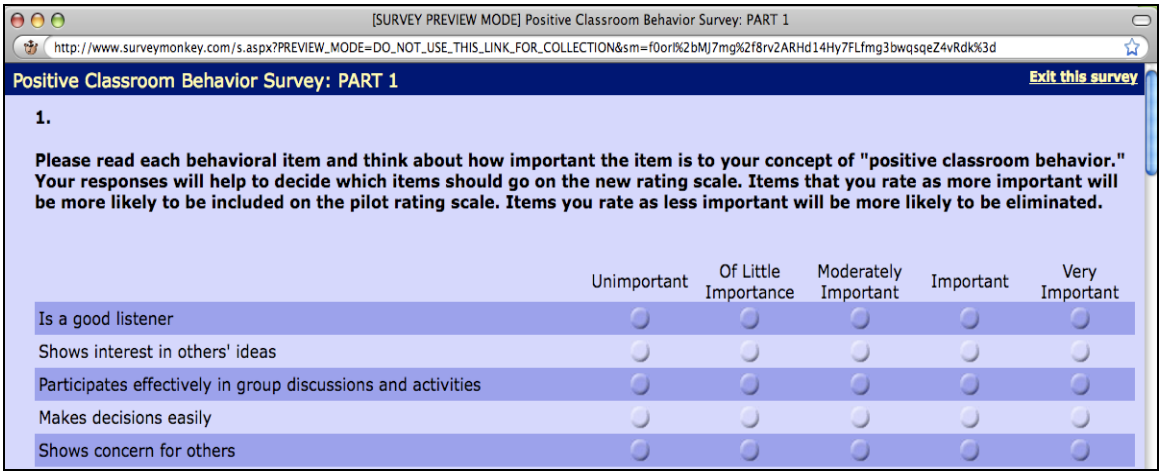
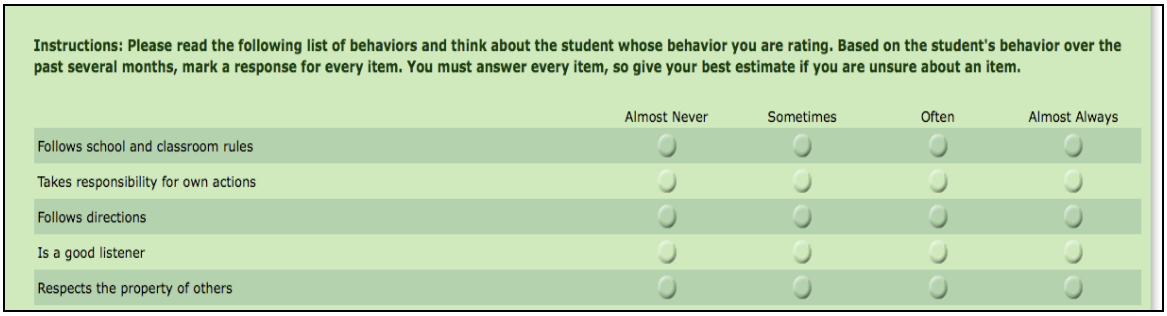


Figure *8.* Online format for pilot rating scale.



A membership with the SurveyMonkey online tool was purchased for the purposes of this study. Also, three gift cards worth $25, $75, and $100 were purchased from Borders bookstore for the raffle. Data analysis, which will be outlined below, required the use of several computer programs, including the SurveyMonkey online tool, Microsoft Excel, SPSS, LISREL, and R.

Data Analytic Plan

Ordinal or Interval Scale Data?

Likert-type scales were used in both phases of data collection, one with four levels and one with five (Figures 7 and 8). Before specifying the data analytic plan, it was necessary to make a decision about how to treat the data from these scales. Likert scales

can be created that are nominal, ordinal, interval, or ratio scales. Both scales used in this study were best described as falling somewhere between the ordinal and interval levels of measurement. There was no clear numerical distance specified between the levels of the scales, preventing them from being purely interval scales. However, the semantic wording of the levels was designed to create intervals as equal as possible, resulting in scales that were not purely ordinal in nature either. For the purposes of item-level analyses, an examination of the frequency ratios and mode scores in addition to mean, standard deviation, skewness, and kurtosis, suggested that parametric statistics could be appropriately used.

Teacher Survey Data Analysis

After the teacher survey data were collected, the results were analyzed in order to answer the first research question. This question asked, "What positively worded rating scale items will teachers and other school staff identify as being most representative of their concept of "positive classroom behavior"? The question also asked whether or not respondents would demonstrate significant consensus in their responses. Frequency distributions were calculated for each item to illustrate the number of participants who rated that item at each level of the 5-point Likert scale. Mean, standard deviation, mode, skewness, and kurtosis were also calculated to illustrate levels of consensus or dispersion of responses for each item.

The 93 items were sorted and analyzed to determine which items were consistently rated as most important by the respondents. The results of these analyses were then used in order to choose the items for the pilot rating scale. While a specific number of items was not targeted before the data collection phase began, it was

hypothesized that between 10 and 30 items would emerge as strong candidates for inclusion.

Pilot Rating Scale Reliability and Factor Analysis

In order to answer the second research question, item-level descriptive statistics (mean, standard deviation, skewness, and kurtosis) were calculated for each of the 30 items on the pilot rating scale. Subsequently, classical item analysis was used to determine if there are any outlier items with outstanding means, standard deviations, or item-total correlations. To begin investigating the psychometric properties of the scale, split-half reliability was calculated, and internal consistency was calculated using Cronbach's alpha.

Next, the universal group and targeted groups were compared to determine the answer to the research question, **"**Are there significant differences in the ratings of students from the randomly selected group versus the group of students identified as having mild to moderate behavior problems?" In order to compare the universal and targeted groups, a summary score was calculated for each student. Then, the mean summary scores were compared for the two groups using an independent samples *t*-test. This determined whether or not there was a significant main effect for group membership. Additionally, a 2-way ANOVA was conducted to test for a group by gender interaction, which would be crucial information to have when interpreting a main effect for group.

Exploratory factor analysis was the next phase of data analysis, specifically for the purpose of a dimensionality analysis, to determine the number of meaningful factors in the pilot rating scale data structure. Factor analysis allows researchers to describe data

with many variables in a parsimonious format, combining and reducing the number of variables to as few factors as possible while extracting the maximum amount of information possible from the original variables. Exploratory factor analytic procedures are based on examining the correlations between the measured variables, determining the number of factors which emerge as meaningful combinations of these variables, as well as the magnitudes of variability which each variable contributes to these factors (factor loadings). Thus, factor analysis also proves useful for theory development, allowing a researcher to explore the complexities and simpler features of a target construct.

The principal axis factoring (PAF) procedure was selected for this study over other widely used factor analytic methods such as principal components analysis (PCA). A key difference between these two procedures lies in the diagonal of the correlation matrix that is calculated in order to prepare for factor analysis. In preparing for PCA, a correlation matrix is calculated from the variables which has unities (1s) along the diagonal of the matrix. This represents the assumption that all variance within each variable is relevant and should be included in the determination of relevant factors. PAF, on the other hand, takes into consideration that fact that each unit of datum is likely to possess some amount of unique error variance. Because the target of the analysis is the shared variance of the variables, a change is made to the diagonal of the correlation matrix used for PAF. The diagonal row of unities (1s) is replaced with communalities. For each variable, its communality is the proportion of its variance that is explained by the factors, calculated by combining the sums of squares of its factor loadings on each factor.

Principal axis factoring allows for the determination of the number of factors in the factor structure, the factor loadings of the rating scale items, and which items contribute meaningful amounts of variance to the factor structure. This provides more information about potentially extraneous items that do not contribute meaningful information to the pilot rating scale. Comparisons between the factor analytic results from the universal group, the targeted group, and the total aggregated data set also allowed for a second look at the differences between the groups.

The final research question asks, “What is the maximum number of rating scale items that teachers would be willing to complete for one or two students in their class, once or twice a week?” Using the results of the final two questions that were asked of teachers, this question was answered and reported on as well. Finally, the participants’ qualitative comments about the face validity and feasibility of the rating scale for classroom use will be reported.

CHAPTER 3

RESULTS

Setting and Participants

Over 300 teachers received email invitations to participate in the study, counting all school districts which participated. The samples of teacher survey participants (*n*=142) and pilot rating scale participants (*n*=162) were slightly different in composition due to attrition and because some teachers who declined to participate in the first study did complete the second study.

The majority of participants came from two school districts: Jaffrey-Rindge Cooperative School District in New Hampshire (71 participants) and Walpole Public Schools in Massachusetts (63 participants). The remaining participants were drawn from schools in Brookline, MA (11), Keene, NH (9), Framingham, MA (4), Medford, MA (2), and Gilbertville, MA (2). The demographic characteristics of the top four districts in the sample are shown in Table 4, along with the characteristics of the public school population of Massachusetts as a comparison population.

The school districts which agreed to participate in the study in significant numbers yielded a somewhat more racially homogeneous sample than the overall population of Massachusetts. The sampled districts also contain a lower percentage of low income students than the population of Massachusetts. Efforts were made to recruit teachers from schools in urban districts in order to reach a more diverse sample. Administrators from two schools in a large urban school district expressed a willingness to have their teachers participate in the study. However, the district level office of research and evaluation was unable to complete a review of the research proposal in time

to approve the study. These data may be collected in future iterations of the research if the district approves the proposal later in the school year.

Table 4

Student Demographics of Sampled Districts and Massachusetts

	MA	Walpole, MA	Jaffrey, NH	Brookline, MA	Keene, NH
Race					
African American	8.2%	3.4%	1.5%	7.8%	1.4%
Asian	5.1%	2.4%	1.8%	18.5%	2.1%
Hispanic	14.3%	2.7%	1.2%	9.3%	1.4%
Native American	0.3%	0.3%	0.8%	0.1%	0.3%
White	69.9%	90.6%	94.2%	58.9%	94.6%
Native Hawaiian, Pacific Islander	0.1%	0.0%	—	0.1%	—
Multi-Race, Non-Hispanic	2.0%	0.6%	—	5.2%	—
Low-income (Eligible for Free or Reduced Lunch)	30%	5.9%	26.2%	11.8%	22.7%

Note. NH Department of Education statistics combine Pacific Islanders with the Asian population and do not report Native Hawaiian or Multi-Race populations.

While data were not collected on the racial/ethnic identities of the teacher respondents, several other pieces of demographic information were gathered to determine the level of education and experience of the participants, as well as their teaching assignments. Teachers reported working with grades Kindergarten to 8 in nearly equal numbers, and many participants worked with multiple grades: 45 taught Kindergarten, 46 taught first grade, 53 taught second grade, 48 taught third grade, 54 taught fourth grade, 48 taught fifth grade, 48 taught sixth grade, 39 taught seventh grade, and 38 taught eighth grade.

The respondents included school staff members from nearly all areas and levels of the schools, from administrators to paraprofessionals. When asked to indicate their current role or teaching assignment, 93 respondents were general education classroom teachers, 23 respondents were special education teachers or behavior specialists, 12 respondents were teachers of art, music, physical education, library/technology or other specials, 10 respondents were Title I, Tier II, or ESL teachers, 7 respondents were school counselors, 7 respondents were administrators, 5 respondents were paraprofessionals or associates, 2 respondents were school psychologists, 1 respondent was a speech/language therapist, 1 respondent was an occupational therapist, and 1 was a nurse.

With regard to levels of education and experience, most respondents (62.3%) had earned a Master's degree, 30.2% had earned a Bachelor's degree, 6.8% had earned a CAGS or Specialist level degree, and one respondent had earned a Doctoral degree. Many respondents (44.4%) had over 15 years of experience in the field of education, 18.5% had 11-15 years, 20.4% had 5-10 years, and 16.7% had 0-4 years of experience.

Teacher Survey Results

The 36 highest rated items from the teacher survey are presented in Table 5, sorted in decreasing order of importance according to mean ratings of the participants. These results were calculated by first obtaining a frequency count for each of the 93 items indicating how many of the 142 respondents rated each item at each of the five levels of the Likert scale, from "Unimportant" (1) to "Very Important"(5). Mode, mean, standard deviation, skewness, and kurtosis were calculated for each item. The list of 93 items was sorted in decreasing order according to mean rating scores. Thirty-six items

yielded mean scores of 4.0 or higher and mode scores of 4 or 5. These results (Table 5) were then examined in order to begin selecting rating scale items for the pilot scale.

