# EXAMINING A BRIEF BEHAVIOR PROGRESS MONITORING TOOL'S SENSITIVITY TO CHANGE

by

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## ABSTRACT

Current research suggests schools face many barriers in effectively monitoring student's response to behavioral interventions in the classroom. The purpose of this study was to evaluate the FastBridge - Direct Behavior Rating (FastBridge-DBR), a brief, novel progress monitoring measure, designed to assess student behavioral change in response to a classroom behavioral intervention. Twenty-four elementary teacher-student dyads implemented a daily progress report intervention to promote positive student behavior during pre-specified classroom activities. FastBridge-DBR data were then collected for three target behaviors (i.e., Academic Engagement, Disruptive Behavior, Withdrawal) and compared to Systematic Direct Observation (SDO) data. Five change metrics (i.e., absolute change, percent of change from baseline, improvement rate difference, Tau-U, effect size; Gresham, 2005) were used to examine sensitivity to change. The Usage Rating Profile - Assessment (URP-A) was used to evaluate teacher acceptability of FastBridge-DBR. FastBridge-DBR scores were highly correlated with SDO data, demonstrating evidence of concurrent validity. FastBridge-DBR change metrics were significantly correlated with SDO change metrics. Additionally, while teachers provided high acceptability ratings for FastBridge-DBR, there was a lack of association between teachers' ratings of acceptability and student behavioral change. Implications for practice, study limitations, and areas of future research are discussed.

# CHAPTER 1

# INTRODUCTION

This chapter provides the reader with information about the prevalence of mental health and behavioral concerns in children and youth, as well as associated negative outcomes. This is followed by an overview of the need to address behavioral concerns, including provision of behavioral interventions in schools. A discussion regarding the need for behavioral progress monitoring tools within a behavioral framework follows. Finally, the reader is presented with: (1) the obstacles faced within schools to implement the necessary component of progress monitoring students' responses to behavioral interventions, and (2) the need for additional research examining progress monitoring measures to identify tools that are effective and feasible for use in the school setting.

## Mental Health and Behavioral Concerns

Of the millions of children who attend public schools in the United States (U.S. Department of Education, 2014), estimates indicate that 20% are experiencing emotional, behavioral, or mental health symptoms that would qualify them for a psychiatric diagnosis (Dowdy, Ritchey, & Kamphaus, 2010; Gresham, 2005). However, only 1% of these students receive services, which are through special education (National Association of School Psychologists, 2009), with many never receiving any support services for their emotional difficulties (Bradley, Doolittle, & Bartolotta, 2008). As a result of overlooked mental health disorders and problem behaviors, many children may suffer multiple limitations in functioning while in school with potential long-term negative outcomes once they reach adulthood (Kessler & Wang, 2008; Lane, Oakes, & Menzies, 2010). This may include poor problem-solving skills, difficulties with self-regulation, impaired social skills with peers and/or adults, and difficulties with aggression

or withdrawal (Lane, 2007; Walker et al., 2009). These behaviors often interfere with a student's ability to develop relationships with peers and adults, engage in academic activities within the classroom setting, and negatively impact academic achievement (Lane et al., 2010; Spanjers, Burns, & Wagner, 2008; Wagner, Friend, et al., 2006; Weist, Rubin, Moore, Adelsheim, & Wrobel, 2007; Whitted, 2011). Long-term negative outcomes of behavioral concerns include school failure; high rates of under- and unemployment; difficulties with adjusting to the community post-high school; substance abuse; incarceration; and the need for mental health services (Bradley et al., 2008; Center for Evidence-Based Practice. 2004; Raines, Dever, Kamphaus, & Roach, 2012; Wagner & Davis, 2006).

Given the high levels of mental health concerns among children and youth, researchers indicate the need for early identification and intervention for social, emotional, and behavioral difficulties (Fox, Halpern, & Forsyth, 2008; Kessler & Wang, 2008; Renshaw et al., 2009; Sulkowski, Joyce, & Storch, 2012). As special education is often the path by which struggling students receive behavioral supports (Lane et al., 2012; Weist et al., 2007), additional strategies are needed to address these concerns prior to students' behaviors reaching a level of severity that qualifies them for special education services. As data reveal up to 50% of mental disorders begin prior to age 14 (World Health Organization, 2013), it is imperative to address the mental and behavioral health needs of school-aged youth.

**Progress Monitoring Tools within a Behavioral Framework**

Given the prevalence of mental health concerns among children and adolescents, schools need to be prepared to serve emotionally and behaviorally at-risk students (Lane

et al., 2009). Many schools have developed multi-tiered systems of support to address the behavioral and academic needs of students. In this framework, universal behavioral assessment and intervention strategies consider the needs of all students. This could include the use of universal screening methods to identify children at risk of emotional and behavioral difficulties (Kilgus, Chafouleas, & Riley-Tillman, 2013a; Severson, Walker, Hope-Doolittle, Kratochwill, & Gresham, 2007) or other problem-solving based strategies that include the use of teacher referral, self-nomination procedures, and/or problem solving teams (Eklund & Dowdy, 2014; National Association of School Psychologist, 2015). Once identified, children are provided evidence-based interventions to decrease, or potentially eliminate problem behaviors before they become worse (Harrison, Vannest, & Reynolds, 2013; Hawken, O'Neill, & MacLeod, 2011; Predy, McIntosh, & Frank, 2014; Walker, Cheney, Stage, Blum, & Horner, 2005). Progress monitoring data are then used to determine whether interventions are effective in decreasing or improving problem behaviors (Dowdy et al., 2010; Greenwood, Carta, & McConnell, 2011; Yell, Shriner, & Katsiyanis, 2006). As schools are required to implement interventions and monitor progress as part of a pre-referral process (IDEA, 2004), it is imperative for school personnel to determine if students with behavioral difficulties are responding to interventions, such as decreasing unwanted behaviors and/or increasing desired behaviors. If progress monitoring data indicate a student is not making improvements, then the intervention may need to be changed or adjusted to meet the student's needs (Borntrager & Lyon, 2015; Briesch, Chafouleas, & Riley-Tillman, 2010).

In spite of the need for progress monitoring data as part of a comprehensive data-

based decision making process (Epstein, Atkins, Cullinan, Jutash, & Weaver, 2008; Hawken, Vincent, & Schumann, 2008), schools have faced difficulties implementing behavioral progressmonitoring procedures. Barriers include: (a) access to psychometrically sound tools that are sensitive to behavioral change, (b) time efficient measures that have demonstrated acceptability and reliability, (c) tools appropriate for monitoring student response to school-based interventions, and (d) personnel who are trained and available to support intervention implementation (Greenwood et al., 2011; Todd, Campbell, Meyer, & Horner, 2008). Broad-based progress monitoring tools are needed that address a wide range of behavioral concerns, including externalizing behaviors, internalizing behaviors, academic engagement, and adaptive behaviors. As current progress monitoring practices primarily focus on externalizing behaviors (e.g., disruptive/defiant behaviors, impulsivity; Gresham et al., 2010; Irvin, Tobin, Sprague, Sugai, & Vincent, 2004), student internalizing behaviors (e.g., sadness, depression, anxiety) can be frequently overlooked (Walker et al., 2005). It is also important that school personnel have the necessary training and support to efficiently and effectively utilize these measures. Additional research is needed to identify and validate progress monitoring tools that are psychometrically defensible, address a broad range of student concerns, and are acceptable to teachers and school staff.

# CHAPTER 2

# REVIEW OF LITERATURE

This chapter provides an empirical review of progress monitoring for behavioral concerns among children and youth. It begins with a review of the implementation of behavioral supports, the history of progress monitoring, and federal legislation supporting its use in practice. Next, empirical evidence is provided to support the use of progress monitoring procedures, as well as barriers to implementation. This chapter concludes with the purpose of the current study, research questions, and study hypotheses.

## A Behavioral Framework

Schools have traditionally operated in a refer-test-place model of service delivery (Albers, Glover, & Kratochwill, 2007; Dowdy et al., 2010; Volpe & Briesch, 2012). In this model, students who have consistently demonstrated difficulties in the educational setting are referred for individual evaluations to determine whether or not they are eligible for supports, including special education services (Dowdy et al., 2010; Levitt, Saka, Romanelli, & Hoagwood, 2007). While this model is implemented with the intent of helping students, research suggests this often delays referral and/or services to at-risk students, while alternative methods exist that better serve students' needs (Lane et al., 2010; Mills et al., 2006). For example, schools focused on delivering early intervention strategies to students, paired with progress monitoring, may see a decrease and even elimination of educational difficulties whereby special education services are not needed (Greenwood et al., 2011; Morgan, Farkas, & Wu, 2009).

**Identification.** As part of a behavioral framework, students with behavioral difficulties must be identified prior to providing them with evidence-based interventions

and collecting essential progress monitoring data (Oakes, Lane, Cox, & Messenger, 2014; Saeki et al., 2011; Severson et al., 2007). Identification methods may include office disciplinary referrals (Predy et al., 2014), teacher referral (Eklund & Dowdy, 2014), and behavioral screening measures (Kilgus et al., 2013a). A number of studies have focused on examining screeners to identify behaviorally at-risk students (Kilgus et al., 2013a; Kilgus, Chafouleas, Riley-Tillman, & von der Embse, 2013b), as screeners are more likely to identify a broader range of behavioral concerns than teacher referral (Dever, Mays, Kamphous & Dowdy, 2012; Raines et al., 2012; Walker et al., 2009). For example, one study was conducted with the purpose of developing and providing initial validation of the Social and Academic Behavior Risk Screener (SABRS), designed to be an efficient school-based measure to assess a wide range of behavioral concerns (Kilgus et al., 2013a). This study consisted of 54 teachers and 243 students from elementary schools with kindergarten through fifth grade. Study researchers reviewed developmental research on the course of behavior problems and related competencies; reviewed various models of social, emotional, and academic competence; and conducted a content validation process, further examining reliability and factor analyses (Kilgus et al., 2013a). Their endeavors lead to the development of a 12-item social and academic behavior risk screener scale from which two factors emerged. These two factors consisted of six items that corresponded to social behavior and six items that corresponded to academic behavior. Further analyses indicated each scale, including the overall combined scale, to be a concurrently valid and diagnostically accurate predictor of the Social Skills Improvement System Teacher Rating Scale (SISS; Gresham & Elliott, 2008), a comprehensive rating scale designed to assess a student's social skills.

Subsequent to the SABRS initial validation study, additional research (Kilgus et al., 2013b) was conducted to expand the scope of the SABRS. The continued research efforts led to the development of the Social, Academic, and Emotional Behavior Risk Screener (SAEBRS; Kilgus et al., 2013b). The conceptual model of the SAEBRS is based on research results indicating that school success is not exclusively predicted by academic achievement, but also includes success within various interconnected behavioral domains, which includes adaptive and maladaptive behaviors. The SAEBRS is 19-item measure, designed to assess Kindergarten through 12$^{th}$ grade student behavior across the following domains: Social Behavior (6 items), Academic Behavior (6 items), and Emotional Behavior (7 items). Study results found the SAEBRS to be an efficient and effective universal screening tool for students demonstrating risk of social-emotional and behavioral difficulties. Two additional studies have also examined the SAEBRS and study results indicated further support for its reliability, validity, and diagnostic accuracy (Kilgus, Eklund, von der Embse, & Taylor, 2014a; Kilgus, Sims, von der Embse, & Riley-Tillman, 2014c) with sensitivity and specificity values ranging from ≥ .80 - .90 (Kilgus, Riley-Tillman, Chafouleas, Christ, & Welsh, 2014b). Given the amount of research devoted to the design, development, and examination of the SAEBRS as a behavioral screening measure, initial research supported the creation of a behavioral progress monitoring tool, based on SAEBRS item content.

**Progress Monitoring Practices**

Once students have been identified and provided appropriate interventions, data are needed to assess the performance or progress of students over time. Progress monitoring is broadly defined as a means of examining individual growth over time in

response to a specific intervention (Borntrager & Lyon, 2015; Deno, 1997; Stecker, Fuchs, & Fuchs, 2008a). According to Deno (1997), there is no clear indication as to when schools began to monitor students' individual growth and employ progress monitoring procedures. Academic progress monitoring tools increased in popularity over the last two decades in response to a need for empirically validated, formative assessment measures that quickly and efficiently monitor student's academic performance (Mellard, Frey, & Woods, 2012). Curriculum-Based Measurements (CBMs; Busch & Reschly, 2007; Fuchs & Deno, 1991; Hosp & Ardoin, 2008; Jenkins, Dunlap, & Hoffman, 2009; Stoolmiller, Biancarosa, & Fien, 2013) are one example of a suite of progress monitoring tools that can be used to assess student response to academic instruction and/or intervention. For example, a student may be struggling with reading fluency. A reading intervention is then selected that will best meet the student's individual needs, paired with the development of a reading fluency goal (e.g., in 10 weeks, the student will read 50 words correctly per minute from randomly selected grade level passages; see Stecker, Lembke, & Foegen, 2008b; Yell & Stecker, 2003). After the intervention is implemented, a CBM could be used once a week to monitor the student's response to the selected intervention. This includes graphing CBM data so that educators are able to quickly and effectively adjust the selected intervention (Stecker et al., 2008b). Behavioral progress monitoring measures are used in a similar manner as described below.