Means for the 36 top-rated items ranged from 4.0 to 4.75. Standard deviations ranged from .464 to .889. Lower-rated items (not listed in Table 5) included items with means as low as 2.54 and standard deviations within a similar range to the top-rated items. Skewness estimates for the top-rated items ranged from -.043 to -1.613, with all items displaying a negative skew. This negative skewness reflects the overall tendency of respondents to rate all items on the higher end of the scale. Kurtosis estimates for the top rated items ranged from -.797 to 2.289, indicating that some items were distributed closely around the mean, while others were dispersed more widely.

Table 5

Descriptive Statistics for the 36 Top-Rated Items

Item #	Item Wording	Frequency Counts (*N*=142)					Mode	M	SD	Skew.	Kurt.
		1	2	3	4	5					
63	Follows school and classroom rules	0	0	2	31	109	5	4.75	.464	-1.613	1.609
6	Takes responsibility for own actions	0	0	3	33	106	5	4.73	.493	-1.548	1.481
62	Follows directions	0	0	3	46	93	5	4.63	.526	-1.002	-.111
86	Listens to directions	0	0	5	45	92	5	4.61	.557	-1.083	.189
70	Accepts responsibility for own actions	0	1	10	37	94	5	4.58	.656	-1.438	1.462
1	Is a good listener	0	0	6	55	81	5	4.53	.580	-.776	-.377
54	Pays attention to instructions	0	1	10	44	87	5	4.53	.660	-1.232	.961
14	Respects the property of others	0	0	10	49	83	5	4.51	.627	-.928	-.167
21	Stays in control when angry	0	0	7	62	73	5	4.46	.591	-.592	-.579
72	Pays attention	0	2	10	53	77	5	4.44	.690	-1.111	.999
12	Thinks before she/he acts	0	0	9	63	70	5	4.43	.612	-.574	-.576

Item #	Item Wording	Frequency Counts (*N*=142)					Mode	M	SD	Skew.	Kurt.
		1	2	3	4	5					
93	Asks for clarification of instructions when confused	0	1	11	56	74	5	4.43	.667	-.900	.313
25	Is well-behaved when unsupervised	0	1	9	62	70	5	4.42	.644	-.810	.384
59	Feels good about himself/herself	1	1	15	48	77	5	4.40	.763	-1.312	2.086
8	Is trustworthy	0	3	13	51	75	5	4.39	.743	-1.101	.790
9	Appears to feel accepted and comfortable at school	1	1	19	45	76	5	4.37	.794	-1.187	1.379
34	Acts responsibly when with others	0	0	12	69	61	4	4.35	.631	-.427	-.658
45	Responds respectfully when corrected by teachers	0	1	15	59	67	5	4.35	.696	-.733	-.125
80	Is accepting of other students	0	2	14	58	68	5	4.35	.717	-.873	.329
78	Knows how to calm down	0	0	17	66	59	4	4.30	.671	-.430	-.774
5	Shows concern for others	0	2	19	60	61	5	4.27	.743	-.688	-.155
66	Completes tasks without bothering others	0	0	16	72	54	4	4.27	.651	-.332	-.713
47	Completes school assignments	0	3	14	73	52	4	4.23	.709	-.718	.577
53	Responds safely when pushed or hit	0	2	22	61	57	4	4.22	.754	-.587	-.361

Item #	Item Wording	Frequency Counts (*N*=142)					Mode	M	SD	Skew.	Kurt.
		1	2	3	4	5					
27	Resolves disagreements calmly	0	1	22	72	47	4	4.16	.701	-.361	-.453
74	Uses safe language when upset	1	1	22	70	48	4	4.15	.753	-.757	1.153
36	Asks others for help when needed	0	1	28	65	48	4	4.13	.742	-.314	-.787
3	Participates effectively in group discussions and activities	1	1	25	69	46	4	4.11	.764	-.679	.869
24	Enjoys school	1	5	28	52	56	5	4.11	.889	-.763	.123
65	Stands up for self when treated unfairly	0	0	25	79	38	4	4.09	.662	-.101	-.701
83	Stays calm during disagreements	1	1	22	78	40	4	4.09	.724	-.710	1.498
64	Is sensitive to feelings of other students	0	3	22	78	39	4	4.08	.715	-.468	.151
68	Likes to be successful in school	1	2	25	70	44	4	4.08	.776	-.701	.882
88	Will give in or compromise with peers when appropriate	0	0	30	77	35	4	4.04	.678	-.043	-.797
84	Adjusts to different behavioral expectations across settings	2	1	24	79	36	4	4.03	.762	-.925	2.289
16	Cares what happens to other people	0	4	25	77	36	4	4.02	.739	-.462	.091

Note. Likert scale ratings: 1 = Unimportant, 2 = Of little importance, 3 = Moderately important, 4 = Important, 5 = Very important.

This initial sorting process allowed for the pool of 93 items to be reduced to 36 potential rating scale items by eliminating items which were not consistently rated as important or very important by the respondents. Next, 30 of these 36 top-rated items were selected for the pilot rating scale. The six items from Table 5 which were not included in the scale were eliminated for two reasons. Four items were very similar to another item selected for inclusion or were addressed by multiple other items selected for inclusion. Two of the top-rated items were eliminated because their wording remained vague or potentially difficult to rate, using language such as "is well-behaved" and "acts responsibly." These six eliminated items and the reasons for their elimination are presented in Table 6.

Table 6

Items Disqualified From the Pilot Rating Scale

Item #	Item Wording	Reason for Elimination
25	Is well-behaved when unsupervised	Difficult to rate (vague)
34	Acts responsibly when with others	Difficult to rate (vague)
54	Pays attention to instructions	Addressed by item 72
70	Accepts responsibility for own actions	Addressed by item 6
83	Stays calm during disagreements	Addressed by item 27
86	Listens to directions	Addressed by items 1, 62, and 72

After this process of elimination was completed, 30 items remained for inclusion in the pilot rating scale. These items were entered into the SurveyMonkey website in preparation for administration. The 30 items selected for inclusion are shown in Appendix B.

Pilot Rating Scale Results

Student Sample Characteristics

The 162 teacher and staff respondents who completed the pilot rating scale provided ratings for 162 students. The random assignment procedure resulted in 80 students being rated from the general population (the universal group), and 82 students being rated from the population of children with mild to moderate behavior problems (the targeted group).

Table 7

Demographic Characteristics of Student Ratees

	Universal Group (n = 80)	Targeted Group (n = 82)	Total (n = 162)
Gender			
Male	41	60	101
Female	39	22	61
Grade Level			
K	5	7	12
1	8	9	17
2	14	7	21
3	8	9	17
4	10	10	20
5	11	9	20
6	8	10	18
7	5	10	15
8	11	11	22
Educational Category			
General Education	57	42	99
Special Education (IEP)	21	37	58
Student with 504 Plan	2	3	5

There was a higher proportion of male to female students in the targeted group than in the universal group (Table 7). The grade level distributions were similar in the two groups, with no discernible pattern of differences and a well distributed group of students from all grades. The targeted group included a higher proportion of students with disabilities than the universal group, with close to 50% of the targeted group having either an IEP or a 504 plan, but only 36% of the universal group having a documented disability status.

Within the targeted group, teachers were randomly assigned to students at the first, second, third, fourth, and fifth positions on their ranked lists of students with behavior problems. This procedure, modified from the Systematic Screening for Behavior Disorders (SSBD), was intended to obtain a stratified sample with respect to the severity of behavior problems.. While the random assignment process did not yield a fully equally distributed sample across the levels, this result is attributed to chance and still resulted in a sample of students with various levels of severity of behavior problems. Twenty-five students in the sample were at the first place rank, indicating that these were the students with the most serious externalizing behavior problems in the classroom. Fourteen students were at the second place rank, twelve at third place, seventeen at fourth place, and fourteen at fifth place.

Pilot Rating Scale Item Descriptive Statistics

Before calculating descriptive statistics for the pilot rating scale data, a procedure was followed in order to account for missing data points. Twelve cases included missing data. To account for these missing data, a multiple imputation procedure was followed using statistical software (LISREL 8.80). Multiple imputation is a regression-based

procedure that accounts for error in imputing values by drawing from a predictive distribution as opposed to calculating a single dependent value, and then combining results from multiple iterations of the procedure.

Mean, standard deviation, skewness, and kurtosis were calculated for each item, using the two separate group samples and then using the total aggregated sample (Table 8). Mean scores in the universal group ranged from 2.79 to 3.41 with standard deviations between 0.769 and 1.052. In the targeted group, mean scores were lower, ranging from 1.95 to 2.79 and standard deviations ranged from 0.616 to 0.974. In the aggregated sample, item means ranged from 2.41 to 3.08 with standard deviations ranging from 0.867 to 1.078.

Skewness estimates for the universal group were all in the negative, ranging from -1.376 to -0.305. These negatively skewed distributions reflect the high frequency of ratings at level 3 (Often) and level 4 (Almost Always) of the Likert scale for students in this group. For the targeted group, however, most items demonstrated a positive skewness, with only three items having a negative skewness. Targeted group skewness estimates ranged from -0.189 to 1.231. The positively skewed items reflect the frequency of ratings at the lower half of the Likert scale (0: Almost Never, and 1: Sometimes) for this group of students. Skewness estimates for the total sample ranged from -0.571 to 0.375.

Kurtosis estimates ranged from -1.36 to 1.083 for the universal group, from -1.029 to 1.356 for the targeted group, and from -1.484 to -0.461 for the total sample. The majority of items had a negative kurtosis within the groups and the as a total sample, indicating somewhat platokurtic, flatter distributions than the normal curve.

Table 8

Descriptive Statistics for Pilot Rating Scale Items

Item	Mean (Standard Deviation)			Skewness			Kurtosis		
	Universal Group	Targeted Group	Total	Universal Group	Targeted Group	Total	Universal Group	Targeted Group	Total
1	3.28 (.842)	2.35 (.616)	2.81 (.867)	-.562	1.231	.324	-1.360	.988	-1.484
2	3.06 (.972)	2.09 (.820)	2.57 (1.021)	-.466	.805	.204	-1.139	.560	-1.180
3	3.01 (.921)	2.32 (.664)	2.66 (.872)	-.424	1.095	.322	-.910	1.076	-.998
4	2.87 (1.036)	2.00 (.685)	2.43 (.977)	-.305	.709	.375	-1.207	1.356	-.894
5	3.38 (.832)	2.79 (.828)	3.08 (.877)	-1.076	.139	-.381	.123	-1.025	-1.084
6	3.40 (.851)	2.50 (.920)	2.94 (.992)	-1.133	.098	-.390	.088	-.788	-1.070
7	2.90 (.963)	2.09 (.706)	2.49 (.934)	-.320	.740	.314	-1.005	1.171	-.838
8	2.79 (1.052)	2.04 (.974)	2.41 (1.078)	-.363	.664	.152	-1.069	-.499	-1.235
9	2.95 (1.042)	2.00 (.720)	2.47 (1.010)	-.586	.813	.232	-.866	1.336	-1.053
10	3.00 (.871)	2.40 (.783)	2.70 (.878)	-.471	.095	-.091	-.560	-.338	-.742
11	3.23 (.968)	2.30 (.912)	2.76 (1.044)	-.815	.351	-.132	-.710	-.596	-1.277
12	3.22 (.871)	2.60 (.799)	2.91 (.890)	-.695	.416	-.084	-.712	-.649	-1.220
13	3.28 (.795)	2.56 (.833)	2.91 (.887)	-.694	-.067	-.315	-.574	-.501	-.788
14	3.30 (.933)	2.30 (.842)	2.80 (1.016)	-1.024	.386	-.156	-.181	-.303	-1.231

Item	Mean (Standard Deviation)			Skewness			Kurtosis		
	Universal Group	Targeted Group	Total	Universal Group	Targeted Group	Total	Universal Group	Targeted Group	Total
15	3.11 (.968)	2.17 (.717)	2.64 (.970)	-.746	.353	.044	-.551	.192	-1.056
16	3.20 (.877)	2.38 (.884)	2.78 (.970)	-.752	.381	-.132	-.429	-.509	-1.107
17	3.09 (.983)	1.95 (.815)	2.51 (1.065)	-.752	.652	.077	-.535	.100	-1.229
18	3.19 (.956)	2.44 (.862)	2.81 (.981)	-.924	.312	-.205	-.201	-.523	-1.089
19	3.18 (1.003)	2.29 (.949)	2.73 (1.069)	-.825	.176	-.210	-.636	-.887	-1.235
20	3.06 (1.048)	2.15 (.918)	2.60 (1.063)	-.669	.389	-.035	-.897	-.656	-1.292
21	3.35 (.828)	2.59 (.888)	2.96 (.938)	-1.013	.169	-.337	.046	-.783	-1.042
22	3.04 (.934)	2.13 (.813)	2.58 (.983)	-.554	.171	-.028	-.717	-.639	-1.013
23	3.24 (.799)	2.61 (.871)	2.92 (.891)	-1.068	.170	-.374	1.083	-.768	-.704
24	2.95 (.967)	2.17 (.829)	2.56 (.978)	-.330	.603	.185	-1.109	.092	-1.040
25	3.06 (.769)	2.73 (.930)	2.90 (.868)	-.622	-.189	-.430	.298	-.835	-.461
26	3.09 (.983)	2.20 (.922)	2.64 (1.050)	-.671	.469	-.039	-.741	-.514	-1.230
27	3.41 (.882)	2.72 (.946)	3.06 (.976)	-1.376	-.032	-.571	.903	-1.029	-.902
28	3.04 (.934)	2.13 (.828)	2.58 (.989)	-.554	.412	.028	-.717	-.255	-1.050
29	3.11 (.914)	2.11 (.770)	2.60 (.980)	-.534	.640	.143	-.923	.495	-1.096
30	3.34 (.826)	2.39 (.857)	2.86 (.964)	-1.121	.351	-.258	.604	-.443	-1.045

Classical Item Analysis

Reliability analyses were performed to investigate the psychometric properties of the pilot rating scale. Split-half reliability and internal consistency estimates (Table 9) were calculated for each of the two groups and for the aggregate sample. Strong reliability coefficients were found for all samples, with a higher level of reliability found in the group of randomly selected students (.95) than in the group of targeted students (.86). Overall reliability for the scale using both groups was high (.94). Likewise, internal consistency was higher in the universal group (.98) than the targeted group (.95), with a strong level of internal consistency using the full sample (.98).

Table 9

Split-half Reliability (r) and Internal Consistency (α)

	Universal Group	Targeted Group	Total
r =	.95	.86	.94
α =	.98	.95	.98

In order to perform classical item discrimination, polyserial correlations were calculated between each ordinal item and the total scale. These results (Table 10) are also presented for the two individual groups and for the total sample. In the results for the full sample of 162 student ratees, all items were positively correlated with the total scale. Strong item-total correlations (between .75 and .85) were found for the majority of the items. In the total and individual group samples, all item-total correlations were above .5 with the exception of items 7 and 25. As would be expected based on the split-half reliability estimates, ratings of students from the universal group yielded stronger item-total correlations than ratings of students from the targeted group.

Table 10

Corrected Item-Total Correlations for Pilot Rating Scale

Item	Universal Group	Targeted Group	Total
1	.813	.644	.825
2	.851	.613	.819
3	.799	.613	.782
4	.853	.546	.807
5	.815	.611	.750
6	.747	.506	.716
7	.801	.493	.760
8	.634	.554	.659
9	.832	.551	.801
10	.650	.556	.666
11	.825	.721	.824
12	.677	.585	.691
13	.764	.526	.718
14	.840	.765	.856
15	.805	.600	.801
16	.836	.621	.789
17	.822	.577	.806
18	.711	.604	.723
19	.831	.591	.779
20	.832	.660	.809
21	.834	.615	.776
22	.645	.536	.697
23	.785	.680	.759
24	.686	.619	.723
25	.490	.422	.468
26	.814	.588	.775
27	.733	.515	.683
28	.857	.675	.832
29	.832	.723	.847
30	.843	.646	.812

Testing for Group Differences

Subsequently, the two groups were tested for statistically significant differences in their ratings using the pilot scale. To perform this analysis, a sum score was created for each student by summing the ratings for that student, yielding a potential range of scores between 30 and 120. This sum score was used as the dependent variable and group membership was treated as the independent variable in order to perform an independent samples *t*-test. This test was used to evaluate the null hypothesis that the groups are equal. Because there was reason to hypothesize that the groups will be different, based on the sampling method, the results of the *t*-test were evaluated using one-tailed significance levels. A priori power analysis using the *G*Power 3* software program (Faul, Erdfelder, Lang, & Buchner, 2007) was conducted before performing the *t*-test. The power analysis indicated that with the sample sizes of $n = 80$ (universal group) and $n = 82$ (targeted group), with an alpha level of .05, and with a desired sensitivity to effect sizes as small as 0.5, the power of the test would be .94. This was deemed an adequate level of power and sample size to perform the test with accurate results.

Sum scores for students in the universal group ($M = 93.71$, $SD = 22.15$) were higher than students in the targeted group ($M = 68.99$, $SD = 15.53$). Comparing the group means yielded a difference score somewhere between 18.8 and 30.65, estimated with 95% confidence. The fact that this confidence interval does not include zero, and the results of the *t*-test ($t = 8.421$, $p < .001$) allow us to reject the null hypothesis and conclude that there is a significantly different level of ratings between the two groups. An effect size was also calculated to represent the magnitude of the difference between groups, using Cohen's *d* and yielding a result of $d = 1.29$, falling between $d = 0.95$ and

d = 1.63 with 95% confidence. In other words, the difference in ratings between the groups has a magnitude of close to one standard deviation.

Testing for Group by Gender Interaction

The sampling methods yielded a smaller number of males in the randomly selected group (n = 41) than in the targeted group (n = 60). This result was expected and falls in line with the disproportionate number of males who are identified for targeted and individualized behavioral intervention in schools. However, a significant group by gender interaction would not be desirable, because it would threaten the validity of the significant main effect for group differences. A group by gender interaction may also suggest that the pilot rating scale has items that are more biased for males or females depending on their level of behavior problems, which would impair the functioning of the scale in practice.

Thus, it was deemed necessary to test the results of the pilot scale ratings for interactions between group and gender. Two-way analysis of variance (ANOVA) was selected in order to perform an omnibus test of the null hypothesis, which would state that there is no interaction between group and gender in the pilot rating scale data. This test (Table 11) resulted in a nonsignificant finding for the interaction ($F_{(1,158)}$ = 3.242, p = .074). This result suggests that the differences between the ratings of girls and boys are not significantly different between the two groups. Thus, in the absence of a significant interaction, we can continue to accept the main effect for group differences as significant and meaningful.

Table 11

Two-way ANOVA Test for Group x Gender Interaction in Summary Scores

Source	SS	*df*	MS	*F*	*p*
Group	20429.854	1	20429.854	60.520	.000
Gender	3411.757	1	3411.757	10.107	.002
Group x Gender Interaction	1094.498	1	1094.498	3.242	.074
Within (Error)	53336.619	158	337.574		
Total	1151144.000	162			

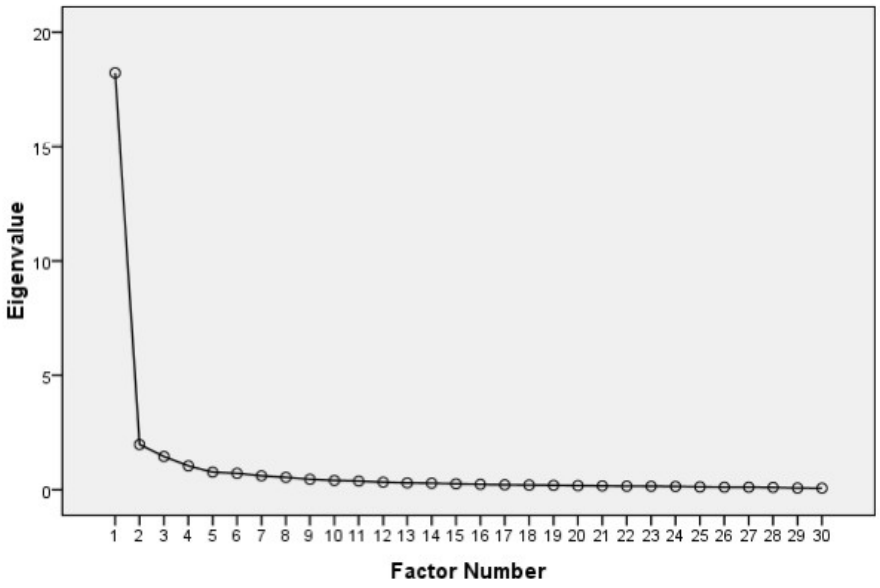
Factor Analytic Results

Principal axis factoring (PAF) was performed using the 30 pilot scale items. PAF was performed three times: with the total sample, with the universal group data, and with the targeted group data. The total sample (n = 162) is the only group with a large enough sample size to conduct a meaningful factor analysis on the 30-item pilot scale. However, it was deemed important to calculate estimates of the factor structure within the individual groups as well in order to begin planning for future iterations of the research. For each sample, the PAF procedure yielded the number of meaningful factors and the percent of variance associated with each factor. Next, the item loadings were provided for each item onto each of the factors of meaningful size.

Dimensionality

One single factor of meaningful size emerged when the total sample was analyzed, accounting for 59.87% of the variance, and with an initial eiegenvalue of 18.23. All other potential factors calculated by the analysis were significantly smaller than this primary factor (see Figure 9).

Figure *9.* Scree plot representing eigenvalues for all calculated factors using total sample.



When the subsamples were analyzed using the same methods, similar results were found, with one strong factor emerging. The magnitude of the eigenvalue and percent of variance explained by the primary factor was largest in the universal group, and somewhat smaller in the targeted group (Table 12).

Table 12

Total Variance Explained by Primary Factor

Sample	Eigenvalue	% of Variance
Universal Group	19.00	62.46
Targeted Group	12.12	39.25
Total Sample	18.23	59.87

Item Loadings

For the total sample, item loadings for the 30 rating scale items (Table 13) were all strong positive loadings, falling between .463 and .864, with most items loading

between .7 and .8. As found in the item-total correlations, item loadings in the targeted group were smaller than in the universal group. This result was not surprising, based on the fact that the targeted group was a more homogeneous sample than the universal group. The increased heterogeneity of the universal group allowed for higher item-total correlations and higher item loadings in the present analysis. Furthermore, the heterogeneity of the total sample was an important factor contributing to the high item loadings onto the primary factor when PAF was performed using the total sample. Item 25 displayed the weakest factor loadings, remaining the only item with loadings of less than 0.5. Items 8, 10, 12, 22, and 27 yielded the next lowest item loadings.

Table 13

Item Loadings onto Primary Factor

Item #	Item Wording	Item Loading		
		Universal Group	Targeted Group	Total
1	Follows school and classroom rules	**0.830**	**0.665**	**0.837**
2	Takes responsibility for own actions	**0.863**	**0.632**	**0.830**
3	Follows directions	**0.812**	**0.645**	**0.797**
4	Is a good listener	**0.862**	**0.582**	**0.820**
5	Respects the property of others	**0.830**	**0.628**	**0.761**
6	Stays in control when angry	**0.760**	**0.543**	**0.734**
7	Pays attention	**0.807**	**0.535**	**0.774**
8	Asks for clarification of instructions when confused	**0.636**	**0.586**	**0.665**
9	Thinks before she/he acts	**0.842**	**0.567**	**0.811**
10	Feels good about himself/herself	**0.658**	**0.574**	**0.674**
11	Is trustworthy.	**0.837**	**0.734**	**0.833**

Item #	Item Wording	Item Loading		
		Universal Group	Targeted Group	Total
12	Appears to feel accepted and comfortable at school	**0.686**	**0.607**	**0.702**
13	Is accepting of other students	**0.779**	**0.551**	**0.733**
14	Responds respectfully when corrected by teachers	**0.853**	**0.783**	**0.864**
15	Knows how to calm down	**0.815**	**0.618**	**0.812**
16	Shows concern for others	**0.847**	**0.645**	**0.806**
17	Completes tasks without bothering others	**0.835**	**0.610**	**0.819**
18	Completes school assignments	**0.715**	**0.624**	**0.729**
19	Responds safely when pushed or hit	**0.852**	**0.612**	**0.798**
20	Resolves disagreements calmly	**0.846**	**0.684**	**0.825**
21	Uses safe language when upset	**0.851**	**0.637**	**0.788**
22	Asks others for help when needed	**0.649**	**0.565**	**0.701**
23	Enjoys school	**0.792**	**0.700**	**0.767**
24	Participates effectively in group discussions and activities	**0.690**	**0.642**	**0.732**
25	Stands up for self when treated unfairly	**0.493**	**0.437**	**0.473**
26	Is sensitive to feelings of other students	**0.821**	**0.615**	**0.791**
27	Likes to be successful in school	**0.740**	**0.547**	**0.693**
28	Will give in or compromise with peers when appropriate	**0.869**	**0.693**	**0.843**
29	Adjusts to different behavioral expectations across settings	**0.844**	**0.747**	**0.855**
30	Cares what happens to other people	**0.851**	**0.671**	**0.827**

Note. Values in bold indicate item loadings > .4.