**Behavioral progress monitoring.** Early examples of progress monitoring occurred in the 1960s with the use of single-case intervention studies of applied behavior analysis (Baer, Wolf, & Risley, 1968; Bijou, Peterson, & Ault, 1968). These early

studies of behavior analysis laid the foundation for positive behavioral interventions and supports (PBIS; Sugai & Horner, 2002; Sugai et al., 2000), which began to be implemented in schools in the 1990s (Artesani & Mallar, 1998; Dunlap, Kern-Dunlap, Clarke, & Robbins, 1991; Mayer, 1995). During that time, research also clearly emphasized the need for accurate and efficient student progress monitoring methods as part of a larger PBIS framework (Artesani & Mallar, 1998; Horner, Sugai, & Anderson, 2010; Sugai et al., 2000). Progress monitoring data are used within both academic and behavioral models to inform educational decision-making, including a timely review and modification of interventions (National Association of School Psychologists, 2009; Stecker et al., 2008a; Sugai et al., 2000).

Behavioral progress monitoring data can be used to address a variety of behavioral concerns. For example, consider a student who exhibits on-going externalizing behavioral difficulties, such as calling out during instructional time, disrupting the teacher and other students' learning. In response to this behavior, the school-based problem solving team works with the classroom teacher to select and implement a behavioral intervention. Once the intervention is implemented, the student's response to the intervention is consistently monitored; progress monitoring data are collected and reviewed for data-based decision making purposes; and, as previously described, adjustments to the intervention are made, as needed (see Hawken et al., 2008; Martens & Andreen, 2013; Shores, 2009). Student behavioral progress monitoring data may also be valuable for community service providers, such as psychiatrists and pediatricians wanting to monitor student response to selected interventions (e.g., medications, therapy), as well as in building and strengthening school-home-community

relationships (Gruman & Hoelzen, 2011; Marteens & Andreen, 2013).

While academic progress monitoring tools are currently used in many schools (Mellard et al., 2012), this same process has become more challenging when applied to behavioral interventions (Greenwood et al., 2011; Todd et al., 2008). Due to a lack of efficient, effective, and psychometrically sound measurement tools, there is a scarcity of available tools and progress monitoring is not being implemented on a consistent basis (Volpe, Briesch, & Gadow, 2011; Volpe & Gadow, 2010; Walker et al., 2005). While initial research suggests behavioral progress monitoring tools, paired with the use of evidence-based interventions result in positive student outcomes (Cheney, Flower, & Templeton, 2008; Gruman & Hoelzen, 2011; Lindsley, 1971), additional research is needed to expand support for these methods.

**Federal law.** Progress monitoring practices are further outlined in federal law. In 1997, amendments to the Individuals with Disabilities Education Act (IDEA, 1997) incorporated language that included the use of positive behavioral interventions strategies and supports to address behaviors that interfere with a child's learning. Amendments also included implementation of a behavioral intervention plan prior to suspension and a requirement to review and revise student behavioral plans prior to considering suspension from school. The No Child Left Behind Act (NCLB; 2001) and the Individuals with Disabilities Education Improvement Act (IDEA; 2004) both incorporated language indicating schools must utilize evidence-based practices, including behavioral interventions, with a focus on prevention, early intervention, and progress monitoring.

## Using Progress Monitoring Tools to Address Behavioral Concerns

Research has identified externalizing problems, internalizing problems, adaptive

behavior/skills, and attention/learning problems as core constructs of children's behavioral and emotional functioning (Edelbrock & Achenbach, 1980). Given these constructs are related to mental health difficulties among school-age youth (Frick, Barry, & Kamphaus, 2010), it is imperative to not only develop evidence-based interventions, but to consider progress monitoring tools that can effectively monitor student behavioral functioning.

**Externalizing behaviors.** Externalizing behaviors are generally defined as problem behaviors that are easily noticed by teachers or other school personnel given the way students exhibit these behaviors (Cheney et al., 2008; Lane et al., 2012). Examples of externalizing behaviors include aggressive behaviors, conduct problems, disruptive behaviors, hyperactivity-impulsivity, opposition/defiance, and acting out (Hunter, Chenier, & Gresham, 2014). A number of negative outcomes are associated with externalizing behaviors among youth, including peer rejection, increased rates of school dropout, and substance abuse (Reinke, Herman, Petras, & Ialongo, 2008; Schaeffer, Petras, Ialongo, Poduska, & Kellam, 2003).

**Internalizing behaviors.** Internalizing behaviors are generally defined as over controlled behaviors, as individuals attempt to excessively control internal emotions or cognitions (Gresham & Kern, 2004; Merrell & Gueldner, 2010; Richardson, Caldarella, Young, Young, & Young, 2009). Student internalizing behaviors may include anxiety, depression, social withdrawal, somatic complaints, poor self-esteem, and negative self-thoughts (Hunter et al., 2014). Research has indicated that children who exhibit internalizing problem behaviors are at increased risk of school failure (Center for Evidence-Based Practice, 2004), suicidal ideation, (Colman., Wadsworth, Croudace, &

Jones, 2007), obesity, long-term disease, and premature mortality (von Strumm, et al., 2011).

**Academic engagement.** Academic engagement can be defined as students raising hands to participate in whole class discussions, interacting with peers during small group discussions, and sustaining attention to task during instructional lessons (Baker, Clark, Maier, & Viger, 2008; Opdenakker & Minnaert, 2011). Baker and colleagues (2008) examined academic engagement behaviors exhibited by second-grade students with and without behavior difficulties. Results indicated that, during independent seatwork, students without behavior difficulties exhibited academic engagement almost three-fourths of the time, while students with behavioral difficulties only exhibited academic engagement approximately half of the time. Furthermore, research indicates that academic engagement is a positive predictor for academic achievement (Montague, Enders, & Castro, 2005; Spanjers et al., 2008).

## Behavior Progress Monitoring Tools

As schools work to provide necessary behavioral or emotional supports for at-risk students, progress monitoring tools are needed to assess behavioral change. In order to fulfill this need, a number of researchers have focused on examining established and novel behavioral progress monitoring tools that may better serve students' needs (see Briesch et al., 2010; Burke & Vannest, 2008; Chafouleas, Kilgus, & Hernandez, 2009b; Gresham et al., 2010; Hintze, Volpe, & Shapiro, 2002; Volpe & Gadow, 2010).

**Systematic direct observation.** Systematic Direct Observation (SDO) is considered the gold standard method of assessing and monitoring problem behaviors in children (Burke & Vannest, 2008; Riley-Tillman, Chafouleas, Briesch, & Eckert, 2008a;

Stichter & Riley-Tillman, 2014; Volpe & Gadow, 2010). An SDO is defined as an observation of one or more behaviors (e.g., out of seat, calling out) that is triggered by a predetermined set of environmental stimuli (e.g., independent math work, whole class reading instruction) from which quantifiable data are obtained (Hintze & Matthews, 2004). A general description of SDO procedures are as follows: an external observer is identified (e.g., school psychologist); target student is identified; target behavior(s) is/are identified and clearly defined (e.g., calling out; i.e., operational definition); observation period, time, and intervals are identified (e.g., independent math work, 30 minutes, 30-second intervals); observational recording method is chosen (e.g., momentary time-sampling); and, finally, the external observer conducts the observation and collects quantifiable behavioral data (Hintze & Matthews, 2004; Hintze et al., 2002). As indicated by Volpe and McConaughy (2005), by using SDOs: (1) specific target behaviors are measured; (2) the target behaviors are operationally defined to assist with ease of identification; (3) standardized coding procedures are used; (4) quantitative scores are provided; and (5) SDOs can be tested for reliability and validity across different observers, periods of time, and across different settings. Due to the large body of data supporting the use of SDOs in schools, a number of studies have evaluated the psychometric properties of newer recording tools in comparison to SDOs. For example, SDOs have been used as a criterion measure in previous studies to assess Direct Behavior Ratings and the Daily Behavior Report Card (Briesch et al., 2010; Chafouleas, Riley-Tillman, Sassu, LaFrance, & Patwa, 2007b). Study results indicated that data from the newer recording tools were similar to that obtained from SDOs.

Depending on the nature of the target behavior, frequency of target behavior, as

well as specific interests of the observer, there are a number of methods by which student behavioral data can be systematically collected (Hintze et al., 2002). SDO methods may include frequency or event recording, which is typically used when behaviors have a discrete beginning and ending (e.g., hitting, raising hand); duration recording, which may be used when interested in the duration of the behavior (e.g., temper tantrum, social isolation); and latency recording, which is used to measure the elapsed time between the onset of the stimulus (e.g., teacher gives verbal directive to begin math assignment) and the initiation of the specific behavior (e.g., student begins math assignment). Time-sampling interval recording is another SDO method that requires selecting a specific period of time for observation, dividing up the period of time into equal intervals (e.g., 30 minutes divided into 120 15-second intervals), and recording whether or not the targeted behavior was exhibited during the specific interval. Time-sampling schedules can include whole-interval, where target behavior must occur during the entire interval; partial interval, where target behavior is counted only once during the interval; and momentary time-sampling, where target behavior is counted only at the beginning of the interval (Hintze et al., 2002). Interestingly, researchers (Hintze & Matthews, 2004) have noted that use of momentary time sampling procedures result in an equal probability of scored intervals to underestimate as well as overestimate the student's actual behavior. Therefore, the overall estimation of errors is apt to be smaller than errors that may be obtained by using partial or whole interval time-sampling recording (Hintze & Matthews, 2004).

While SDOs have been widely used in schools, a number of limitations have been noted (Burke & Vannest, 2008; Stichter & Riley-Tillman, 2014; Volpe & Gadow, 2010).

First, SDOs can be considered intrusive to the classroom environment due to the need to have frequent observational data points collected by outside observers in order to obtain accurate data regarding problematic behaviors (Hintze et al., 2002; Volpe & McConaughy, 2005). SDOs can also be time intensive, with observations lasting from 10 to 40 minutes over a period of 5 to 10 separate observations (Christ, Riley-Tillman, & Chafouleas, 2009). SDOs also require well-trained observers who understand standardized procedures by which to collect observational data points. As a result, SDOs may lack feasibility and practicality in the school setting (Briesch et al., 2010; Chafouleas et al., 2007b; Hawken et al., 2008; Hintze & Matthews, 2004). Additional tools or strategies are needed to address these shortcomings.

**Direct behavior rating.** The direct behavior rating (DBR) is an umbrella term for a behavior measurement tool that incorporates components of SDO (e.g., data recorded at specific time, place, and within specific conditions) and behavior rating scales (e.g., Behavior Assessment System for Children, Third Edition [BASC-3]; Reynolds & Kamphaus, 2015) (Chafouleas, Riley-Tillman, & Christ, 2009c; Christ et al., 2009). DBR forms may look somewhat different from one another; however, DBR procedures are generally conducted in the following manner: (a) prior to an observation, a specific student's target behavior is identified and defined; (b) a specific observation period is identified (e.g., when student typically displays unwanted behavior); (c) observation occurs for specified period of time; and (d) immediately following specified observation period, the observer (e.g., teacher, school psychologist) quantifiably rates the target behavior (e.g., using a 0 to 10 rating scale, rate Jane's academic engagement during small-group reading; Chafouleas et al., 2009b; Chafouleas et al., 2009c; Christ et al.,

2009). DBRs have been a focus of numerous studies over the years as researchers have examined their use as a behavioral progress monitoring tool (Chafouleas et al., 2009b; Christ et al., 2009; Steege, Davin, & Hathaway, 2001).

An early study conducted by Steege et al. (2001) investigated the reliability and accuracy of a version of a DBR (referred to as a performance-based behavioral recording procedure) by comparing DBR data to SDO data. Researchers examined specific behaviors (e.g., stereotypy, opposition) displayed by three participants with developmental disabilities. The DBR included a Likert-type scale (0-5) with corresponding increments of time the participant engaged in the target behavior. Two participants resided in a group home where the direct care staff and the group home's administrator conducted the DBR ratings during the day, while the third participant was in a self-contained special education classroom at an elementary school where an educational assistant and special education teacher conducted DBR ratings during the school day. Trained observers conducted SDOs in these same settings during multiple randomly selected observations sessions to make equitable comparisons between the SDO and DBR measures. Study results suggested similar behavior ratings over time between the DBR and SDO data.