Teacher Ratings of Scale Feasibility

Approximately two-thirds of the respondents (66%) indicated that the rating scale would be a reasonable time commitment, if asked to complete the scale on a weekly basis for one or two students with mild to moderate behavior problems. The remaining 34% replied that it would not be a reasonable time commitment. In response to the next question, which asked how many items, at a maximum, the respondent would be willing to complete, there was a wide range of responses (0 to 50 items). In the subgroup of teachers (34%) who said that the rating scale was not a reasonable time commitment, the range of maximum items was between 0 and 20, with a mean response of about 9 items maximum ($M = 8.96$, $SD = 5.59$). When the full sample of all respondents was analyzed, the mean response for maximum number of items was about 17.

Comments from the respondents were solicited at the end of the survey. Several specific comments were made repeatedly, one of which was the request for a "Not Applicable" (N/A) option on the Likert scale. Respondents stated that it was difficult to rate certain items, such as item 6 (Stays in control when angry), item 15 (Knows how to calm down), and item 25 (Stands up for self when treated unfairly), if the teacher had never seen the student in these situations.

Another recurring comment from participants was the desire to know how the data would be used. Teachers indicated that they would be more willing to commit to using the rating scale if they understood the purpose of the tool. Other respondents stated that the length of the survey was prohibitive based on the many time constraints in their schedule each week.

CHAPTER 4

DISCUSSION

Summary of the Present Study

The purpose of this dissertation was to begin development of a brief, teacher-completed rating scale, intended to be used with students in grades K-8 for the formative assessment of positive classroom behavior. Positively worded rating scale items were drawn from and adapted from existing published rating scales. Sources included social-emotional, social skill, and broadband behavior rating scales. A preliminary item pool of 173 items was revised and narrowed down to 93 potential items for inclusion on the pilot rating scale. Teachers and school staff were asked to rate the importance of these 93 rating scale items, based on their concept of "positive classroom behavior." Based on this survey, 30 of the rating scale items emerged as the most important and most appropriate items to include on the pilot rating scale.

The pilot rating scale was then used by teachers to rate students from two samples: a universal group and a targeted group. Students in the universal group were randomly selected from general education classrooms, and students in the targeted group were selected using a teacher nomination procedure intended to sample students with mild to moderate externalizing behavior problems. Pilot scale ratings were significantly higher in the universal group than the targeted group, by about one standard deviation, with no significant group by gender interaction. The pilot scale demonstrated strong levels of split-half reliability (.94) and internal consistency (.98). Medium to large item-total correlations (> .5) were found for all but two items. Factor analysis indicated a

unidimensional factor structure, with 59.87% of the variance accounted for by a single factor, and high item loadings (> .4) from 26 of the 30 factors.

Teacher Survey Conclusions

The first research questions asked which items would consistently be rated as highly important to teachers' conceptual definitions of "positive classroom behavior" and whether teachers would demonstrate consensus in their responses. In examining the results of the teacher survey, we can see that a strong consensus was indeed reached on the importance of many items. The 30 top-rated items received very few ratings from any teachers at the low end of the Likert scale ("Unimportant" or "Of little importance").

A finding of interest is the diversity of the items which were consistently rated with high importance. The items reflected the importance of many different skill sets, including conduct and rule compliance ("Follows school and classroom rules" and "Follows directions"), social skills ("Will give in or compromise with peers when appropriate"), emotional regulation and self-control ("Knows how to calm down" and "Resolves disagreements calmly"), empathy ("Shows concern for others" and "Cares what happens to other people"), attention and on-task behavior ("Pays attention" and "Completes tasks without bothering others"), academic performance ("Completes school assignments"), and meta-cognitive problem solving skills ("Asks for clarification of instructions when confused").

The fact that the teacher survey yielded these diverse items, rather than a list of items focused solely on conduct or compliance, is an important finding. This collection of items is a good representation of how many teachers and other school-based practitioners view social, emotional, and behavioral competencies as interconnected and of relatively

equal importance to school success. Thus, the revised pool of 30 items for the pilot rating scale included a range of skills and behaviors from social, emotional, and behavioral areas of competence. This diversity of rating scale items is also an important result to consider as we move forward to look at the factor structure of the pilot scale data.

Pilot Rating Scale Conclusions

The second research question addressed several aspects of the psychometric properties of the pilot rating scale data. Results showed that there were no clear outlier items associated with very high or low means or standard deviations. Classical item analysis showed just one item with an outlying item-total correlation. Items 25 ("Stands up for self when treated unfairly") was the only item with an item-total correlation falling below .65, when calculated using the total sample. When item-total correlations were calculated separately for the universal and targeted groups, there were more items with lower item-total correlations in the targeted sample than the universal sample. Only one other item in addition to item 25 had an item-total correlation below .5, which was item 7 ("Pays attention"). However, given the smaller sample sizes of the separate groups, interpreting these results is less meaningful than interpreting the results from the total sample.

It was not surprising, given the high item-total correlations, that the split-half reliability was also high (.94). Again, we see a slightly lower level of reliability in the targeted group (.86) than in the universal group (.95). This difference may be attributed to several potential causes. It is likely that the true behavior of students from the targeted tier population is quite variable in comparison to students from the general population. Students who were nominated for the targeted group by teachers are likely to display

weaknesses and problems in some of the target behaviors, but not others. However, a reliability of .86 is still relatively strong and also indicates a good deal of continuity of behavior within this group. Students in the universal group, on the other hand, were much more likely to have high ratings across all items on the scale, resulting in the higher reliability for this group.

The significant difference between the groups, with an effect size close to one standard deviation, was a promising finding for the potential usefulness of the pilot scale. In some ways, there is also little surprise in this finding. Teachers who nominated students for the targeted group were the same ones to complete the pilot scale. There was a predisposition among those raters to view the students as struggling with behavioral, and perhaps social-emotional issues. It would have been strange for the groups to appear similar on the pilot scale, given the sampling and nomination procedures. However, there was no guarantee from these sampling methods that the specific rating scale items chosen for the pilot scale would be able to measure and reflect the magnitude of the difference between groups. The targeted group was nominated based on a definition of externalizing behavior disorders which is entirely based on negative behaviors and symptoms. The pilot scale, however, used only positively worded items reflecting target skills, competencies, and behaviors. These results establish an initial estimate of concurrent validity between the pilot rating scale and the teacher nomination procedure adapted from the SSBD. We can conclude from these findings that the pilot rating scale is likely to yield significantly higher scores for students at a universal tier of support, and lower scores for students in need of targeted tier support.

It was important to determine that there was no evidence of a significant group by gender interaction in the pilot scale data. Finding ways to identify female students who are in need of targeted intervention for social, emotional, or behavioral concerns is often a challenge, because their problems are more likely to be internalizing than externalizing. While the present study did not address that issue directly, we did produce a targeted sample with less females than males (22 females out of 82). Given that the nomination procedure was oriented to externalizing behavior problems, but the pilot scale included many social-emotional items without a clear link to externalized behavior, there was a danger of creating a group by gender interaction. Females were rated higher on the pilot rating scale in both groups, and it would not have been a surprise if the difference between females and males was greater in the targeted group than in the universal group. If that interaction had been found to be significant, it would have complicated our ability to interpret the main effect for group difference.

The factor analysis of the pilot rating scale data allows for another set of conclusions. Differences were observable in the magnitudes of item loading between the universal and targeted groups. Items loaded more strongly onto the primary factor in the universal group than in the targeted group. This result was expected, based on the homogeneity of the targeted group sample. Students from the universal group were randomly selected, generating more heterogeneity into that group's sample, and therefore into the aggregated total sample as well. Targeted group students shared common behavioral features because of the selection criteria for that group, yielding a more homogeneous sample with more intercorrelation among the individual students in the data set. However, targeted group item loadings were still greater than 0.4 for all items.

To address the stated research question, there was evidence of a unidimensional factor structure, with all items having a relatively strong item loading onto this single factor. We can interpret this as preliminary evidence that the rating scale being developed may indeed be viewed as a general outcome measure (GOM) of positive classroom behavior. If two or three separate factors had emerged, with different sets of items clustering together into subgroups, then the rating scale might not be appropriate for use as a general outcome measure. However, in this case, the items seem to cluster together as one unit. If a student was rated highly for one item, such as "Follows directions," then the student was also likely to have been rated highly on other items, such as "Likes to be successful in school" and "Asks others for help when needed." This congruence of ratings is important to note, especially considering the mixture of items from social, emotional, and conduct-related domains of competence.

Looking more closely at the individual item loadings, we may begin to think ahead to revising the pilot rating scale. Item 25 ("Stands up for self when treated unfairly") is a likely candidate for deletion. If future iterations of the pilot scale are created with an attempt made to shorten the scale, then we could begin looking at the other items with the lowest item loadings. Item 8 ("Asks for clarification of instructions when confused") and item 10 ("Feels good about himself/herself") have the next lowest item loadings on the scale.

Another source of information for revising the scale would be the final survey questions asked of teachers at the end of the pilot rating scale administration. While the majority of respondents (66%) believed that it was a reasonable commitment to complete the rating scale on a weekly basis for one or two students, it was still not up to a higher

standard of 80% approval. It would be safest to conclude that a 30-item scale might be too long for use as a weekly formative assessment tool.

It is important to note that the mean number of items teachers would be willing to rate was 17, which would be quite a bit shorter than the current scale. Deleting 13 items would certainly affect the psychometric properties of the scale, however, it would increase the feasibility and acceptability of the tool. In addition to the three items with the lowest item loadings that were listed above, teachers also indicated their concerns with item 6 ("Stays in control when angry)", and item 15 ("Knows how to calm down"). Teachers were unsure how to respond to the item if they had never observed the student become angry or agitated. In total, seven items on the scale use conditional phrasing (using "if" or "when" in their item wording), describing behaviors or skills that occur only in certain contexts. Deleting all seven of these items may improve the acceptability of the scale. However, some of these items could also be re-worded to get an estimate of the desired behavior or skill without requiring the teacher to have observed a specific incident.

Links to Positive Behavior Support (PBS) Research

The present study is relevant to PBS research, particularly at the targeted tier of intervention and assessment. Formative assessment tools for behavioral progress monitoring continue to be researched and piloted in several different forms. The Check-In, Check Out (CICO; Crone et al., 2004) program which was reviewed in Chapter 1 continues to grow in scope and implementation. As more schools adopt the use of the School Wide Information System (SWIS) database, they are being introduced to the CICO program as well, which can be purchased along with the SWIS package. Schools

are using formative assessment data from CICO in order to monitor the progress of their students in targeted tiers of support. Thus, within the current trends and best practices of SWPBS, CICO remains at the forefront of formative assessment for targeted tier students. This dissertation and future studies along this line, may provide some needed information about which target behaviors and skills should be emphasized and measured at the targeted tier. The development of a formative assessment tool with more established psychometric properties will also strengthen the ability of schools to provide effective and evidence-based services.

Research investigating the psychometric properties features of direct behavior ratings (DBRs) continues to provide new information about formative assessment for school and classroom behaviors. One recent study (Riley-Tillman et al., 2009) examined the differences between target behaviors with global and specific wordings, as well as positive and negative item wordings. DBR ratings were compared with a computerized systematic direct observation system in order to examine the accuracy of the DBR ratings using the different item wordings. While current practices in behavioral assessment and intervention value the importance of specific, operationally defined target behaviors, the outcome of the DBR study suggested that sometimes general item wordings can yield more accurate results than specific item wordings. Furthermore, the study found that positively worded items were rated more accurately than negatively worded items with the target behavior of academic engagement. The present dissertation provides some preliminary information about positively worded target behaviors and skills, many of which are generally worded rather than specific and operationally defined.

The pilot rating scale will most likely be used to rate student behavior over the course of at least a week's time, distinguishing it from tools like the DBR. While the specificity of a rating scale that targets a week of behavior is much lower than a tool that measures an hour-long sample or shorter, there is value in capturing this general estimate of behavior as well. Using both short-term and long-term assessment tools may be needed for effective progress monitoring at the targeted tier of intervention. The idea of using more than one type of assessment tool is also in line with the need for multi-method, multi-source assessment that is recommended for more comprehensive individual assessments (Merrell, 2008a).