Other researchers studied the similarity of data provided by teacher-rated DBRs to data from SDOs completed by external observers within typical classroom settings (Chafouleas, McDougal, Riley-Tillman, Panahon, & Hilt, 2005). This study included 32 teacher participants from six elementary schools. The DBR used for this study included a Likert-type scale (0-5) with corresponding descriptor and percentage (e.g., 1 = Student engaged in off-task behavior *occasionally* during (1-20%) of the period). Results

indicated a correlation of .67 between the mean DBR and mean SDO ratings of off-task behavior. A follow up study (Riley-Tillman, Chafouleas, Sassu, Chanese, & Glazer, 2008b) sought to provide additional concurrent validity of DBRs and SDO using the same version of DBR as the previous study (Chafouleas et al., 2005). More specifically, SDO data collected from external observers were compared to 15 teacher-rated DBRs for on-task and disruptive behavior. Study results revealed significant correlations between mean teacher DBRs and external observer SDO ratings of on-task behavior (.81) and disruptive behavior (.87).

DBR instrumentation includes both multiple item scales (MIS) and single item scales (SIS) with the DBR-SIS having received the majority of researchers' attention (Volpe & Briesch, 2012). A DBR-MIS incorporates multiple specific behaviors within a general class of behavior, while a DBR-SIS incorporates a single broad behavior that represents the multiple specific behaviors (Chafouleas, Jaffery, Riley-Tillman, Christ, & Sen, 2013; Volpe & Briesch, 2012). For example, a DBR-MIS may include specific behaviors such as task refusal, talking back, and whereas the DBR-SIS would include a single broad behavior of disruptive behavior (Christ et al., 2009). It is important to note that the DBR-SIS can include multiple general behaviors (e.g., disruptive behavior, academic engagement) on one DBR-SIS rating form with each behavior corresponding to its own rating scale. Some researchers have noted that the DBR-SIS has potential for behavioral progress monitoring given that data are quick to collect and interpret (Chafouleas et al., 2013; Christ & Boice, 2009; Christ et al., 2009). Other researchers have noted that changes in specific behaviors may be missed if the measurement tool is only focused on broad behaviors (Volpe & Briesch, 2012). As the majority of research

has focused on the DBR-SIS, the DBRs discussed throughout this study will refer to DBR-SIS unless otherwise noted.

One study sought to provide initial psychometric data about the generalizability and dependability of the DBR for evaluating social behaviors (i.e., works to resolve conflicts, interacts cooperatively) of a sample of 15 preschool children (Chafouleas, Christ, Riley-Tillman, Briesch, & Chanese, 2007a). Four teachers simultaneously observed and rated all 15 students twice per day for 30 minutes per observation for a total of 13 consecutive school days. Study results suggested that DBRs were likely to obtain a reliability that would approximate or exceed .70 after seven ratings had been conducted across 4-7 days. In addition, results also suggested the possibility of obtaining a reliability estimate of > .90 of the social behaviors of preschoolers when a single rater conducted at least 10 DBRs. Researchers noted that results were preliminary, but that the burden placed on school psychologist to conduct SDOs may be decreased if teachers could be trained to conduct behavioral ratings. Researchers replicated this study using eighth-grade middle school students (Chafouleas et al., 2010). This study included seven students, four of whom received special education services, in a class of only 12 students. The class was co-taught by a general education teacher and a special education teacher and the DBR was used to rate the seven students on academic engagement and disruptive behavior. Students were rated three times per day for six days with observation session lasting 10 minutes. Study results differed from the previous study, suggesting 10-20 DBRs were needed to obtain levels of reliability of .80. Researchers noted that the need to complete 10 or more DBRs may seem overwhelming to teachers; however, DBRs could realistically be completed in less than one minute.

Research has also investigated variations of scale construction and the potential for flexibility when constructing the DBR-SIS. Examples of scales used include a vertical list of ratings from 0-5 with corresponding qualitative descriptors and percentages (e.g., 1 = occasionally = 1%-20% of the observation period; Chafouleas et al., 2007b); a 105 mm horizontal line divided into 15 equal intervals with percentage anchors of 0, 50, and 100% (Chafouleas et al., 2007a); and a 105 mm horizontal line divided into 10 equal intervals with percentage anchors of 0, 50, and 100% (Chafouleas et al., 2010). Some researchers have suggested that using a scale of 7-10 equal intervals may result in technically defensible data (Chafouleas, Christ, & Riley-Tillman, 2009a; Christ et al., 2009). Other researchers, not exclusive to DBRs, examined four variations of a scale's line length (i.e., 5-, 10-, 15-, and 20-cm lines) and results indicated that the shortest line (i.e., 5-cm) appeared to be associated with greatest error (Revill, Robinson, Rosen, & Hogg, 1976). The number of response categories included on a scale has also been investigated with results that indicated study respondents had the highest preference for a 10-point scale with 7-point and 9-point scales close behind (Preston & Colman, 2000). One study used a DBR with a 100-mm line that was divided into 10 equal intervals (Riley-Tillman, Christ, Chafouleas, Boice-Mallach, & Briesch, 2011). Participants were randomly assigned to use a DBR that had either a proportional scale (i.e., 0%, 20%) or an absolute scale (i.e., 1 min., 4 min.) to rate academic engagement and disruptive behavior. Study findings indicated that the type of scale anchoring used was not associated with greater rating accuracy. Researchers noted that, with regard to proportional and absolute anchoring, the findings suggested teachers and other school personnel could use the type of anchoring they favored, which also supported the

potential for the DBR to be a flexible instrument.

A more recent study investigated number of scale intervals (i.e., 5 or 10), length of the scale line (i.e., 50 or 100 mm), and use of a discrete or continuous scale (Briesch, Kilgus, Chafouleas, Riley-Tillman, & Christ, 2013). Participants were randomly assigned to use one of the DBR formats to rate academic engagement and disruptive behavior. Results of this investigation indicated that, in general, there were not significant variations of ratings across the different DBR-SIS formats. Researchers suggested that these findings lend further support to the potential flexibility of the DBR for use in schools. Interestingly enough, researchers also noted that the greatest proportion of variance in rating of academic engagement and disruptive behavior (approximately 40%), was due to the interaction between persons (i.e., students being observed) and occasions (i.e., different observation sessions).

Previous studies have sought to investigate wording used for target behaviors as part of DBRs and compared results to SDOs. For example, one study examined how rater accuracy was affected by positively and negatively worded target behaviors (Riley-Tillman, Chafouleas, Christ, Briesch, & LeBel, 2009). The DBR data were compared to SDO criterion data with results indicating greater rater accuracy with positively worded academic engagement items than unengaged, and equal levels of accuracy when participants rated either well-behaved (positive wording) or disruptive (negative wording) items. A second replication study included positively and negatively worded target behaviors and found academically engaged and unengaged items converged most with SDO data, with the positively worded items (i.e., academically engaged) having slightly less rater error than the negatively worded items (i.e., academically unengaged) (Christ,

Riley-Tillman, Chafouleas, & Jaffery, 2011). Interestingly, researchers found that when compared to SDO data, raters substantially underestimated well-behaved behaviors and overestimated disruptive behavior. A third study that investigated positive and negative target wording (Chafouleas et al., 2013) also examined rater accuracy by comparing participants' DBR results to both SDO data and data from DBRs completed by a group of experts (e.g., professors, postdoctoral fellows, school psychology graduate students). When using SDO as the criterion, results suggested support for the use of positive wording of academic engagement and nondisruptive behavior. The results for respectful behavior suggested more support for negative wording (i.e., disrespectful). When using the expert DBR as the criterion, results supported greater rater accuracy for positive wording of academically engaged and negative wording of both disruptive and disrespectful behaviors.

Research has also examined use and acceptability of DBRs, discovering that 64% of a sample of 123 teachers who were surveyed had used some form of a DBR-like tool with students (Chafouleas, Riley-Tillman, & Sassu, 2006). In addition, when using a 6-point scale (1 = *strongly disagree*, to 6 = *strongly agree*), 113 teachers indicated that their overall acceptability of a DBR-like tool for behavior-monitoring purposes was in the *slightly agree* to *agree* range ($M$ = 4.73, $SD$ = .98). Study results suggested DBR-like tools were used and accepted in school settings. A second study examined school psychologist use and acceptability of DBR-like tools and SDOs (Riley-Tillman et al., 2008a). Members of the National Association of School Psychologists (NASP) were surveyed with 191 useable surveys returned and randomly placed in group 1 (99 surveys) and group 2 (92 surveys). Results for both groups suggested 68% of participants

endorsed moderate or frequent use of SDOs for assessment purposes, while 54% endorsed moderate or frequent use of DBR-like tools. Researchers remarked these differences were not surprising given the emphasis on SDO in literature and training programs. With regard to acceptability, participants responded using a 6-point scale (1 = *strongly disagree*, to 6 = *strongly agree*) with SDO acceptability ratings from both groups considered high (group 1: $M = 4.9$, group 2: $M = 4.81$) and DBR acceptability ratings from both groups (group 1: $M = 4.54$, group 2: $M = 4.63$), which were also considered high. Researchers noted that study findings suggested that school psychologists found SDO and DBR-like tools acceptable for behavioral assessment purposes.

It is important to note that the intended users of the DBR are educators working in applied settings (Chafouleas et al., 2009a) and they are in need of instruments that incorporate features such as feasibility and flexibility (Briesch et al., 2013). One component of the DBR that makes it more practical for educators to use in the classroom setting, as compared to SDOs, is that observers (e.g., teachers, interventionists) are able to continue to do business as usual (e.g., teach whole class reading lesson) and, after the specified activity, the teacher indicates an estimate of time the student exhibited the target behavior. In contrast, SDO requires the observer to focus only on the target student (and possibly a peer comparison) during the entire observation. It would not be feasible for the classroom teacher to conduct SDOs on a target student because the teacher is responsible for an entire classroom of students. A teacher would not be able to ignore the remaining students to devote individualized attention for an extended period of time (e.g., 20-minute SDO observation session) to one student. As an alternative, given the amount

of time and training required for use of SDO, as well as the need of an external observer, the SDO method might be reserved for further exploration of specific students' behaviors. For example, the school's problem solving team may need additional data indicating the intensity or latency of a student's behavior to provide the student with the appropriate supports. These types of data would need to be collected by an external observer such as a school psychologist. Once the SDO data were collected, the school team could use the data to select behavioral supports for the target student.

DBRs have also been investigated to determine their utility as effective progress monitoring tools in schools by examining their sensitivity to behavioral change (Chafouleas, Sanetti, Kilgus, & Maggin, 2012b). For example, Chafouleas and colleagues (2012b) used SDO as a well-established behavior assessment tool in their investigation of the sensitivity of the Direct Behavior Rating Single-Item Scales (DBR-SIS) to children's behavioral changes in response to an intervention. The researchers examined how student behavioral change, as monitored by the DBR-SIS, resembled data from SDO. Their study consisted of 20 elementary teacher-student dyads, with students nominated by their teachers due to chronic behavior that was difficult to manage in the classroom. Teachers used the DBR-SIS each day to collect baseline phase (approximately 5 school days) and intervention phase (approximately 20 school days) data during previously specified classroom activities. A daily behavior report card to help students engage in self-monitoring strategies of their own behavior (discussed in more detail in the methods section) was used as the primary intervention in the current study. Research team members conducted approximately three SDOs to collect behavioral data during baseline phase and conducted three additional SDOs during the

final week of the intervention phase. Study results revealed that, overall, DBR-SIS data were commensurate with SDO data and (1) both indicated treatment (i.e., the Daily Progress Report intervention) improved student behavior; and (2) after comparing DBR-SIS and SDO data, the DBR-SIS demonstrated sensitivity to changes in student behaviors. In addition, the study examined teachers' acceptability of the intervention. Results suggested limited association between students' behavioral changes and teachers' ratings of acceptability.

Additional research needs were identified in the Chafouleas (2012b) study, including: (1) the use of different change metrics, as the effect size measure they used appeared to lack the variability to adequately evaluate student response to the implemented intervention; (2) more clearly defined target behaviors (e.g., compliance versus respectful behavior) as the selected terms appeared to influence how teachers attended to certain behaviors; and (3) the need for a more diverse sample as 17 of the 20 students were White.