Links to research on universal tier PBS can also be drawn, although the universal tier was not the primary focus of the dissertation. In a conference presentation to the National Association of School Psychologists, Bear and Minke (2007) described some of their research and school-based practice in Delaware schools, in which they have begun to infuse social-emotional learning into a system of schoolwide positive behavior supports. They posited the notion that SWPBS can be less successful when it is implemented with a narrowly behavioral approach and without an awareness of student-teacher relationships, social-emotional competencies, and social cognition. The research of Bear and colleagues has examined the social cognitive skills that lead to students' use of positive behaviors (Bear, Manning, & Izard, 2003). In the present dissertation, the fact that teachers rated social-emotional and social-cognitive items with high levels of importance to positive classroom behavior corroborates this existing area of research. Furthermore, the unidimensional factor structure of the pilot scale adds support to the idea that these social-cognitive skills and target behaviors may all be viewed as part of

one large construct. Although the present study focused primarily on developing a tool to be used with students at a targeted tier of intervention, there are implications for the universal, whole-school tier of PBS implementation. Because teachers indicated a high level of importance for many social-emotional skills in general education classrooms, there is an opportunity to provide preventative, universal supports to all students.

Links to Response to Intervention (RTI) Research

Severson, Walker, Hope-Doolittle, Kratochwill, and Gresham (2007) outlined the best practices, recent innovations, and future research directions for screening and early identification of emotional and behavioral problems. Within a response to intervention model of social, emotional, and behavioral assessment, there are few existing tools with extensive research and field testing. There are also numerous options for the format, sophistication, purpose, and outcomes of the assessment process in such an RTI framework. These authors suggest that before researchers begin to invest large amounts of time and money into developing assessment tools with adequate psychometric properties, preliminary studies must determine how to align the assessment needs of the RTI model with the needs and priorities of educators who are on the front lines of classroom teaching. The social validity and acceptability of new assessment tools is an important piece of the research agenda these authors suggest. Specifically, they recommend the following:

> "Another critical line of research could focus on the characteristics and forms of screening approaches that vary in their acceptability to educators who participate in and consume the results of such screening. Our experience suggests that educators are more accepting of generic approaches that are cost efficient, solve a high priority problem, do not require excessive effort, and are central to the core mission of schooling. Systematic screening approaches and procedures that meet these criteria and that have acceptable specificity and sensitivity likely do not

> currently exist" (Severson, Walker, Hope-Doolittle, Kratochwill, & Gresham, 2007, p.219).

While the present study was originally designed with the desire to develop a formative assessment tool, not a screening tool, future research that builds on the current study could also apply these findings to screening practices. One strength of the design of this dissertation is its inclusion of teacher feedback and teachers' beliefs in the development of the rating scale. With at least one more phase of revision based on teacher feedback, the resulting final product should yield high feasibility and acceptability ratings from the teachers who are asked to use it.

The above quote also suggests that educators respond best to assessment tools that are generic and solve a high priority problem. As a general outcome measure (GOM), this pilot rating scale may be generic and general enough to meet this standard. Its ability to solve high priority problems of classroom teachers is unknown. However, it does have the potential to be low-cost, low-effort, and central to the mission of schooling (namely, promoting the development of academic and social skill competencies).

Limitations

Cook and Campbell (1979) outlined the major threats to validity in social science research. While many of their categories apply to experimental designs with an independent variable that is manipulated and a dependent outcome variable that is measured, their framework still serves as a useful reference to discuss limitations of the present study, which is based on correlational methods. Internal validity, external validity, statistical conclusion validity, and the putative validity of causes and effects are the four broad categories in this framework. Several specific threats to validity from these four categories are of concern in the present study.

Foremost, the limitation of statistical power is of concern for the pilot rating scale, particularly in the factor analysis portion of the study. The sample size of 142 survey participants was adequate for the first phase of the study, because no statistical testing was needed to analyze the survey responses. The sample size of 162 students rated using the pilot scale was large enough to adequately power the statistical tests used to evaluate the main effect for group and the group by gender interaction. However, this sample size is considered low for powering a factor analysis. While methodologists differ in recommending sample sizes for factor analysis, the recommendations in Gable and Wolf (1993) indicate that a sample size of somewhere between 6 and 10 times the number of items is ideal, which would be between 180 and 300 participants for the 30-item pilot rating scale. A lower minimum sample size was suggested by other researchers in factor analysis (Bryant & Yarnold, 1995), who recommended a minimum sample size of 5 times the number of items. Based on this lower recommendation, the present study would be just above the minimum sample size of 150.

Another potential threat to statistical conclusion validity concerns the process of random assignment to groups and random selection of students to be rated in the universal group. Overall, the use of randomization in a school-based study is rarely found and is challenging to implement. The use of SurveyMonkey technology and the design of the study allowed randomization to be implemented successfully with few threats to validity, making this feature a strength of the design. However, one sacrifice that was made in order to facilitate the random selection of students was the procedure allowing participants to rate a student anonymously after selecting him or her randomly from the class roster. This procedure sacrificed the ability of the researcher to oversee the random

selection directly and provide any quality control at the school sites. In other words, participants were on an honor system to truly follow the random selection procedure. This allowed for the chance that some participants did not pick a student at random, instead choosing to rate whomever they could think of easily without referencing a class list.

Assuring independence of the participants in the universal group and the targeted group was another aspect of the design intended to reduce threats to statistical conclusion validity. However, there were limitations to this procedure as well. Teachers were assigned to rate one student from the class they teach at 10:30 AM on Mondays. This direction was given to avoid multiple students being rated more than once by different teachers. The desired sample was 162 different students, each rated independently by a different teacher. However, because we included related service providers, administrators, and paraprofessionals in the study, there is a chance that some students may have been rated more than once by chance. Data were not collected on the identities of the students so there is no way to check this, and it is assumed that very few, if any students would have been randomly selected by a teacher twice.

There is also a lack of independence in the design between the teacher nomination procedure for the targeted group and the teacher ratings of those students using the pilot rating scale. Because it was the same teachers who nominated students to be in that group who then rated them using the pilot rating scale, we should understand that perhaps those teachers were predisposed to rate those students lower. While we can still draw conclusions about the properties of the pilot scale based on the significant difference between the groups, there is a threat to the validity of these results that would have been

eliminated if two groups of teachers were used for this procedure: one group to nominate the students for membership in the targeted group, and another group to rate those students using the pilot scale.

As stated, the actual sample of schools who participated in the study was not as diverse as the intended sample, with consideration for racial/ethnic, geographic, and socioeconomic variables. The somewhat limited demographics of the sample require that we only generalize the results to demographically similar populations, until such a time when additional data may be collected from schools with a more diverse demographic.

Another limitation of the study was the lack of expert panel review of the pilot rating scale. As stated, participants were solicited for this aspect of the design but none were willing or able to respond. While an informal review of the scale by teachers, counselors, and school psychologists familiar with SWPBS was conducted, the study would have been stronger if expert researchers and practitioners had reviewed the pilot scale before data collection occurred.

Another potential area of concern in the study is its generality. While the desired end product is a general outcome measure (GOM), questions may be raised about the meaningfulness of summarizing behavior over time. Traditional assessment, rooted in a theoretical background of personality assessment, often asks the rater to summarize a student's behavior over a period of time, assuming that a stable and valid assessment of the student's typical performance can be gathered this way. Behavioral assessment, on the other hand, is more likely to measure behavior in context and comes from a theoretical perspective that behavior is environmentally specific and highly variable (Goldfried & Kent, 1972). The pilot rating scale administered in this study asked raters to

consider the student's behavior over the past several months, indicating a more traditional and general approach to assessment. Again, while there are different perspectives in the research literature and in the practice of assessment, this generality of the study may be viewed as a limitation, because environmental and contextual variables were not measured as part of the assessment.

Implications for Practice

Because this pilot rating scale is still in development, recommendations for practice based on these results are made with caution. There are few immediate implications for practitioners. However, based on the promising results of the study, we can look ahead to several potential outcomes that may be applicable in schools.

The teacher survey results have implications for the planning of SWPBS initiatives, including universal tier supports for all students. These results support the SWPBS work of Bear and Minke (2007) and other practitioners who are working to synthesize interventions and assessments that address positive behaviors as well as social-emotional competencies. While it is possible to implement SWPBS without an intentional focus on social-emotional learning, the results of this study suggest that teachers place a high value on behaviors and skills that are closely oriented to social-emotional competence, as well as traditional classroom conduct and compliance behaviors.

At the targeted tier level, based on the high item-total correlations and the unidimensional factor structure of the data, we can observe that students who struggle with conduct-focused behaviors such as following directions and following rules also are likely to struggle with social behaviors like cooperating with classmates and emotional

regulation skills like calming down when provoked by a peer. This means that there are quite a few different areas of intervention that might be targeted for students who are struggling. While safety and conduct are utmost importance in the school setting, the other behaviors and skills measured by the rating scale are also important and highly correlated with the rest of the items. Practitioners of SWPBS who are planning targeted tier interventions may find it useful to refer to this collection of rating scale items when designing the system of supports that are offered to students at this level of need.

One strength of the pilot rating scale that is suggested by the results is its treatment validity. Because it uses positively worded target behaviors and skills, all of which have been reported as highly important by teachers, there is a strong likelihood that teachers would find a tool like this one to be very useful in their day-to-day work. The emphasis on positively worded behaviors is an important influence on how teachers might use the results of the assessment tool. Within a system of SWPBS, teachers are asked to devote significant amounts of time and effort to teaching, noticing, acknowledging, and reinforcing positive behaviors. However, when most of the assessment tools that are used by teachers focus on negative problem behaviors, and when teachers are asked to specifically look for, observe, rate, track, and measure negative behaviors, there is a danger that their emphasis will be drawn to negative behaviors when they intervene with students as well. Using assessment tools that require teachers to look for, rate, track, and measure positive behaviors might be more helpful and consistent with the intervention strategies emphasized by positive behavior support. In this way, the proposed rating scale has promising treatment validity within a positive behavior support approach to intervention.

Future Research Directions

Before continuing the process of developing this rating scale, it would be wise to repeat the present study with a larger and more diverse sample. Specifically, there is still one large urban school district in the Northeast US whose office of research, evaluation, and assessment is reviewing the research proposal. It would be useful to have this sample, or one with similar demographic features, in order to administer the original teacher survey and a pilot rating scale as well. Teachers from urban schools may actually respond to the survey with different rating scale items being indicated as the most important for positive classroom behavior. This hypothesis would be important to test, and a decision would have to be made at this point in time. Should separate rating scales be developed for the different school settings, or should a combined scale be created that incorporates the results of urban and rural/suburban samples? If it seems feasible to re-administer a pilot version of the rating scale to all participants based on the full sample, then a universal group and a targeted group may be sampled again using the same methods as in the present study. Factor analysis should be recalculated using the larger, more diverse sample and the dimensionality of the results can be analyzed once again. It will also be important to ask the same questions again about the feasibility of the scale and the maximum number of items teachers are willing to rate.

Following Gable and Wolf's (1993) steps of scale development, another pilot scale administration may be administered after items are revised, eliminated, or added. This could be a future study implemented on a similar scale to the present study, with an additional purpose of measuring reliability and validity. While split-half reliability has been calculated, it would be wise to measure test-retest reliability as well as inter-rater

reliability in future studies. A study could be designed that combines these needs, as well as the need to establish more concurrent validity with other methods of measurement.

Next, to investigate its promise as a screening tool, predictive validity could be measured using the rating scale in the beginning of the school year and using outcome variables such as office discipline referrals, suspensions, and other measures of behavior over the course of the school year. A regression design may be used to establish the power of the rating scale to predict future behavioral successes and problems. Is there a certain cut score on the rating scale below which students can be identified as at-risk for future problems in social, emotional, and behavioral areas? If so, that would provide evidence of the predictive validity of this scale and its usefulness in identifying students for targeted tier interventions.

The stated final goal of this research line is to develop a formative assessment tool for positive classroom behavior. Future studies may begin to address this goal by administering the scale repeatedly (on a weekly basis) to students who are identified as having mild to moderate classroom behavior problems. For students who are receiving a targeted intervention, the rating scale may be used to measure the effectiveness of the intervention. Concurrent validity and usefulness for progress monitoring may be established by comparing the rating scale data with other measures of effectiveness (e.g., office discipline referrals, rating scales, systematic direct observations, direct behavior ratings).