**Daily behavior report card.** Similar in design and use to the DBR, a daily behavior report card (DBRC) has been used in schools for decades using a variety of names (e.g., home-school communication, daily report cards; Bailey, Wolf, & Phillips, 1970; Chafouleas, Riley-Tillman, & McDougal, 2002; Lahey et al., 1977). Although frequently used for intervention purposes, researchers have also examined its use as a progress monitoring tool (e.g., Briesch et al., 2010; Riley-Tillman, Chafouleas, & Briesch, 2007). The overall format of a DBRC includes (1) specific definition of target behavior(s); (2) determining how often behavior(s) will be rated and selection of rating scale (e.g., Likert-type scale); (3) designing the card; (4) establishing whether or not

consequences will be incorporated, and if so, defining criteria; (5) creating lists of potential consequences; and (6) establishing responsibilities of those involved (Riley-Tillman, Kalberer, & Chafouleas, 2005). Study results examining the DBRC as a behavioral progress monitoring tool (Chafouleas et al., 2006; Riley-Tillman et al., 2005) and a similar measure, the Electronic Daily Behavioral Report Card (e-DBRC; Vannest, Burke, & Adiguzel, 2006) were inconclusive. Both studies found that further investigation as to the viability of these measures as progress monitoring tools, are needed.

A second study investigating a type of DBRC, referred to as the Daily Progress Report, examined its utility as a progress monitoring tool while implementing the Check, Connect, and Expect (CCE; Cheney & Stage, 2004) program (Cheney et al., 2008). The CCE program consists of a morning check-in with a target student, use of the Daily Progress Report throughout the day, and an end of the day check out, which includes tallying points earned on the Daily Progress Report. Daily Progress Report progress monitoring results indicated 67% of the 127 students demonstrated a response to the intervention. However, study results also suggested that given the variability of behaviors and teacher perceptions and poor fidelity of teacher feedback, collecting direct observational data may have been more beneficial than the DPR for monitoring student progress.

**Behavior rating scales.** A behavior rating scale can be described as a measure that assesses a wide spectrum of behaviors (e.g., aggression, impulsivity, anxiety), requires minimal training for informants to complete, and includes different versions for various informants (e.g., teacher, parent, self-report; Volpe et al., 2011). Most rating

scales ask the rater to read each statement, consider the target behavior in relation to the student of interest, and circle a Likert-type response (e.g., never, sometimes, often, almost always). In one study, Volpe and colleagues (2011) examined the efficiency of using behavior rating scales as progress monitoring tools. Results indicated that the broad-scoped rating scales were not sensitive to changes in individuals' targeted behaviors and would not be useful for collecting progress monitoring information for the purposes of data-based decision making. In addition, researchers noted that, due to the length of such measures (often 100 items or more), (a) the scales lacked feasibility due to the length of administration; (b) the quality of data might be compromised by length; and (c) many informants would, most likely, be unwilling to participate due to time constraints. Best practice considerations do not support the use of full-length behavior rating scales for progress monitoring purposes.

**Brief behavior rating scale.** Emerging research has explored the use of brief behavior rating scales, a shorter, modified version of a full-length behavior rating scale (e.g., 15 versus 100 items), as a potential progress monitoring tool (Gresham et al., 2010; Volpe & Gadow, 2010). In one study, Gresham and colleagues (2010) examined the effectiveness of the brief behavior rating scale (BBRS), a shorter form of the Social Skills Rating System – Teacher Form (SSRS - TR; Gresham & Elliot, 1990) as a progress monitoring tool for social behavior. The researchers used pre- and post-intervention SSRS - TR data from a randomized control trial (see Walker et al., 2009) that involved 200 first- through third-grade students and their teachers. Study researchers used four change sensitive-metrics (i.e., odds ratio, *t* tests, standard mean difference effect size, analysis of variance) and calculated each metric for each item on the SSRS, excluding

items related to intellectual functioning. After calculating change metrics, items were rank ordered from most to least change sensitive and only items that were change sensitive to three of the four metrics were included, for a final pool of 29 items. Researchers then deleted the weakest change sensitive item one at a time, then calculating, and subsequently recalculating, reliability and criterion validity estimates. The resulting BBRS was a 12-item scale that maintained reliability estimates above .70 and criterion-related validity above .50. Results suggest that the BBRS was appropriate for use as a social behavior progress monitoring tool to assess externalizing behaviors, but that it did not effectively assess internalizing behaviors.

**Implementation Considerations**

**Sensitivity to behavioral change**. The National Center on Intensive Intervention (NCII; 2015) identified key components of behavioral progress monitoring tools. These include (a) sensitivity to student behavioral change in response to an intervention; (b) assessments that can occur repeatedly over short periods of time (e.g., once per week for eight weeks); and (c) established psychometric properties, including reliability and validity. While initial research on behavioral progress monitoring tools have begun to investigate these key components (i.e., sensitivity to behavioral change, reliability, validity; Burke & Vannest, 2008; Greenwood et al., 2011; Gresham et al., 2010; Volpe & Gadow, 2010), the NCII has identified the DBR-SIS format for academically engaged and disruptive behavior as sensitive to behavioral change. However, there continue to be a limited number of tools that demonstrate substantive empirical evidence, utility, and acceptability for use in schools.

**Teacher Acceptability**. An additional key component of a measure is teacher

acceptability of the instrument (Chafouleas et al., 2012b; Riley-Tillman et al., 2008a; Volpe & Gadow, 2010). Two prominent variables influencing teacher acceptability are time (e.g., the amount of time taken from instruction, planning) (Martens, Witt, Elliott, & Darveaux, 1985; Roach & Elliott, 2005) and amount of skill level/training required for use and/or implementation (Roach & Elliott, 2005). A concern with whether a teacher perceives a procedure (e.g., using a progress monitoring tool) as acceptable, is that lack of teacher acceptability may affect the fidelity with which the teacher implements/uses the progress monitoring tool (Chafouleas et al., 2006). As teachers are the primary providers of behavioral interventions and supports in the classroom, their perceptions and opinions are essential in school-based implementation.

**Current Study**

Research has well established the need for progress monitoring as an essential component of a behavioral framework to effectively address problem behaviors among at-risk youth (Burke & Vannest, 2008; Gruman & Hoelzen, 2011; Stecker et al., 2008a; Sugai et al., 2000). In order to appropriately and accurately monitor student response to behavioral interventions, schools are in need of progress monitoring tools that are efficient and effective in monitoring a wide range of behaviors (Gresham et al., 2010; Volpe & Gadow, 2010). While the SDO has demonstrated many merits as a behavioral progress monitoring tool (e.g., operationally defined behaviors, objective observation; Hintze et al., 2002; Volpe & McConaughy, 2005), many of its limitations may outweigh the intended benefits. These include the need for well-trained observers, the time to conduct observations, and the potential impact of an outside observer on the classroom environment (Hawken et al., 2008; Hintze & Matthews, 2004; Riley-Tillman et al., 2007;

Riley-Tillman et al., 2008a). As previously discussed, there has been an extensive amount of research on different variations of the DBR with results supporting its use as a behavioral progress monitoring tool. However, researchers of a number of the DBR studies indicated additional research in applied settings (e.g., schools) with teachers raters was needed (Briesch et al., 2013; Chafouleas et al., 2009a; Chafouleas et al., 2013; Christ et al., 2011; Riley-Tillman et al., 2009), as several studies used only university undergraduate students who watched simulated classroom videos as the DBR raters (e.g., Briesch et al., 2013; Chafouleas et al., 2009a). Furthermore, most of the existing research on progress monitoring tools, including DBRs, has focused exclusively on externalizing behaviors (Gresham et al., 2011; Volpe & Gadow, 2010) and/or academic engagement (Briesch et al., 2010; Chafouleas et al., 2012b), which excludes students with behavioral concerns that do not fit into one of these two areas. Given that individuals with internalizing disorders, such as anxiety or depression, experience initial symptoms prior to reaching adolescence (World Health Organization, 2013), tools are needed that can assess students' responses to a wide range of behavioral interventions including those directed at addressing internalizing (or emotional) behaviors.

Given these limitations, the current study evaluated a novel measure, the FastBridge Direct Behavior Rating (FastBridge-DBR; Kilgus, von der Embse, & Fabiano, 2015). FastBridge-DBR was built off of previously established research on the aforementioned SAEBRS, which study results indicated to be a reliable, valid, and diagnostically accurate screener for behaviorally at-risk youth (see Kilgus et al., 2013a; Kilgus et al., 2014a, b, & c). FastBridge-DBR is a single-item DBR that is considered to be a brief, novel progress monitoring tool designed to assess the presence or absence of a

wide range of behavioral concerns among school-aged youth. Because this is a new measure, this was the first study to investigate the utility of FastBridge-DBR tool. As this measure was designed to (1) monitor externalizing behaviors, academic engagement, and internalizing behaviors; (2) incorporate components of direct observations including operational defined target behavior(s), duration of time observed, quantified demonstrations of behavior(s) in a brief measure; and (3) be incorporated into typical classroom routines without an external observer, FastBridge-DBR warranted additional examination as a potential school-based progress monitoring tool.

In the current study, FastBridge-DBR was used to monitor student behavioral change in response to an evidence-based intervention. The intervention focused on positive reinforcement of desired and socially acceptable behaviors that was used with students with problem behaviors of a higher level of severity than what was considered typical in a classroom setting (e.g., problem behavior is chronic, disruptive, interferes with learning) while consistently collecting progress monitoring data. FastBridge-DBR data were compared to the SDO, a gold standard assessment tool, to evaluate FastBridge-DBR's sensitivity to change. The Chafouleas et al. (2012b) study, which sought to examine another format of a DBR-SIS's sensitivity to behavioral change, was used as a template for the current study, given the similarities of the overall purpose (i.e., examining a potential progress monitoring tool's sensitivity to behavioral change) and its comparison to an already established measure. The previous section on DBRs provides a review of this study.

The current study included three research questions: (1) do FastBridge-DBR data as measured using five different change metrics (i.e., absolute level of change, percent

change from baseline, no assumptions standardized mean difference, Tau-*U*, and robust - improvement rate difference) demonstrate sensitivity to behavioral change in response to an evidence-based intervention?; (2) how do the results correspond with evidence of change from already established Systematic Direct Observation (SDO) methods?; and (3) how do metrics for calculating behavioral response from FastBridge-DBR correspond with teacher perception of progress monitoring acceptability? The researcher hypothesized that: (1) FastBridge-DBR data would demonstrate sensitivity to behavior change; (2) FastBridge-DBR data would be similar to data collected from SDO's; and (3) teacher perceptions of progress monitoring acceptability would align with student behavioral change.

# CHAPTER 3

# METHOD

Empirical research on behavioral assessment and intervention have outlined a number of gaps in current research, including (1) establishing effective methods for delivering and monitoring behavioral interventions, given the limited school-based resources available (e.g., time, personnel; Riley-Tillman et al., 2007; Todd et al., 2008; Walker et al., 2005); (2) developing measurement tools that are easy to use and can be consistently implement as needed (Burke & Vannest, 2008; Hintze & Matthews, 2004; Riley-Tillman et al., 2008a); (3) creating current measurement tools that address a broad spectrum of behavioral concerns versus narrowly defined categories (e.g., internalizing behaviors, academic engagement, externalizing behaviors; Baker et al., 2008; Fox et al., 2008; Lane et al., 2012); and (4) assessing teacher acceptability of progress monitoring tools to ensure school staff are willing and able to use measures with ease (Chafouleas et al., 2006; Miller, Chafouleas, Riley-Tillman, & Fabiano, 2014). While some progress monitoring tools have demonstrated potential utility in schools (e.g., Riley-Tillman et al., 2008b; Volpe & Gadow, 2010), additional research is needed to address the aforementioned considerations.

## Participants

The current study included 24 teacher-student dyads ranging from Kindergarten through sixth grade from six elementary schools in the southwest region of the United States. After obtaining consent from district and school administrators, participating schools were asked to identify students at risk of behavioral and emotional concerns via existing school data sources by using (a) behavior screening measures; (b) office discipline referrals, which are commonly used to identify students engaging in

problematic behavior within the school setting (Gruman & Hoelzen, 2011; Spaulding et al., 2010); and/or (c) teacher referral. Study researchers obtained consent to conduct all procedures in accordance with a university-approved Human Subjects Institutional Review Board (HSIRB) protocol.

Twenty-four teachers participated in the current study with female teachers accounting for the majority of the sample (see Table 1). Fifty-percent of teacher participants were White, 45.8% Hispanic/Latino, and 4.2% Mixed Ethnicity. First-year teachers comprised 20.8% of the participants, 33.3% taught for 2-7 years, 20.8% taught for 8-13 years, and 25% taught for 14 or more years. The highest degree earned for a majority of the participants was a bachelor's degree (67%); the remainder of teachers earned a master's degree (33%).