The use of SurveyMonkey was effective for the present study. Based on the ease of collecting and analyzing data for this study, SurveyMonkey is recommended as a useful tool for future research in this area. Rating scales are easy to enter into the website,

and teachers can complete the rating scale easily and quickly as long as they have adequate computer technology and access. Furthermore, the ability of SurveyMonkey to present numbers and letters in randomized order to participants was a key feature allowing this study to use random assignment and selection. One weakness of SurveyMonkey that would become a hindrance to future studies is the issue of confidentiality. While the website can keep information private, there may be regulations that would not allow teachers to enter student names or other identifying information into such a website. If future studies seek to track the changes in student performance over time, or compare students' ratings with concurrent measures, it will become necessary to associate each student's ratings with a name or at least an identification number. Research designs will have to account for these policies and protections if SurveyMonkey is used. Other options for administering the rating scale online should be explored in future implementations.

In sum, continued research that seeks to develop formative assessment tools for social, emotional, and behavioral competencies is in high need. As K-12 public schools become more willing and able to provide intervention for students in these areas, there also comes a growing need for tools that help to measure student progress and intervention effectiveness. The development of formative assessment tools that are simple, low-cost, valid, and reliable is an important contribution that researchers can make to support the effective work of educators and to support the positive development and learning of all students.

APPENDIX A

TEACHER SURVEY

Positive Classroom Behavior Survey: PART 1

Letter of Introduction

Facts about this project:

This is PART 1 of a two-part survey.

Purpose: To begin development of a brief rating scale that teachers can use to assess their students' use of positive target behaviors.

Time Commitment: Approx. 25 minutes. Two online surveys, approximately 10 minutes each in length.

Incentives: School districts who participate in the study in significant numbers will receive a summary of the results and a copy of the positive behavioral rating scale created using teacher input from their district as well as others. The rating scale may be useful in monitoring the progress of students receiving PBS interventions. Teachers who complete both surveys will be entered in a raffle to win gift cards from Borders Books worth $25, $50, and $100.

Survey Format: Both surveys will be provided to teachers online, using www.surveymonkey.com. The first survey asks teachers to read a list of potential rating scale items and rate how important each item is to their concept of "positive classroom behavior." The second survey will ask teachers to rate one student from their class using the newly created rating scale.

Confidentiality: No student names or identifying information will be reported on the surveys. Email addresses will be compiled only to select winners for raffle prizes.

You have the right to withdraw from part or all of the study at any time. Your participation is voluntary and a decision not to participate will have no negative consequences for you.

Your informed consent to participate in the study under the conditions described above is assumed by your completing the survey and submitting it to the researcher. Do not complete the survey or submit it if you do not understand or agree to these conditions.

If you have any questions about the project, please contact me at:

James Cressey, M.Ed.
PO Box 541197
Waltham, MA 02454
jcressey@educ.umass.edu

Page 1

Positive Classroom Behavior Survey: PART 1

1. Please indicate the grade level(s) you are teaching this year.

- ☐ K
- ☐ 1
- ☐ 2
- ☐ 3
- ☐ 4
- ☐ 5
- ☐ 6
- ☐ 7
- ☐ 8
- ☐ Other (please specify)

2. Please indicate your teaching assignment(s) this year.

- ☐ General Education
- ☐ Special Education
- ☐ Reading/Literacy/English Language Arts
- ☐ Mathematics
- ☐ Science
- ☐ Social Studies/History
- ☐ Technical/Vocational Ed.
- ☐ Other (please specify)
- ☐ Art
- ☐ Music
- ☐ Physical Education
- ☐ School Counselor
- ☐ School Psychologist
- ☐ OT/PT
- ☐ Speech/Language

3. Please indicate your highest level of education.

- ◯ College
- ◯ Masters' Degree
- ◯ CAGS/Specialist Level Degree
- ◯ Doctoral Degree
- ◯ Other (please specify)

4. Please enter the # of years you have been teaching.

- ◯ 0-4
- ◯ 5-10
- ◯ 11-15
- ◯ 16+

Positive Classroom Behavior Survey: PART 1

5. Please indicate your school district.

- ◯ Boston, MA
- ◯ Brookline, MA
- ◯ Hillsboro-Deering, NH
- ◯ Jaffrey-Rindge, NH
- ◯ Keene, NH
- ◯ McAuliffe Regional Charter Public School
- ◯ Medford, MA
- ◯ Quabbin, MA
- ◯ Walpole, MA
- ◯ Waltham, MA

6. Please indicate your school.

- ◯ Jaffrey Grade School
- ◯ Rindge Memorial School
- ◯ Jaffrey-Rindge Middle School
- ◯ Lincoln School

Positive Classroom Behavior Survey: PART 1

1.

Please read each behavioral item and think about how important the item is to your concept of "positive classroom behavior." Your responses will help to decide which items should go on the new rating scale. Items that you rate as more important will be more likely to be included on the pilot rating scale. Items you rate as less important will be more likely to be eliminated.

	Unimportant	Of Little Importance	Moderately Important	Important	Very Important
Is a good listener	◯	◯	◯	◯	◯
Shows interest in others' ideas	◯	◯	◯	◯	◯
Participates effectively in group discussions and activities	◯	◯	◯	◯	◯
Makes decisions easily	◯	◯	◯	◯	◯
Shows concern for others	◯	◯	◯	◯	◯
Takes responsibility for own actions	◯	◯	◯	◯	◯
Offers help to other students when needed	◯	◯	◯	◯	◯
Is trustworthy.	◯	◯	◯	◯	◯
Appears to feel accepted and comfortable at school	◯	◯	◯	◯	◯
Uses good eye contact when communicating or listening	◯	◯	◯	◯	◯
Tries to comfort others	◯	◯	◯	◯	◯
Thinks before she/he acts	◯	◯	◯	◯	◯
Notices and compliments accomplishments of others	◯	◯	◯	◯	◯
Respects the property of others	◯	◯	◯	◯	◯
Is comfortable talking to many different people	◯	◯	◯	◯	◯

Positive Classroom Behavior Survey: PART 1

2. Please continue...

	Unimportant	Of Little Importance	Moderately Important	Important	Very Important
Cares what happens to other people	○	○	○	○	○
Makes smooth transitions between different activities	○	○	○	○	○
Interacts with a wide variety of peers	○	○	○	○	○
Takes turns in conversations	○	○	○	○	○
Feels sorry for others	○	○	○	○	○
Stays in control when angry	○	○	○	○	○
Is able to solve problems independently	○	○	○	○	○
Is learning as much as typical pupils of the same age.	○	○	○	○	○
Enjoys school	○	○	○	○	○
Is well-behaved when unsupervised	○	○	○	○	○
Invites other students to participate in activities	○	○	○	○	○
Resolves disagreements calmly	○	○	○	○	○
Says, "please" and "thank you"	○	○	○	○	○
Analyzes problems before starting to solve it	○	○	○	○	○
Starts conversations with peers	○	○	○	○	○

3. Please continue...

	Unimportant	Of Little Importance	Moderately Important	Important	Very Important
Works independently on assignments, without help	○	○	○	○	○
Understands the point of view of other people	○	○	○	○	○
Ignores distractions when trying to work	○	○	○	○	○
Acts responsibly when with others	○	○	○	○	○
Introduces himself/herself to others	○	○	○	○	○
Asks others for help when needed	○	○	○	○	○
Adjusts well to new teachers	○	○	○	○	○
Adjusts well to changes in routine	○	○	○	○	○
Stays calm when teased	○	○	○	○	○
Is comfortable being in large groups	○	○	○	○	○
Is well organized	○	○	○	○	○
Speaks in an appropriate tone of voice	○	○	○	○	○
Is creative	○	○	○	○	○
Works well with other students on group projects	○	○	○	○	○
Responds respectfully when corrected by teachers	○	○	○	○	○

Positive Classroom Behavior Survey: PART 1

4. Please continue...

Please read each behavioral item and think about how important the item is to your concept of "positive classroom behavior." Your responses will help to decide which items should go on the new rating scale. Items that you rate as more important will be more likely to be included on the pilot rating scale. Items you rate as less important will be more likely to be eliminated.

	Unimportant	Of Little Importance	Moderately Important	Important	Very Important
Recovers quickly after a setback	◯	◯	◯	◯	◯
Completes school assignments	◯	◯	◯	◯	◯
Can tell a story clearly	◯	◯	◯	◯	◯
Forgives others	◯	◯	◯	◯	◯
Is good at telling stories and jokes	◯	◯	◯	◯	◯
Is comfortable talking about feelings	◯	◯	◯	◯	◯
Seems to take setbacks in stride	◯	◯	◯	◯	◯
Responds safely when pushed or hit	◯	◯	◯	◯	◯
Pays attention to instructions	◯	◯	◯	◯	◯
Makes friends easily	◯	◯	◯	◯	◯
Is assertive when he or she needs to be	◯	◯	◯	◯	◯
Joins group activities successfully	◯	◯	◯	◯	◯
Understands the feelings of others	◯	◯	◯	◯	◯
Feels good about himself/herself	◯	◯	◯	◯	◯
Works well under pressure	◯	◯	◯	◯	◯

Positive Classroom Behavior Survey: PART 1

5. Please continue...

	Unimportant	Of Little Importance	Moderately Important	Important	Very Important
Encourages others to do their best	◯	◯	◯	◯	◯
Follows directions	◯	◯	◯	◯	◯
Follows school and classroom rules	◯	◯	◯	◯	◯
Is sensitive to feelings of other students	◯	◯	◯	◯	◯
Stands up for self when treated unfairly	◯	◯	◯	◯	◯
Completes tasks without bothering others	◯	◯	◯	◯	◯
Works as hard as typical pupils of the same age.	◯	◯	◯	◯	◯
Likes to be successful in school	◯	◯	◯	◯	◯
Can describe own feelings	◯	◯	◯	◯	◯
Accepts responsibility for own actions	◯	◯	◯	◯	◯
Participates in games or group activities	◯	◯	◯	◯	◯
Pays attention	◯	◯	◯	◯	◯
Is a "good sport"	◯	◯	◯	◯	◯
Uses safe language when upset	◯	◯	◯	◯	◯
Completes assigned readings	◯	◯	◯	◯	◯

Positive Classroom Behavior Survey: PART 1

6. Please continue...

	Unimportant	Of Little Importance	Moderately Important	Important	Very Important
Communicates clearly	◯	◯	◯	◯	◯
Stands up for others who are treated unfairly	◯	◯	◯	◯	◯
Knows how to calm down	◯	◯	◯	◯	◯
Is easily soothed when angry	◯	◯	◯	◯	◯
Is accepting of other students	◯	◯	◯	◯	◯
Produces high quality schoolwork	◯	◯	◯	◯	◯
Is good at solving problems	◯	◯	◯	◯	◯
Stays calm during disagreements	◯	◯	◯	◯	◯
Adjusts to different behavioral expectations across settings	◯	◯	◯	◯	◯
Shares toys or possessions with others	◯	◯	◯	◯	◯
Listens to directions	◯	◯	◯	◯	◯
Completes homework	◯	◯	◯	◯	◯
Will give in or compromise with peers when appropriate	◯	◯	◯	◯	◯
Is able to set goals	◯	◯	◯	◯	◯
Responds well when others start a conversation or activity	◯	◯	◯	◯	◯
Says nice things about self without bragging	◯	◯	◯	◯	◯
Is as happy as typical pupils of the same age.	◯	◯	◯	◯	◯
Asks for clarification of instructions when confused	◯	◯	◯	◯	◯

Thank you! You have completed this survey. You will receive the second survey in November or December when the rating scale is ready to be piloted.

7. Your email address is needed in order to sen Part 2 of the survey to you. You will receive Part 2 of the survey at this email address, because Part 2 must be accessed with a unique link. Your identity will not be reported or associated with any of your responses to either survey.

You will also be entered into a raffle for a gift card to Borders Books worth $25, $50, or $100. If you win, you will be notified at this email address as well!

Please enter your email address below.

Email Address: _____

APPENDIX B

PILOT RATING SCALE

PART 2 of the Positive Classroom Behavior Survey

Letter of Introduction

THANK you for completing PART 2 of the Positive Classroom Behavior Survey project. This survey can be completed in about 5 minutes! To protect the identity of you and your students, no teacher names, student names, or identifying information will be requested on these surveys. If you have any questions about the project, please contact me at:
James Cressey, M.Ed.
PO Box 541197
Waltham, MA 02454
jcressey@educ.umass.edu

Please indicate your school district.