Of the 24 student participants, 62.5% were Hispanic/Latino, 16.7% were White, 8.3% were African-American, 8.3% were Mixed Ethnicity, and 4.2% were Native American. The majority of the student participants were male (70.8%), while 29.2% were female. In addition, 70.8% of the students were in grades K-2, with Kindergarten having the highest percentage of participants (41.7%).

**Table 1**

*Teacher and Student Demographics*

| Demographics | Teacher Frequency (Percent) | Student Frequency (Percent) |
|---|---|---|
| **Gender** | | |
| Male | 1 (4.2) | 17 (70.8) |
| Female | 23 (95.8) | 7 (29.2) |
| **Ethnicity** | | |
| Hispanic/Latino | 11 (45.8) | 15 (62.5) |

| | | |
|---|---|---|
| White | 12 (50) | 4 (16.7) |
| Native American | 0 | 1 (4.2) |
| African-American | 0 | 2 (8.3) |
| Mixed Ethnicity | 1 (4.2) | 2 (8.3) |
| **Grade Level** | | |
| Kindergarten | 10 (41.7) | 10 (41.7) |
| 1st | 5 (20.8) | 5 (20.8) |
| 2nd | 2 (8.3) | 2 (8.3) |
| 3rd | 2 (8.3) | 2 (8.3) |
| 4th | 2 (8.3) | 2 (8.3) |
| 5th | 2 (8.3) | 2 (8.3) |
| 6th | 1 (4.2) | 1 (4.2) |
| **Years Taught - Teacher** | | |
| 1st year | 5 (20.8) | - |
| 2 -4 years | 5 (20.8) | - |
| 5 – 7 years | 3 (12.5) | - |
| 8 -10 years | 3 (12.5) | - |
| 11 – 13 years | 2 (8.3) | - |
| 14 plus years | 6 (25) | - |
| **Highest Degree Earned – Teacher** | | |
| Bachelor's | 16 (66.7) | - |
| Master's | 8 (33.3) | - |

- = Not applicable.

## Measures

**FastBridge-Direct Behavior Rating.** FastBridge-DBR (see Appendix A) was used to progress monitor students' behavioral changes over time in response to an implemented intervention. There are two components of FastBridge-DBR that include (1) elements of SDOs that are merged into a brief measure, and (2) a list of operationally

defined targeted social, academic, and emotional behaviors from which the teacher selects those that are applicable to the target student (see Appendix B). FastBridge-DBR scale includes a 100 mm horizontal line divided into 10 equal intervals with anchors of 0% or *never*, 50% or *sometimes*, and 100% or *always*, with additional number markers of 0 – 10 to represent 0 – 100%. The scale is displayed under each of the operationally defined target behaviors. All students were assessed on three standard behaviors, including Academic Engagement, Disruptive Behavior, and Withdrawal. This allowed for comparisons to be made across participants on three common student behavioral concerns. Once target behaviors were identified, each teacher identified the activities (e.g., independent reading time, large group math instruction) when the student's behaviors were of most concern. The teachers then used FastBridge-DBR scales to indicate the percentage of time the student was engaged in the target behaviors (e.g., 10%, 30%, 70%) at the end of the pre-specified activity. For the purposes of this study, the completion of FastBridge-DBR coincided with the completion of the intervention tool, described in more detail in the procedures section.

**Systematic Direct Observation tool.** As previously discussed, SDOs are a widely accepted and used behavioral measurement tool (Briesch et al., 2010; Burke & Vannest, 2008; Hintze et al., 2002; Witmer, Nasamran, Parikh, Schmitt, & Clinton, 2015). SDOs are used in the following manner: (1) specific target behaviors are measured; (2) the target behaviors are operationally defined to assist with ease of identification; (3) standardized coding procedures are used; (4) quantitative scores are provided; and (5) SDOs can be tested for reliability and validity across different observers, periods of time, and across different settings (Volpe & McConaughy, 2005).

For the purposes of the current study, momentary time-sampling recording were used for all SDOs of target students' behaviors, whereby target behaviors were recorded during a selected interval of time during which teachers identified student behaviors to be most problematic. To ensure consistency, all students were assessed on the same three standard behaviors that were included on FastBridge-DBR (i.e., Academic Engagement, Disruptive Behavior, Withdrawal). This allowed for comparisons to be made across participants on three common student behavioral concerns. Student observations occurred using 15-second intervals with each observation session lasting 60 intervals, for a total of 15 minutes. At the beginning of each 15-second interval, the observer evaluated a target student to determine if he/she was exhibiting each of the three target behaviors. All behaviors were recorded on the SDO form (see Appendix C) using a check mark when the behavior was present in the selected interval.

To ensure inter-rater agreement, a second research team member observed each student for approximately one-third of the total observations (i.e., two research team members observed 1 of every 3 student observations). Inter-observer agreement ensured the accuracy of classroom observational data. All research team members received didactic training on direct observation procedures and coded sample classroom videos until they reached a minimum of 90% agreement. Following observations, inter-observer agreement was calculated across 180 cells (60 intervals x 3 behaviors = 180) by dividing the total number of agreement cells (AC) by the total number of cells (Total # AC ÷ 180 C = % A).

**Usage Rating Profile – Assessment (URP-A).** The Usage Rating Profile (URP-A; Chafouleas, Miller, Briesch, Neugebauer, & Riley-Tillman, 2012a; see Appendix D)

was used to examine teachers' acceptability of FastBridge-DBR. This tool was adapted from the Usage Rating Profile – Intervention Revised (URP-IR; Chafouleas, Briesch, Neugebauer, & Riley-Tillman, 2011) and uses a 6-point Likert-type scale (from *Strongly Disagree* to *Strongly Agree*). The URP-A is divided into six factors consisting of a total of 28 items. Acceptability (factor 1, 9 items), includes statements assessing the intervention/assessment as being effective, fair, a good way to assess a child, and that the procedures fit easily into the respondent's current practices. Understanding (factor 2, 3 items) focuses on the respondent's overall knowledge and understanding about the intervention/assessment and how to implement/use it. Home-School Collaboration (factor 3, 3 items), includes statements regarding a positive home-school relationship. Feasibility (factor 4, 6 items) assesses the amount of respondent time and resources the intervention/assessment requires. System Climate (Factor 5, 4 items), focuses on the school-wide, or external, support established with respect to the intervention. System Support (factor 6, 3 items) measures the respondent's perception of whether or not support would be provided as needed with respect to the intervention/assessment. In general, higher scores correspond to greater acceptability of the respective assessment. For the purposes of the current study, the URP-A was completed by teachers upon completion of the intervention.

**Intervention**

**Daily progress report.** Each teacher was trained to implement the Daily Progress Report intervention (see Table 2) with one student in their classroom, following the same template used in previous behavioral intervention research (e.g., Chafouleas et al., 2012b; Pelham & Fabiano, 2008). The Daily Progress Report is an effective self-

monitoring intervention that emphasizes setting, encouraging, and reinforcing positive behavioral expectations (Chafouleas, et al., 2006; Epstein et al., 2008; Todd et al., 2008). Previous research has established positive behavior change in students using this intervention (Ayllon, Garber, & Pisor, 1975; Bailey et al., 1970), including students diagnosed with attention-deficit/hyperactivity disorder (ADHD; Fabiano et al., 2010; Owens, Murphy, Richerson, Girio, & Himawan, 2008; Power et al., 2012), anxiety (Cheney et al., 2008; Power et al., 2012), and depression (Gruman & Hoelzen, 2011; Power et al., 2012). Furthermore, this type of intervention has been demonstrated to cause little change in teachers' established classroom procedures (Lahey et al., 1977).

Standardized procedures were developed to ensure fidelity of implementation for the Daily Progress Report in each classroom. While use of Daily Progress Report interventions is common practice in schools (Cheney et al., 2008; Epstein et al., 2008; Shores, 2009; Vannest, Davis, Davis, Mason, & Burke, 2010), implementation protocols were created to ensure each teacher employed the same standardized procedures (described below). The Daily Progress Report intervention included reinforcement of positive behaviors via a tiered rewards system, as well as skill-building instruction (e.g., identifying, monitoring and evaluation, providing feedback about behavior). The intervention procedures targeted three activities (e.g., reading, math, writing centers) identified by each teacher as times during which the target student demonstrated target behavior(s) (e.g., noncompliance, disruptive behavior, withdrawal). Each school day, the teacher reminded the student of the three standard goals before each of these activities, as well as reminded the student that they, the student and teacher dyad, would complete the Daily Progress Report at the end of the activity. At the end of the activity, the teacher

and student collaboratively determined whether the student met each of the three goals included in the Daily Progress Report. The standard goals for all students included, "Did I follow class rules?", "Did I follow teacher directions?", and "Did I do my best work?" Goal attainment was indicated by circling a "Yes" or "No" rating displayed next to each goal. Teachers summed all ratings at the end of the day. The student was able to earn one of three rewards, depending on the ratio of "Yes" to "No" ratings. The levels of "Yes" to "No" ratios included (a) 1:1, (b) 2:1, and (c) 1:0 (e.g., skill building – provide feedback about behavior). Each level had a corresponding menu of rewards from which the student selected. The Daily Progress Report was printed in duplicate so one copy went home daily with each student for parents to view and the second copy was placed in a folder to be collected by the research team member. The intervention lasted for 20 occurrences (approximately 20 school days).

**Table 2**

**Daily Progress Report**

Name: _____ Date: _____

| | **(Target Activity 1)** | **(Target Activity 2)** | **(Target Activity 3)** |
|---|---|---|---|
| **Goals** | | | |
| **Did I follow the class rules?** | Yes No | Yes No | Yes No |
| **Did I follow teacher directions?** | Yes No | Yes No | Yes No |
| **Did I do my best work?** | Yes No | Yes No | Yes No |

Total Number of "Yes": _____ Total Number of "No": _____

Circle the "Yes" to "No" Ratio Level: 1:1 2:1 1:0

Reward Chosen: _____ Time provided reward: _____ Teacher's Initials: _____

Teacher Comments: _____

**Rewards menu.** The rewards menu (see Table 3) was developed prior to the implementation of the intervention. First, each research team member provided the teacher with a list of common rewards, asking the teacher to highlight and/or add acceptable rewards that were likely to be reinforcing to the student. The reward list included three levels of rewards that corresponded to the three possible "Yes" to "No" ratio outcomes indicated on the Daily Progress Report (e.g., 1:1 ratio = sticker, 2:1 ratio = line leader). The teacher was asked to identify which rewards correspond to each of the three tiers of rewards. The student did not earn a reward if the outcome ratio was something other than the three identified on the Daily Progress Report. Second, the teacher reviewed the revised reward list with the student, who indicated which rewards he or she wanted to earn. The final menu was individualized for student participants and included a list of potential rewards the respective student could earn throughout the study. If the reward could not be provided at the end of that day (e.g., if the reward was to "have lunch with the teacher"), the student was provided with a token (e.g., a chip, notecard) that could be exchanged for the reinforcer at a later time. The teacher recorded the reward chosen, time the reward was provided, and any additional comments on the Daily Progress Report.

**Table 3**

**Sample Rewards Menu**

| | |
|---|---|
| 1. Free time for X minutes | 13. Sit next to a friend for a certain amount of time (1:0) |
| 2. Talk to best friend for X minutes | 14. Eat lunch at a special table |
| 3. Extra time on the computer | 15. Eat lunch with the teacher (1:0) |
| 4. Be the teacher's helper | 16. Choose stickers (1:1) |
| 5. Read to a friend | 17. Choose from the treasure box/grab bag (2:1) |
| 6. Read with a friend (1:1) | 18. Help the teacher decorate a bulletin board |
| 7. Draw for X minutes | 19. Receive a positive phone call (any ratio) |
| 8. Color for X minutes | 20. Help the librarian |
| 9. Be the messenger for the office (1:0) | 21. Choose which group gets to line up first |
| 10. Care for the class pet (2:1) | 22. Play a game with a friend for X minutes |
| 11. Help a teacher from another class (1:0) | 23. Borrow a book from the class library to read at home (1:1) |
| 12. Be a line leader | 24. Extra recess time (1:0) |

*Note.* Some rewards are identified as 1:2, 1:1, and 1:0 ratios for example purposes. Teacher acceptance is necessary.

**Procedures**

Aligned with previous research, one research team member worked directly with each teacher to provide consultation and support throughout baseline and intervention phases. This included reviewing intervention procedures (i.e., Daily Progress Report; rewards menu), implementing the assessment protocol (i.e., FastBridge-DBR), discussing classroom observations, making modifications as needed, and examining the assessment data to evaluate student outcomes.

**Step 1: Consultation.** The research team member and teacher procedures followed the behavioral consultation model (Kratochwill & Bergan, 1990), using three of the four interview procedures within this model: (1) problem identification interview, (2) problem analysis interview, and (3) treatment evaluation. When completing the problem

identification interview, each research team member and teacher dyad worked collaboratively to: (a) identify and define the problem behaviors that were of greatest concern to the teacher; (b) identify the antecedent conditions preceding the problem behaviors (e.g., transitioning from one subject to the next and starting instruction in specific content areas); (c) determine the consequences that may have reinforced and maintained the problem behaviors; (d) review the procedures for collecting the baseline measurements; and (e) review standard goals for the Daily Progress Report intervention (e.g., "Did I follow class rules?", "Did I follow teacher directions?" and "Did I do my best work?"). Research team members included the author, a school psychology faculty member, and school psychology graduate students trained to conduct study procedures.

**Step 2: Baseline data collection.** Subsequent to conducting the problem identification interview, each teacher used FastBridge-DBR to collect baseline data. This included completing daily ratings for the behavior displayed by the student during three predetermined activities for approximately five days. During this same time period, research team members conducted approximately three observations of the target student's behaviors during one of the three targeted activities using the SDO. Once baseline data were collected, research team members met with each teacher to conduct the problem analysis interview. During this interview, the research team member reviewed baseline data with each teacher and confirmed that the student's behaviors of academic disengagement and being disruptive, for example, were greater than what the teacher expected and therefore necessitated an intervention. Modifications and adjustments were made to selected activities and monitoring behaviors so as to correspond with collected data and teacher concerns.

**Step 3: Intervention and progress monitoring.** The research team member provided each teacher with an overview of intervention procedures and the intervention began on a pre-selected date at the conclusion of the problem analysis interview. The Daily Progress Report intervention was implemented for 20 school days. FastBridge-DBR was completed after each of the three target activities. One Daily Progress Report and three FastBridge-DBRs were placed in a researcher folder at the end of each day. The folder was then collected by a research team member. During the last five days of the intervention, the research team members reentered classrooms and conducted three additional SDOs. This provided comparison SDO progress monitoring data.

**Step 4: Acceptability.** Once all interventions and observations were completed, the research team members met with each teacher to complete the URP-A and to conduct treatment evaluation interviews to examine teachers' acceptability of the progress monitoring tool (i.e., FastBridge-DBR). This meeting was used to review student data collected during the baseline and intervention phases (e.g., discuss student response to implemented intervention) and to review the URP-A. The research team member also answered any questions presented by the teacher. All data were submitted to the lead researcher.

## Data Analysis

As there do not appear to be a specific set of change metrics used on a consistent basis in behavioral research, this has resulted in some sense of uncertainty as to which are the correct metrics researchers should use when examining behavioral change (see Chafouleas et al., 2012b; Cheney et al., 2008; Gresham et al., 2010). Given the uncertainty of which metrics to use and the need to accurately analyze data, this study

used five different change metrics proposed by Gresham (2005). These five metrics provided multiple data points to analyze and compare measures as each metric acted as a check for the other change metrics. In other words, by using multiple change metrics, study researchers were able to compare each change metric's results with one another for consistency of results instead of relying on data from only one change metric. The metrics were used for each student participant across each FastBridge-DBR target behavior and activity. The metrics included absolute level of change, percent of change from baseline, no assumptions standardized mean difference, a nonoverlapping data points method, and robust - improvement rate difference. This provided 45 indices for each participant in the current study (5 metrics x 3 FastBridge-DBR x 3 activities). These data were analyzed descriptively to determine the average level and variation of student response to the intervention.

**Absolute level of change.** Absolute level of change is defined as the amount of change an individual demonstrates from baseline phase to phases of the intervention (Chafouleas et al., 2012b; Gresham 2005). Absolute change was calculated by subtracting each student's FastBridge-DBR baseline phase mean score from the student's FastBridge-DBR intervention phase mean score.

**Percent of change from baseline.** The percent of change from baseline is the percent of an individual's behavioral change from baseline phase levels to intervention phase levels (Gresham, 2005). The benefit of this metric is that it is not greatly affected by floor and ceiling effects, as well as outlier data points. The percentage of change from baseline was calculated by subtracting the mean baseline FastBridge-DBR score from the mean intervention FastBridge-DBR score, and dividing this difference by FastBridge-

DBR mean baseline score.

**No assumptions standardized mean difference.** The no assumptions standardized mean difference (Busk & Serlin, 1992) effect size metric was used in the current study. This statistic was calculated by subtracting FastBridge-DBR baseline phase mean score from FastBridge-DBR intervention phase mean score, and then dividing the results by the standard deviation of FastBridge-DBR baseline.

**Nonoverlapping data points: PND and Tau-*U*.** While the percent of non-overlapping data points (PND) is a proposed metric used in previous research (Gresham, 2005), it was not used in the current study due to persistent limitations. Research has suggested limitations include high and low data points skew interpretation due to floor effects (i.e., majority score at the bottom) and ceiling effects (i.e., majority score at the top); outlier data points made for difficult interpretation; and there was a lack of well-established guidelines for interpreting effect size when using PND (Chafouleas et al., 2012b; Cheney et al., 2008; Gresham, 2005). Instead, to increase confidence in the accuracy of outcome measures, this study used two alternate methods, the Tau-*U* (Parker, Vannest, Davis, & Sauber, 2011b) and the robust - improvement rate difference (robust-IRD; Parker, Vannest, & Brown, 2009; Parker, Vannest, & Davis, 2011a). The Tau-*U* resulted from Kendall's Rank Correlation (Kendall & Gibbons, 1990) and Mann-Whitney U (Mann & Whitney, 1947) (for a thorough explanation, see Parker et al., 2011b). Parker et al. (2011b) indicated that the Tau-*U* combined Phase AB (i.e., baseline and intervention phase) nonoverlap with the Phase B trend, as well as allowed for control of the unwelcomed positive Phase A trend (i.e., positive trend during the baseline phase). Calculations for each student were derived using a web-based application created by

Vannest, Parker, and Gonen (2011) that included a Tau-*U* calculator.

**Robust - Improvement rank difference (robust-IRD).** Robust-IRD (Parker et al., 2009; Parker et al., 2011a) is an additional effect size metric that indicates the difference in improvement of student performance between baseline and intervention phase. According to Parker and colleagues (2011a), calculating robust-IRD begins with identifying the minimum number of data points that need to be removed to eliminate overlap between phase A and B. Once the minimum number of data points are removed, these points are split between the two phases (e.g., 2 overlap data points are removed; these are split between the two phases, 2/2 = 1) and then the robust-IRD is obtained (see Parker et al., 2011a for a more comprehensive description of the robust-IRD method). Calculations for each student were derived using a web-based application created by Vannest, Parker, and Gonen (2011) that included a robust-IRD calculator. In addition, IRD results have been found to be a metric that is easy to explain to school personnel (Parker et al., 2009).

**Correlations.** Spearman's rho (ρ) coefficients were calculated to evaluate FastBridge-DBR sensitivity to change. Specifically, correlations corresponded to the association among FastBridge-DBR and SDO change metrics, thus permitting evaluation of the extent to which FastBridge-DBR change data were similar to SDO change data. Spearman's ρ coefficients were also calculated to evaluate the relationship between the resulting change metrics and the Usage Rating Profile-Assessment (URP-A). This indicated if there was a relationship between teacher acceptability of FastBridge-DBR and improvement in student behavior (i.e., is teacher acceptability of the novel progress monitoring tool positively correlated with an improvement in student behavior?).

# CHAPTER 4

# RESULTS

## Descriptive Statistics

Table 4 summarizes participants' data obtained across baseline and intervention phases for FastBridge-DBR and SDO. FastBridge-DBR baseline data indicated students demonstrated problematic levels of Academic Engagement ($M$ = 41.29, $SD$ = 3.74), Disruptive Behavior ($M$ = 25.42, $SD$ = 2.32), and Withdrawal ($M$ = 10.56, $SD$ = 3.87). FastBridge-DBR baseline student means for Academic Engagement ranged from 0 to 60%, Disruptive Behavior baseline student means ranged from 3.33 to 53.33%, and Withdrawal baseline data means ranged from 0 to 93.33%. FastBridge-DBR intervention phase data suggested an increase in overall Academic Engagement ($M$ = 64.44, $SD$ = 5.24), a decrease in Disruptive Behavior ($M$ = 17.92, $SD$ = 5.05), and a decrease in Withdrawal ($M$ = 4.86, $SD$ = 1.58). Intervention phase FastBridge-DBR Academic Engagement means ranged from 0 to 100%. Disruptive behavior means ranged from 0 to 36.67%. Withdrawal means ranged from 0 to 80%.

Similar patterns were revealed for SDO data. The baseline SDO data indicated on average, students were academically engaged during 42.87% ($SD$ = 6.06) of observed intervals, disruptive during 29.42% ($SD$ = 2.20), and withdrawn during 7.88% ($SD$ = 2.75) of the intervals. SDO baseline Academic Engagement means ranged from 2.78 to 62.78%, Disruptive Behavior means ranged from 0 to 60%, and Withdrawal means ranged from 0 to 90.56%. Intervention phase SDO data indicated student behavior improved on average, with intervention means equal to 73.19% ($SD$ = 1.99) for Academic Engagement, 12.57% (SD = 0.66) for Disruptive Behavior, and 4.42% (SD =

0.46) for Withdrawal. SDO intervention means ranged from 0 to 95.56% for Academic Engagement; 1.67 to 43.33% for Disruptive Behavior, and 0 to 96.67% for Withdrawal.

**Table 4**

*Descriptive Statistics Across Outcomes and Phases*

| *Method* | *Target Behavior* | *Phase* | *Mean* | *SD* |
|---|---|---|---|---|
| FastBridge-DBR | Academic Engagement | Baseline | 41.39 | 3.74 |
| | | Intervention | 64.44 | 5.24 |
| | Disruptive Behavior | Baseline | 25.42 | 2.32 |
| | | Intervention | 17.92 | 5.05 |
| | Withdrawal | Baseline | 10.56 | 3.87 |
| | | Intervention | 4.86 | 1.58 |
| SDO | Academic Engagement | Baseline | 42.87 | 6.06 |
| | | Intervention | 73.19 | 1.99 |
| | Disruptive Behavior | Baseline | 29.42 | 2.20 |
| | | Intervention | 12.57 | 0.66 |
| | Withdrawal | Baseline | 7.88 | 2.75 |
| | | Intervention | 4.42 | 0.46 |

*Note*. *FastBridge*-DBR = FastBridge-Direct Behavior Rating; SDO = systematic direct observation.

## Research Questions and Results

### Question 1: Do FastBridge-DBR data as measured using five different change metrics (i.e., absolute level of change, percent change from baseline, no assumptions standardized mean difference, Tau-*U*, and robust -

**improvement rate difference) demonstrate sensitivity to behavioral change in response to an evidence-based intervention?**

***Absolute Level of Change.*** Across students, Academic Engagement as measured by FastBridge-DBR increased by 23.06 (*SD* = 21.85), while there was a decrease in Disruptive Behavior at 7.50 (*SD* = 14.82) and Withdrawal at 5.69 (*SD* = 11.40). Results indicated 83.3% of students demonstrated increases in Academic Engagement, 62.5% demonstrated decreases in Disruptive Behavior, and 45.8% demonstrated decreases in Withdrawal (see Table 5).

***Percent of Change from Baseline.*** Percent of change statistics indicated that across phases, the average percentage of time during which students exhibited Academic Engagement increased by 86.3% (*SD* = 1.21), relative to baseline levels. In addition, percentage of change statistics indicated that the average level of Withdrawal decreased by 58.5% (*SD* = 0.72) and the average level of Disruptive Behavior increased by 13.5% (*SD* = 1.33). Sixty-two and one-half percent of students exhibited a decrease in disruptive behavior, 25% of students exhibited increases in disruptive behavior, and 12.5% of students' behavior did not change.

***No Assumptions Standardized Mean Difference.*** The average effect size for Academic Engagement was 2.22 (*SD* = 1.97), with effect sizes ranging from -1.12 to 5.77 and 91.67% of students exhibiting positive effect sizes. The average effect size for Disruptive Behavior was -0.77 (*SD* = 2.12), with effect sizes ranging from -5.20 to 2.89 and 60.9% of students exhibiting negative effect sizes. (Note: in this scenario, negative effect sizes correspond to a desired treatment outcome for both Disruptive Behavior and Withdrawal). Another 13% of students exhibited an effect size of 0. Withdrawal had an

average effect size of -0.32 (*SD* = 1.37), with effect sizes ranging from -3.08 to 3.46. Forty percent of students exhibited negative effect sizes. An additional 53.3% of student results indicated an effect size of 0, as many teachers rated an absence of withdrawal behavior during observation across baseline and intervention.