◯ Walpole, MA ◯ Framingham, MA ◯ Jaffrey-Rindge, NH
◯ Brookline, MA ◯ Quabbin, MA ◯ Keene, NH

Other (please specify)

Please indicate your school.

Please indicate your highest level of education.

◯ BA ◯ MA/M.Ed. ◯ CAGS ◯ Ph.D./Ed.D.

Please indicate the number of years you have been working in the field of education.

◯ 0-4 ◯ 5-10 ◯ 11-15 ◯ 16+

Please indicate your primary teaching assignment this year. If you have multiple roles, please select the one you spend the most time in.

◯ General Education Classroom Teacher
◯ Special Education Teacher
◯ School Counselor
◯ Other (please specify)
◯ School Psychologist
◯ OT/PT
◯ Speech/Language
◯ Administrator

Please indicate all of the grade(s) you are working with this year.

☐ K ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8

PART 2 of the Positive Classroom Behavior Survey

Group Assignment

This page will randomly assign you to Group 1 or Group 2. Please click on the TOP number in the list below. Then click "Next Page."

- ◯ 1
- ◯ 2

PART 2 of the Positive Classroom Behavior Survey

Group 1 Student selection

Follow these steps to randomly select a student who you will rate on the next page.

Step 1: Think of the group of students you usually have at 10:30 AM on Mondays. If you do not have students at that time, choose the group you have closest to that time. **

Step 2: In the drop-down menu below is a list of numbers (1-30) in random order. Please click on the TOP number in the list.

Step 3: This number represents a randomly selected student in your class. Using a class roster with students listed alphabetically by last name, find the student who corresponds with your random number. (For example, if the top number in your list is 12, you will be rating the 12th student on your class list.) If the number is higher than the number of students on your class list, just rate the last student on your list. If you do not have access to a class roster right now, then please do a mental estimate to choose a random student whose name would fall close to that part of the alphabetical list.

**** For administrators and other staff who do not work with individual class groups at all, please randomly select a student from the entire student body. Below is a randomized alphabet. Please select the TOP letter in this list. You will rate a student whose LAST NAME begins with this letter. Looking at a school roster, go to that letter and count down within that section using the random number you selected, to choose one student. If you do not have access to a school roster, please randomly select a student from memory who you estimate might appear at that place on the roster.**

When you have selected a student and are ready to complete the rating scale, click "Ready" and then click "Next Page" below.

◯ Ready

PART 2 of the Positive Classroom Behavior Survey

Group 2 Student selection

Follow these steps to choose the student you will rate on the next page.

Step 1: Think of the group of students you usually have at 10:30 AM on Mondays. If you do not have students at that time, choose the group you have closest to that time. For administrators, specialists, or other staff who may not have classroom groups, you may complete step 2 based on the overall population of students you encounter.

Step 2: On a scrap piece of paper, write down the names of five students in your class who you would describe as having mild to moderate externalizing behavior problems.
(Externalizing behavior problems are defined as behavior problems directed outwardly by the student toward the social environment and usually involving behavioral excesses, for example: aggression, noncompliance, rule-breaking, hyperactivity, extreme distractibility, defying the teacher, not following school-imposed rules, having tantrums, stealing, etc.)

Step 3: Rank order these five students from MOST serious behavior problems to LEAST serious behavior problems using the numbers 1 to 5.

Step 4: In the drop-down menu below, click on the TOP number in the list. This number represents a randomly chosen student from the list you created. You will be rating this student's behavior on the following page.

- ◯ 1
- ◯ 2
- ◯ 3
- ◯ 4
- ◯ 5

PART 2 of the Positive Classroom Behavior Survey

Pilot Rating Scale

Student's gender:

- ◯ Male
- ◯ Female

Student's grade level:

◯ K ◯ 1 ◯ 2 ◯ 3 ◯ 4 ◯ 5 ◯ 6 ◯ 7 ◯ 8

Other (please specify)

To your knowledge, which category does the student belong to?

- ◯ General Education Student
- ◯ Special Education Student with IEP
- ◯ Student with a 504 Plan

Other (please specify)

PART 2 of the Positive Classroom Behavior Survey

Instructions: Please read the following list of behaviors and think about the student whose behavior you are rating. Based on the student's behavior over the past several months, mark a response for every item. You must answer every item, so give your best estimate if you are unsure about an item.

	Almost Never	Sometimes	Often	Almost Always
Follows school and classroom rules	◯	◯	◯	◯
Takes responsibility for own actions	◯	◯	◯	◯
Follows directions	◯	◯	◯	◯
Is a good listener	◯	◯	◯	◯
Respects the property of others	◯	◯	◯	◯
Stays in control when angry	◯	◯	◯	◯
Pays attention	◯	◯	◯	◯
Asks for clarification of instructions when confused	◯	◯	◯	◯
Thinks before she/he acts	◯	◯	◯	◯
Feels good about himself/herself	◯	◯	◯	◯
Is trustworthy.	◯	◯	◯	◯
Appears to feel accepted and comfortable at school	◯	◯	◯	◯
Is accepting of other students	◯	◯	◯	◯
Responds respectfully when corrected by teachers	◯	◯	◯	◯
Knows how to calm down	◯	◯	◯	◯
Shows concern for others	◯	◯	◯	◯
Completes tasks without bothering others	◯	◯	◯	◯
Completes school assignments	◯	◯	◯	◯
Responds safely when pushed or hit	◯	◯	◯	◯
Resolves disagreements calmly	◯	◯	◯	◯
Uses safe language when upset	◯	◯	◯	◯
Asks others for help when needed	◯	◯	◯	◯
Enjoys school	◯	◯	◯	◯
Participates effectively in group discussions and activities	◯	◯	◯	◯
Stands up for self when treated unfairly	◯	◯	◯	◯
Is sensitive to feelings of other students	◯	◯	◯	◯
Likes to be successful in school	◯	◯	◯	◯
Will give in or compromise with peers when appropriate	◯	◯	◯	◯
Adjusts to different behavioral expectations across settings	◯	◯	◯	◯
Cares what happens to other people	◯	◯	◯	◯

PART 2 of the Positive Classroom Behavior Survey

Would it be a reasonable time commitment for you to fill out a rating scale like this one (with 30 items) on a weekly basis, for 1-2 students who have mild to moderate behavior problems?

◯ Yes, it would be a reasonable time commitment.

◯ No, it would not be a reasonable time commitment.

What is the maximum number of items you would be willing to rate, for 1-2 students on a weekly basis?

My maximum number =

You have completed Part 2, the final phase of this survey. Thank you very much for your valuable time! Please feel free to add any comments you have about this project in the box below (optional).

Click "Done" when you are ready to submit your survey.

APPENDIX C

LIST OF ACRONYMS

ABA	Applied Behavior Analysis
ANOVA	Analysis of Variance
APBS	Association for Positive Behavior Support
ASEBA	Achenbach System of Empirically Based Assessment
BAG	Behavioral Assessment Grid
BASC-2	Behavior Assessment System for Children, Second Edition
BEP	Behavior Education Program
CASEL	Collaborative for Academic, Social, and Emotional Learning
CBM	Curriculum-Based Measurement
CICO	Check-In, Check-Out
DIBELS	Dynamic Indicators of Basic Early Literacy Skills
DBR	Direct Behavior Rating
DBRC	Daily Behavior Report Card
DPR	Daily Progress Report
ESL	English as a Second Language
FBA	Functional Behavioral Assessment
GOM	General Outcome Measure
IDEA	Individuals with Disabilities Education Act
IEP	Individualized Education Program
ODR	Office Discipline Referral
PAF	Principal Axis Factoring

PCA	Principal Components Analysis
PBIS	Positive Behavioral Interventions and Supports
PBS	Positive Behavior Support
RTI	Response to Intervention
SDO	Systematic Direct Observation
SBSS	School Social Behavior Scales
SEARS	Social-Emotional Assets and Resiliency Scales
SEL	Social-Emotional Learning
SET	Schoolwide Evaluation Tool
SSMM	Specific Subskill Mastery Measurement
SSBD	Systematic Screening for Behavior Disorders
SSIS	Social Skills Improvement System
SWIS	Schoolwide Information System
SWPBS	Schoolwide Positive Behavior Support

REFERENCES

Achenbach, T. M. & Rescorla, L. A. (2001). *Manual for ASEBA school-age forms and profiles.* Burlington, VT: University of Vermont, Research Center for Children, Youth, and Families.

Bear, G. G., Manning, M. A., & Izard, C. E. (2003). Responsible behavior: The importance of social cognition and emotion. *School Psychology Quarterly, 18*(2), 140-157.

Bear, G.G., & Minke, K.M. (2007, April). *Schoolwide PBS: What's missing and how to fix it.* Paper presented at the National Association of School Psychologists Annual Convention, New York, NY.

Blechman, E.A., Schrader, S.M., & Taylor, C.J. (1981). Family problem solving versus home notes as early intervention with high-risk children. *Journal of Counseling and Clinical Psychology, 49,* 919–926.

Bransford, J. D., & Stein, B. S. (1984). *The IDEAL problem solver*. New York: W.H. Freeman.

Bryant, F. B., & Yarnold, P. R. (1995). Principal components analysis and exploratory and confirmatory factor analysis. In L. G. Grimm & R.R. Yarnold (Eds.), *Reading and understanding multivariate statistics* (pp. 99-136). Washington, DC: American Psychological Association.

Chafouleas, S.M., Christ, T.J., Riley-Tillman, T.C., Briesch, A.M., & Chanese, J.A. (2007). Generalizbility and dependability of direct behavior ratings to assess social behavior of preschoolers. *School Psychology Review, 36*(1), 63-79.

Chafouleas, S. M., McDougal, J. L., Riley-Tillman, T. C., Panahon, C. J., & Hilt, A. M. (2005). What do daily behavior report cards (DBRCs) measure? an initial comparison of DBRCs with direct observation for off-task behavior. *Psychology in the Schools, 42,* 669-676.

Chafouleas, S. M., Riley-Tillman, T. C., & McDougal, J. L. (2002). Good, bad, or in-between: How does the daily behavior report card rate? *Psychology in the Schools, 39,* 157-169.

Chafouleas, S. M., Riley-Tillman, T. C., & Sassu, K. A. (2006). Acceptability and reported use of daily behavior report cards among teachers. *Journal of Positive Behavior Interventions, 8,* 174-182.

Chafouleas, S. M., Riley-Tillman, T. C., Sassu, K. A., LaFrance, M. J., & Patwa, S. S. (2007). Daily behavior report cards: An investigation of the consistency of on-task data across raters and methods. *Journal of Positive Behavior Interventions, 9,* 30-37.

Chafouleas, S.M., Riley-Tillman, T.C., & Sugai, G.S. (2007). *School-based behavioral assessment.* New York: The Guilford Press.

Clark, T.M. (2008). The generalizability of systematic direct observations across items: Exploring the psychometric properties of behavioral observation. Dissertation Abstracts International: Section B: The Sciences and Engineering, Vol 69(9-B), 2009. pp. 5826.

Clonan, S.M., McDougal, J.L., & Clark, K., Davison, S. (2007). Use of office discipline referrals in school-wide decision making: A practical example. *Psychology in the Schools, 44*(1), 19-27.

Colvin, G., Kame'enui, E. J., & Sugai, G. (1993). School-wide and classroom management: Reconceptualizing the integration and management of students with behavior problems in general education. *Education and Treatment of Children, 16,* 361-381.

Cone, J.D. (1977). The relevance of reliability and validity for behavioral assessment. *Behavior Therapy, 8,* 411-426.

Cone, J.D. (1978). The behavioral assessment grid (BAG): A conceptual framework and taxonomy. *Behavior Therapy, 9,* 882-888.

Conners, C.K. (1997). *Conners Rating Scales-Revised Manual*. Tonawanda, NY: Multi-Health Systems.

Cook, T.D. & Campbell, D.T. (1979). *Quasi-experimental design and analysis issues for field settings.* Boston, MA: Houghton-Mifflin Company.

Cronbach, L.J., Gleser, G.C., Nanda, H., & Rajaratnam, N. (1972). The dependability of behavioral measurements. New York: Wiley.

Crone, D. A., Horner, R. H., & Hawken, L. S. (2004). *Responding to problem behavior in schools: The behavior education program.* Guilford Press.