***Tau-U.*** Results across all students indicated an average Tau-*U* effect size of 0.56 (*SD* = 0.48) for Academic Engagement. Effect sizes ranged from -0.67 to 1.00 with 83.3% of students exhibiting positive effect sizes. Of these students, 37.5% exhibited an effect size of 1.00. The average Tau-*U* effect size for Disruptive Behavior was -0.32 (*SD* = 0.52). Effect sizes ranged from -1.00 to 0.56, with 75% of students exhibiting positive effect sizes, 20.8% exhibiting negative effect sizes, and 4.2% (one student) having an effect size of 0.00. The average Tau-*U* effect size for Withdrawal was -0.22 (*SD* = 0.33), with effect sizes ranging from -1.00 to 0.22. Individual student results indicated 45.8% having negative effect sizes, 50% having an effect size of 0.00, and 4.2% (one student) having a positive effect size (i.e., 0.22).

***Robust - Improvement Rate Difference.*** Robust – Improvement Rate Difference (robust-IRD) is equivalent to Cramer's V (Parker et al., 2011a) with effect sizes of 0.10 considered small, 0.30 considered medium, and effects sizes of 0.50 and greater considered large (Cohen, 1988). The average robust-IRD effect size for Academic Engagement was 0.67 (large effect size; *SD* = 0.35), Disruptive Behavior was 0.56 (large effect size; *SD* = 0.32), and Withdrawal was 0.17 (small effect size; *SD* = 0.33). The robust-IRD effect sizes for Academic Engagement and Disruptive Behavior ranged from 0.00 to 1.00 with 87.5% of students for both behaviors having effect sizes from 0.33 to 1.00. For Withdrawal, the effect sizes also ranged from 0.00 to 1.00; however, only 25%

of students had medium to large effect sizes from 0.33 to 1.00. This may be the result of a small portion of teachers reporting working with students who had difficulties with Withdrawal behaviors during baseline and intervention.

**Table 5**

*Descriptive Statistics for Change Metrics Across FastBridge-Direct Behavior Rating (FastBridge-DBR)*

| | *Academic Engagement* | | *Disruptive Behavior* | | *Withdrawal* | |
|---|---|---|---|---|---|---|
| *Change Metric* | M | SD | M | SD | M | SD |
| Absolute Change | 23.06 | 21.85 | -7.50 | 14.82 | -5.69 | 11.40 |
| Percent Change | 0.863 | 1.21 | 0.135 | 1.33 | -0.585 | 0.72 |
| No Assumptions | 2.22 | 1.97 | -0.77 | 2.12 | -0.32 | 1.37 |
| Tau-*U* | 0.56 | 0.48 | -0.32 | 0.52 | -0.22 | 0.33 |
| robust-IRD | 0.67 | 0.35 | 0.56 | 0.32 | 0.17 | 0.33 |

*Note.* Absolute change = absolute level of change. Percent change = percent of change from baseline. No assumptions = no assumptions standardized mean difference. Robust-IRD = robust - improvement rank difference.

**Question 2: How do the results correspond with evidence of change from already established Systematic Direct Observation (SDO) methods?**

FastBridge-DBR baseline and intervention data were averaged within each phase for each target behavior. This resulted in baseline and intervention mean scores for each

student for each behavior. These scores were compared to SDO baseline and intervention phase mean scores for each student for the same three target behaviors. A Spearman's ρ correlational analysis (see Table 6) was conducted to compare FastBridge-DBR baseline and intervention phase data to SDO baseline and intervention data. Results revealed statistically significant correspondences (at the $p = 0.01$ level) between FastBridge-DBR and SDO data for Academic Engagement and Withdrawal for the intervention phase, and Disruptive Behavior for the baseline phase. There was also a statistically significant correlation (at the $p = 0.05$ level) between FastBridge-DBR and SDO for Academic Engagement for the baseline phase. No statistically significant correlation was revealed for Disruptive Behavior during the intervention phase ($p = 0.16$) or Withdrawal during baseline ($p = 0.24$).

**Table 6**

*Correlation between FastBridge-DBR and SDO Baseline and Intervention Data for each Behavior*

| Behavior | Baseline | Intervention |
|---|---|---|
| AENG | 0.44* | 0.60** |
| DSRP | 0.87** | 0.29 |
| WDRL | 0.25 | 0.52** |

* = correlation significant at the $p < .05$ level (2-tailed). ** = correlation significant at the $p < .01$ level (2-tailed). AENG = academic engagement. DSRP = disruptive behavior. WDRL = withdrawal. N = 24.

Next, a Spearman's ρ correlational analysis was conducted to examine FastBridge-DBR and SDO change data (see Table 7). It should be noted that Percentage of Change and Standardized Mean Difference statistics could not be calculated for particular students. This was becauase teachers rated Withdrawal and Disruptive

Behaviors as occurring 0% of the time for these students during baseline and intervention. As these change metrics require the division of the differences between baseline and intervention mean scores and some other number (e.g., percentage of change), these scores could not be calculated. Two change metrics that yielded results for all 24 students were absolute change from baseline (Absolute) and robust-IRD. Results across all 24 student participants for Absolute indicated a significant correlation (at the $p < .01$ level) between FastBridge-DBR and SDO change data for Academic Engagement and Disruptive Behavior, with no correlation for Withdrawal. The robust-IRD results indicated a significant correlation (at the $p < .01$ level) for Academic Engagement, but no correlation for Disruptive Behavior or Withdrawal.

**Table 7**

*Correlation Between FastBridge-DBR and SDO Behaviors Across All Participants for Two Change Metrics*

| Measure | Absolute | robust-IRD |
|---|---|---|
| AENG | 0.57** | 0.55** |
| DSRP | 0.72** | 0.32 |
| WDRL | 0.00 | 0.07 |

** = correlation is significant at $p < .01$ level (2-tailed). FastBridge-DBR = FastBridge-Direct Behavior Rating. SDO = systematic direct observation. Absolute = absolute level of change from baseline. Robust-IRD = robust – improvement rate difference. AENG = academic engagement. DSRP = disruptive behavior. WDRL = withdrawal.

An additional Spearman's ρ correlational analysis was conducted to examine the correspondence between the two raters during collection of SDO observational data, thus yielding data of inter-observer reliability (see Table 8). Results revealed strong, statistically significant correspondences (at the $p = 0.01$ level) across all behaviors and

for both baseline and intervention phases.

**Table 8**

*Correlation Between Two Raters During SDOs for each Target Behavior During Baseline and Intervention Phases*

| Behavior | Baseline | Intervention |
|---|---|---|
| AENG | 0.93** | 0.98** |
| DSRP | 0.90** | 0.95** |
| WDRL | 0.99** | 1.000** |

* = correlation significant at the $p < .05$ level (2-tailed). ** = correlation significant at the $p < .01$ level (2-tailed).

**Question 3: How do metrics for calculating behavioral response from FastBridge-DBR correspond with teacher perception of progress monitoring acceptability?**

Additional Spearman's ρ correlational analyses were conducted to examine the association between FastBridge-DBR change metrics and URP-A data (see Table 9). Overall results suggested a lack of correlation between teacher reported acceptability of FastBridge-DBR and student responsiveness to the intervention (i.e., student behavioral improvement). However, Percent of Change from Baseline for Withdrawal behaviors was statistically significantly correlated (at the $p < .05$ level) with teacher acceptability. Results indicate teachers provided high ratings of intervention acceptability, regardless of positive or negative changes in student behavior across all three target behaviors.

**Table 9**

*Correlation between URP-A and FastBridge-DBR Behaviors for Change Metrics*

| Measure | Absolute | Percent Change | No Assumptions | Tau-u | IRD-robust |
|---|---|---|---|---|---|
| AENG | 0.899 | -0.16 | -0.10 | -0.09 | -0.05 |
| DSRP | 0.21 | 0.18 | 0.13 | 0.23 | -0.25 |
| WDRL | -0.31 | -0.65* | -0.28 | -0.31 | 0.16 |

* = correlation is significant at $p < .05$ level (2-tailed). FastBridge-DBR = FastBridge-Direct Behavior Rating. URP-A = user rating profile assessment. AENG = academic engagement. DSRP = disruptive behavior. WDRL = withdrawal.

# CHAPTER 5

# DISCUSSION

The purpose of this study was to examine FastBridge-Direct Behavior Rating's (FastBridge-DBR) sensitivity to behavioral change in response to an evidence-based intervention as compared to systematic direct observations (SDOs). Participants included 24 student-teacher dyad consultation cases from Kindergarten through sixth grade, employing an A-B design across all cases. It was hypothesized that FastBridge-DBR, a brief behavioral progress monitoring tool, would demonstrate sensitivity to behavior change in response to an evidence-based intervention and FastBridge-DBR data would be similar to SDO data. In addition, it was hypothesized that teacher perception of progress monitoring acceptability would align with improved student behavioral change. Primary study results indicate (1) both FastBridge-DBR and SDO data demonstrated the intervention resulted in increased Academic Engagement and reductions in Disruptive Behavior and Withdrawal across students; and (2) FastBridge-DBR data across several change metrics and in comparison to SDO data demonstrated behavioral change in the expected direction, providing initial support for FastBridge-DBR as an effective progress monitoring tool. Study results also indicated high levels of teacher acceptability for FastBridge-DBR, however results were not correlated with student behavioral change data.

## Sensitivity to Behavioral Change

Research question one evaluated whether FastBridge-DBR data demonstrated sensitivity to behavioral change in response to the use of an evidence-based intervention. FastBridge-DBR data for all 24 participants were evaluated using five change metrics

(i.e., absolute level of change, percent change from baseline, no assumptions standardized mean difference, Tau-*U*, and robust - improvement rate difference) to examine FastBridge-DBR's sensitivity to behavioral change. Given that researchers within the field have not yet agreed upon a set of metrics to use in single-case research to examine sensitivity to change (see Chafouleas et al., 2012b; Cheney et al., 2008; Gresham et al., 2010), using five different metrics allowed for a more elaborate check regarding whether or not different metric results were similar to one another. Results confirmed study hypotheses, indicating FastBridge-DBRs were sensitive to behavioral change when examining Academic Engagement, Disruptive Behavior, and Withdrawal student behaviors across change metrics. Similar to the Chafouleas (2012b) study, percent change metric for Disruptive Behavior did not converge with the other change metrics; however, overall results confirmed FastBridge-DBR's sensitivity to change for all three target behaviors.

**FastBridge-DBR and SDO Correlations**

The second research question examined how FastBridge-DBR results correlated with evidence of change from already established SDO methods. To address this question, a Spearman's ρ was conducted using change metric data across all 24 participants. Results indicated a medium correlation for Academic Engagement, large correlation for Disruptive Behavior, and no correlation between FastBridge-DBR and SDO for Withdrawal.

In addition to examining change metric correlations, corresponding FastBridge-DBR and SDO data for each of the three target behaviors (i.e., Academic Engagement, Disruptive Behavior, Withdrawal) across phases were obtained. Overall, results

indicated significant correlations between FastBridge-DBR and SDO data. Specifically, correlations for Academic Engagement were small for baseline phase and medium for intervention phase. Disruptive Behavior baseline phase correlations were large and Withdrawal intervention phase demonstrated medium correlations.

There were two exceptions to these results as Withdrawal (baseline phase) and Disruptive Behavior (intervention phase) demonstrated nonsignificant correlations between FastBridge-DBR and SDO data. Anecdotal teacher comments made during the Withdrawal baseline phase indicated teachers found it difficult to estimate the amount of time students were engaged in Withdrawal behaviors as these behaviors were difficult to observe and subsequently rate (e.g., "Withdrawal examples: stays away from people, refusal to interact with others, does not speak, unusually quiet, keeps to self, disinterested in environment"; Kilgus et al., 2015). These results align with previous studies suggesting disruptive behaviors represent more active behaviors that provide easier and more accurate ratings (Chafouleas et al., 2013) compared to Withdrawal behaviors that may be more difficult for an outside observer to rate. As the study protocol included ongoing consultation to teachers throughout the intervention phase, teachers reported greater confidence in rating student Withdrawal behaviors throughout the intervention. This may have resulted in the changes demonstrated during the intervention phase, as significant correlations were found between FastBridge-DBR and SDO data for Withdrawal. Several teachers also reported that having an increased knowledge of Withdrawal behaviors throughout the consultation process, improved their ability to more accurately rate these behaviors in future observations for all students.