Deno, S.L. (1985). Curriculum based measurement: The emerging alternative. *Exceptional Children, 52,* 219-232.

Deno, S.L. (2002). The school psychologist as problem solver. In Thomas & Grimes, (Eds.) *Best practices in school psychology III.* (pp.471-484). Bethesda: National Association of School Psychologists.

Diamond, J.M., & Deane, F.P. (1990). Conners' Teachers Questionnaire: Effects and implications of frequent adminstrations. *Journal of Child Clinical Psychology 19*(3), 202-204.

Dunlap, G., Sailor, W., Horner, R.H. & Sugai, G.S. (2009). Overview and history of positive behavior support. In W. Sailor, G. Dunlap, G. Sugai, & R. Horner, (Eds.), *Handbook of Positive Behavior Support*. pp. 3-16. New York: Springer.

Drew, B.M., Evans, J.H., Bostow, D.E., Geiger, G., & Drash, P.W. (1982). Increasing assignment completion and accuracy using a daily report card procedure. *Psychology in the Schools 19,* 540-547.

Edelbrock, C. S., & Achenbach, T. M. (1984). The teacher version of the child behavior profile: I. boys aged 6-11. *Journal of consulting and clinical psychology, 52,* 207-217.

Educational and Community Supports (2007). School-Wide Information System. Retrieved December 5th, 2008, from Educational and Community supports Web site: http://www.swis.org/.

Faul, F., Erdfelder, E., Lang, A.-G., & Buchner, A. (2007). G*Power 3: A flexible statistical power analysis program for the social, behavioral, and biomedical sciences. *Behavior Research Methods, 39,* 175-191.

Fairbanks, S., Sugai, G., Guardino, D., & Lathrop, M. (2007). Response to intervention: Examining classroom behavior support in second grade. *Exceptional Children 73*, 288-310.

Fuchs, L. S. (1989). Evaluating Solutions, monitoring progress and revising intervention plans. In Shinn, M.R., *Curriculum-Based Measurement: Assessing Special Children.* New York: The Guilford Press.

Fuchs, L. S., & Deno, S. L. (1991). Paradigmatic distinctions between instructionally relevant measurement models. *Exceptional Children, 57,* 488-500.

Fuchs, L.S., & Fuchs, D. (1986). Effects of systematic formative evaluation: A meta-analysis. *Exceptional Children, 53*, 3-14.

Fuchs, L.S., & Fuchs, D. (1998) Treatment validity: A unifying concept for reconceptualizing the identification of learning disabilities. *Learning Disabilities Research and Practice, 13*(4), 204-219.

Fuchs, L.S., Fuchs, D., Hamlett, C.L., Walz, L., & Germann, G. (1993). Formative evaluation of academic progress: How much growth can we expect? *School Psychology Review, 22,* 27-48.

Gable, R.K., & Wolf, M.B. (1993). *Instrument development in the affective domain* (2nd ed.). Boston, MA: Kluwer Academic Publishers.

Goldfried, M. R., & Kent, R. N. (1972). Traditional versus behavioral personality assessment: A comparison of methodological and theoretical assumptions. *Psychological Bulletin, 77*, 409-420.

Gresham, F. M., & Elliott, S. N. (2008). *Social Skills Improvement System*. Bloomington, MN: Pearson Education, Inc.

Hawken, L.S. (2006). School psychologists as leaders in the implementation of a targeted intervention. *School Psychology Quarterly 21*, 91-111.

Hawken, L.S., & Horner, R. H. (2003). Evaluation of a targeted intervention within a school-wide system of positive behavior support. *Journal of Behavioral Education 12*, 225-240.

Hintze, J.M. (2005). Psychometrics of direct observation. *School Psychology Review, 33,* 507-519.

Hintze, J.M., Daly, E.J., & Shapiro, E.S. (1998). An investigation of the effects of passage difficulty level on outcomes of oral reading fluency progress monitoring. *School Psychology Review*, *27*(3), 433-445.

Hintze, J. M., & Matthews, W. J. (2004). The generalizability of systematic direct observations across time and setting: A preliminary investigation of the psychometrics of behavioral observation. *School Psychology Review*, *33*(2), 258-270.

Hintze, J.M., & Shapiro, E.S. (1995). Systematic Observation of classroom behavior. In A. Thomas & J. Grimes (Eds.), *Best Practices in School Psychology III* (pp. 651-660). Bethesda, MD: National Association of School Psychologists.

Hintze, J. M., & Shapiro, E. S. (1997). Curriculum-based measurement and literature based reading: Is curriculum-based measurement meeting the needs of changing reading curricula? Journal of School Psychology, 35, 351-375.

Hintze, J. M., Shapiro, E. S., & Lutz, J. G. (1994). The effects of curriculum on the sensitivity of curriculum-based measurement in reading. The Journal of Special Education. 28, 188-202.

Horner, R. H., Todd, A. W., Lewis-Palmer, T., Irvin, L. K., Sugai, G., & Boland, J. B. (2004). The school-wide evaluation tool (SET): A research instrument for assessing school-wide positive behavior support. *Journal of Positive Behavior Interventions, 6*(1), 3-12.

Individuals with Disabilities Education Improvement Act, Pub. L. No. 108-446, 20 U.S.C. § 1415 (2004).

Jöreskog, K.G. & Sörbom, D. (1988). LISREL 7 [Computer software]. Chicago, IL: Scientific Software International, Inc.

Kaminski, R. A., & Good, R. H. (1998). Assessing early literacy skills in a problem solving model: Dynamic indicators of basic early literacy skills. In M. R. Shinn (Ed.), *Advanced applications of curriculum-based measurement* (pp. 113-142). New York: Guilford Press.

March, R.E., & Horner, R.H., 2002; Feasibility and contributions of functional behavioral assessments in schools. *Journal of Emotional and Behavioral Disorders 10*, 158-170.

McCurdy, B.L., Mannella, M.C., & Eldridge, N. (2003). Positive behavior support in urban schools: Can we prevent the escalation of antisocial behavior? *Journal of Positive Behavior Interventions, 5*(3), 158-170.

McMahon, R.J., Wells, K.C., & Kotler, J.S. (2006). Conduct problems. In E.J. Mash & R.A. Barkley (Eds.), Treatment of childhood disorders (3rd ed., pp. 137-268). New York: The Guilford Press.

Merrell, K.W. (2002). *School Social Behavior Scales* (2nd Ed.). Eugene, OR: Assessment-Intervention Resources.

Merrell, K.W. (2008a). *Behavioral, social, and emotional assessment of children and adolescents* (3rd ed.). Mahwah, NJ: Erlbaum.

Merrell, K.W. (2008b). *The Social-Emotional Assets and Resiliency Scales*. Eugene, OR: School Psychology Program, College of Education. Available at http://strongkids.uoregon.edu/SEARS.html.

Metzler, C.W., Biglan, A., Rusby, J.C., & Sprague, J.R. (2001). Evaluation of a comprehensive behavior management program to improve school-wide positive behavior support. *Education and Treatment of Children, 24*(4), 448-479.

Newton, S.J., Horner, R.H., Algozzine, R.F., Todd, A.W., & Algozzine, K.M. (2009). Using a problem-solving model to enhance data-based decision making in schools. In W. Sailor, G. Dunlap, G. Sugai, & R. Horner, (Eds.), *Handbook of Positive Behavior Support*. pp. 551-580. New York: Springer.

Pelham, W. E. (1993). Pharmacotherapy for children with attention-deficit hyperactivity disorder. *School Psychology Review, 22*(2), 199-227.

Reschly, D. J. (1988). Special education reform: school psychology revolution. *School Psychology Review, 17*(3), 459-475.

Reynolds, C.R. & Kamphaus, K.W. (2004). *BASC-2: Behavior Assessment Scale for Children, Second Edition.* Circle Pines, MN: American Guidance Service.

Riley-Tillman, T. C., Chafouleas, S. M., & Briesch, A. M. (2007). A school practitioner's guide to using daily behavior report cards to monitor student behavior. *Psychology in the Schools, 44*, 77-89.

Riley-Tillman, T. C., Christ, T. J., Chafouleas, S. M., Christ, T.J., Briesch, A.M., & LeBel, T.J. (2009). The impact of item wording and behavioral specificity on the accuracy of direct behavior ratings (DBRs). *School Psychology Quarterly, 24*(1), 1-12.

Salvia, J., & Ysseldyke, J. E. (2001). *Assessment* (8th ed.). Boston: Houghton Mifflin.

Severson, H. H., Walker, H. M., Hope-Doolittle, J., Kratochwill, T. R., & Gresham, F. M. (2007). Proactive, early screening to detect behaviorally at-risk students: Issues, approaches, emerging innovations, and professional practices. *Journal of School Psychology, 45*, 193-223.

Schumaker, J.B., Hovell, M.F., & Sherman, J.A. (1977). An analysis of daily report cards and marent-managed privileges in the improvement of adolescents' classroom performance. *Journal of Applied Behavior Analysis, 10*(3), 449-464.

Shapiro, E. S. (2004). *Academic skills problems workbook* (rev.). New York: The Guilford Press.

Shapiro, E.S. (2009). Best practices in setting progress monitoring goals for academic skill improvement. In A. Thomas & J. Grimes (Eds.), *Best Practices in School Psychology IV* (pp. 141-158). Bethesda, MD: National Association of School Psychologists.

Shinn, M. R. (1989). *Curriculum-based measurement: Assessing special children.* New York: The Guilford Press.

Singer, G.H.S., & Wang, M. (2009). The intellectual roots of positive behavior support and their implications for its development. In W. Sailor, G. Dunlap, G. Sugai, & R. Horner, (Eds.), *Handbook of Positive Behavior Support*. pp. 17-46. New York: Springer.

Spaulding, S. A., Horner, R. H., May, S. L., & Vincent, C. G. (2008). Evaluation brief: Implementation of schoolwide PBS across the United States. OSEP Technical Assistance Center on Positive Behavioral Interventions and Supports. Web site: http://pbis.org/evaluation/evaluation_briefs/default.aspx

Steege, M.W., Davin, T., & Hathaway, M. (2001). Reliability and accuracy of a performance-based behavioral recording procedure. *School Psychology Review, 30*, 252-261.

Sugai, G. (2007). Promoting behavioral competence in schools: A commentary on exemplary practices. *Psychology in the Schools*, *44*(1), 113-118.

Sugai, G.S. & Horner, R.H. (2009). Defining and describing schoolwide positive behavior support. In W. Sailor, G. Dunlap, G. Sugai, & R. Horner, (Eds.), *Handbook of Positive Behavior Support*. pp. 307-326. New York: Springer.

Sugai, G., Horner, R. H., Dunlap, G., Hieneman, M., Lewis, T. J., Nelson, C. M., et al. (2000). Applying positive behavior support and functional behavioral assessment in schools. *Journal of Positive Behavior Interventions, 2*(3), 131-143.

Tapp, J. (2004). *MOOSES (Multi-Option Observation System for Experimental Studies*). Retrieved November 15, 2007, from http://www.kc.vanderbilt.edu/mooses/mooses.html

Thorndike, R.M. (2005). *Measurement and evaluation in psychology and education* (7th ed.). Columbus, OH: Merrill.

Volpe, R. J., DiPerna, J. C., Hintze, J. M., & Shapiro, E. S. (2005). Observing students in classroom settings: A review of seven coding schemes. *School Psychology Review*, *34*(4), 454-474.

Walker, H. M., Horner, R. H., Sugai, G., & Bullis, M. (1996). Integrated approaches to preventing antisocial behavior patterns among school-age children and youth. *Journal of Emotional and Behavioral Disorders, 4*(4), 194-209.

Walker, H. M., Irvin, L. K., Noell, J., & Singer, G. H. (1992). A construct score approach to the assessment of social competence: Rationale, technological considerations, and anticipated outcomes. *Behavior modification, 16*(4), 448-474.

Walker, H.M. & Severson, H.H. (1992). The Systematic Screening for Behavior Disorders: A multiple gating procedure. Longmont, CO: Sopris West.

Wright, J. (2002). Behavior Report Card Generator [computer software]. Retrieved November 15, 2005, from www.jimwrightonline.com/php/tbrc/tbrc.php.

Ysseldyke, J., Burns, M., Dawson, P., Kelly, B., Morrison, D., Ortiz, S., Rosenfield, S., Telzrow, C. (2006). *School Psychology: A blueprint for training and practice III.* Bethesda, MD: National Association of School Psychologists.