Secondly, insignificant correlations were found between FastBridge-DBR and

SDO data for Disruptive Behavior during the intervention phase. Comparable observations from previous researchers found that, when compared to SDO data, raters substantially underestimated well-behaved student behavior and overestimated disruptive behavior (Christ et al., 2011). A possible explanation from the current study is that some participants were in need of behavioral supports much earlier in the school year, but had not received support and behaviors continued to get worse. Thus, by the time they participated in this study, teachers' thinking of target students as highly disruptive may have become a habit that may have been difficult to change when rating student disruptive behavior. Therefore, some teachers may have overestimated Disruptive Behavior, which may have affected intervention phase SDO correlations.

**Teacher Acceptability**

Finally, the third research question addressed how the metrics for calculating behavioral response from FastBridge-DBR were correlated with teacher ratings of progress monitoring acceptability. Teacher results indicated that, regardless of whether or not their students' behaviors improved, they found FastBridge-DBR to be an acceptable and feasible progress monitoring tool for use within the classroom setting. As such, these initial findings support the potential use of this tool outside the parameters of this study. To examine this question, Spearman's ρ correlational analyses were conducted using the five FastBridge-DBR change metrics data and the majority of the teacher responses from the URP-A subscales of Acceptability (9 items), Understanding (3 items), Feasibility (6 items), System Climate (4 items), and System Support (3 items). The lack of correspondence between teacher acceptability and improved student behavior were similar to findings from Chafouleas et al. (2012b), except their results indicated a

significant correlation between one of their target behaviors (i.e., compliance) and three of the change metrics they used. With regard to the current study, there was a correlation between one target behavior, Withdrawal, which was statistically significant at the $p$ = 0.05 level, and only one change metric, percent of change. In view of the current's study lack of overall correlation between teacher acceptability of FastBridge-DBR and improved student behavior, the final hypothesis was not supported.

**Limitations and Future Research**

The current study is not without limitations. As this is one of the first studies to examine FastBridge-DBR's sensitivity to behavioral change, more research is needed to further examine reliability and validity. Second, the current study was comprised of a predominantly White and Hispanic/Latino teacher sample, and the student sample was predominantly Hispanic/Latino, limiting the generalizability of results to other racial and ethnic groups. Including a diverse sample is important as a number of other studies that examined other DBR-type of progress monitoring tools had samples that consisted of predominantly White students (see Briesch et al., 2013; Chafouleas et al., 2013; Chafouleas et al., 2012b; Christ et al., 2011; Riley-Tillman et al., 2009). Given the limited number of studies that have included diverse samples, along with the growing culturally and linguistically diverse student population (Schon, Shaftel, & Markham, 2008), more research that includes increasingly diverse student and teacher samples is needed.

Third, while the relatively small sample size of teacher student dyads (n = 24) permitted examination of the current research questions, additional data are needed to confirm findings with larger samples. For example, future research may include both

younger and older grade levels (e.g., preschool, middle school, high school). Furthermore, future research should continue to conduct studies within school settings with teachers and other school support personnel as the primary FastBridge-DBR raters as a number of other DBR-type studies have used undergraduate students who watched simulated videos of elementary students in classrooms as the primary raters (see Briesch et al., 2013; Chafouleas et al., 2013; Christ et al., 2011; Riley-Tillman et al., 2009). Conducting research in applied school settings during day-to-day events, routine or otherwise, will allow for continued examination of teacher acceptability and feasibility of DBR use within school settings. Future research should also consider using parents as raters of the child's behavior in the home environment to allow for multi-setting data collection and application of progress monitoring tools in other contexts.

Finally, this study examined student behavioral change with respect to only three target behaviors (i.e., Academic Engagement, Disruptive Behavior, Withdrawal). While a defining feature of FastBridge-DBR is its purported capability of progress monitoring a wide range of social, emotional, and behavioral difficulties, additional research is needed to examine other behaviors of interests. While the current study aligned with previous research examining similar behaviors (e.g., academic engagement, disruptive behavior, disrespectful behavior; see Briesch et al., 2013; Chafouleas et al., 2010; Chafouleas et al., 2013; Christ et al., 2011; Riley-Tillman et al., 2009) and aligned with previous findings, future research should examine FastBridge-DBR's sensitivity to a wider range of problem behaviors faced within schools to further support at-risk students. This may include distractedness, a student behavior frequently cited by teachers to be problematic in the current study.

**Implications for Practice**

Progress monitoring has been cited as a crucial element of a behavioral framework to effectively address problem behaviors among at-risk children and adolescents (Burke & Vannest, 2008; Gruman & Hoelzen, 2011; Stecker et al., 2008a). In order for schools to appropriately and accurately monitor student response to behavioral interventions, they are in need of progress monitoring tools that are efficient and effective in monitoring a wide range of behaviors (Gresham et al., 2010; Volpe & Gadow, 2010) for which FastBridge-DBR was examined. Given the increasing need for these types of behavioral progress monitoring tools, the current study's FastBridge-DBR results are promising.

First, FastBridge-DBR results indicated, overall, sensitivity to behavioral change and they were significantly correlated with SDO methods. These findings are important as previous research have cited a number of limitations to SDO methods, noting SDOs (1) are time intensive (Christ et al., 2009); (2) require an external observer that may interrupt regular classroom procedures (Hintze et al., 2002; Volpe & McConaughy, 2005); and (3) require an extensive amount of observational training (Stichter & Riley-Tillman, 2014). Conversely, FastBridge-DBR can be completed in less than one minute; the classroom teacher is the rater and classroom procedures continue as usual with no interruptions; and training time is minimal (e.g., 5-10 minutes). Given the limited time and resources available in schools (Kilgus & Eklund, 2016), FastBridge-DBR demonstrates promise as a progress monitoring tool appropriate for use in the school environment.

Second, while previous studies have examined two of the three behaviors in the

current study (i.e., Academic Engagement, Disruptive Behavior; see Briesch et al., 2013; Chafouleas et al., 2010; Christ et al., 2011; Riley-Tillman et al., 2009), additional research is needed to further explore Withdrawal behaviors. While results were mixed for Withdrawal behaviors during the baseline phase in the current study, it is believed that with appropriate teacher training and consultation, teachers may be able to more accurately rate students in this area of behavioral concern. By expanding the range of student behaviors that available behaviors progress monitoring tools can assess, FastBridge-DBR data may continue to gain momentum as a tool acceptable for use among teachers and other school personnel.

Third, results suggest that regardless of student improvements in behavior, teachers consider FastBridge-DBR to be an acceptable and feasible behavioral progress monitoring tool for use within the school environment. As previous research has highlighted teacher acceptability is largely influenced by the amount of time a tool takes away from instruction or planning (Martens et al., 1985; Roach & Elliott, 2005) and the amount of skill or training required for use or implementation (Roach & Elliot, 2005), FastBridge-DBR measure overcomes these two potential obstacles by requiring few resources and little teacher training. This suggests teachers may be able to progress monitor multiple student behaviors, due to the ongoing need to provide behavioral interventions to multiple students within the classroom (Hawken et al., 2011; Whitted, 2011). In addition, other researchers have noted that teachers are typically the primary providers of student behavioral and academic needs and acceptability of a tool can affect the fidelity with which a tool is used (Chafouleas et al., 2006). Thus, the initial findings that indicate teacher acceptability of FastBridge-DBR may also increase fidelity of

implementation in the classroom.

**Conclusion**

The results from this study add to a body of research that have previously examined behavioral progress monitoring tools (see Chafouleas et al., 2012b; Greenwood et al., 2011; Gresham et al., 2010; Miller et al., 2014; Riley-Tillman et al., 2008b; Strichter & Riley-Tillman, 2014). The current study's initial findings indicate FastBridge-DBR demonstrated sensitivity to student behavioral change data across Academic Engagement, Disruptive Behavior, and Withdrawal. In addition, FastBridge-DBR data were significantly correlated with SDO data, allowing for a potentially more efficient method for teachers interested in using behavioral progress monitoring tools. Finally, teachers indicated high ratings of FastBridge-DBR acceptability, regardless of improvements in student behaviors. Although this is an initial study, findings from FastBridge-DBR show promise as an effective behavioral progress monitoring tool that may help schools effectively monitor student's response to selected behavioral interventions in the classroom.

APPENDIX A

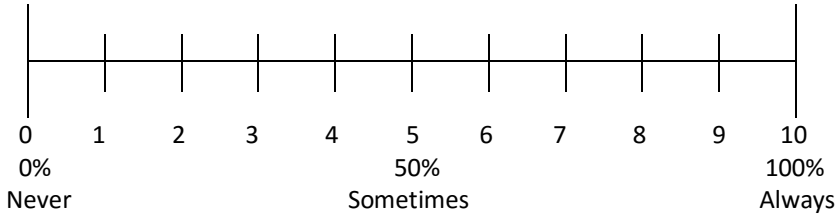
## FASTBRIDGE - DIRECT BEHAVIOR RATING

### FastBridge - Direct Behavior Rating: **FastBridge–DBR**

| | |
|---|---|
| **Student:** | **Date:** |
| **Rater:** | **Start & End Time:** |
| **Activity Description:** (Ex: Large-group math instruction on fractions) | |

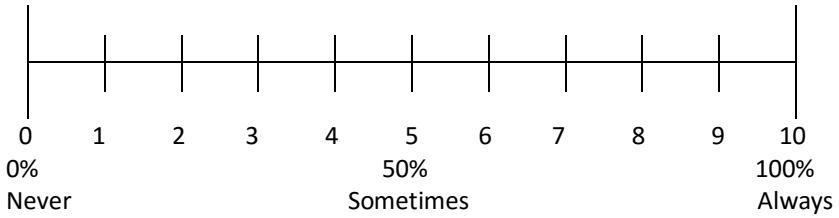
**Instructions**: Using the lines below, indicate the percentage of time the student displayed each target behavior during the observation period by placing an X on the vertical lines. *Please note,* as behaviors improve, desired behaviors may have higher ratings and undesired behaviors may have lower ratings.

| |
|---|
| **Behavior:** Academic Engagement |
| **Definition:** Passive or active participation in ongoing academic activities. Examples: reading a book, raising one's hand, answering a question, writing, looking at the teacher or relevant instructional materials |

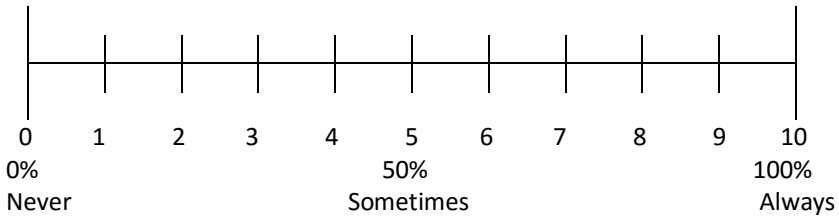



***Please note**, disruptive behavior and withdrawal are undesired behaviors and the percentage of time engaged may be lower than ratings for desired behaviors (e.g., academic engagement).

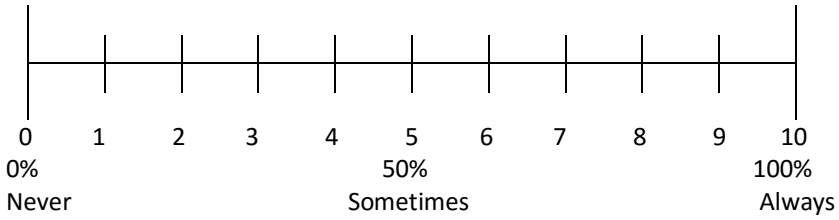
| |
|---|
| **Behavior:** Disruptive Behavior |
| **Definition:** Actions with the potential to interrupt classroom activities. Examples: calling out, talking to others, getting out of seat, throwing objects, "silly" comments |




| |
|---|
| **Behavior:** Withdrawal |
| **Definition:** Drawing back from or out of a place or position. Examples: stays away from people, refusal to interact with others, does not speak, unusually quiet, keep to self, disinterested in environment |




| **Behavior:** (*Additional behavior, as needed) |
| --- |
| **Definition:** |



APPENDIX B

# OPERATIONAL DEFINITIONS FOR FASTBRIDGE-DBR

**List of Possible Social Behaviors**

| Behavior | Behavior Definition | Daily Report Card Stem |
|---|---|---|
| Arguing | Expression of disagreement with others. Examples: negotiating to avoid responsibility, exaggerated response to others' opinions or choices. | No more than X instances of verbal abuse; No more than X instances of arguing with adults/peers |
| Temper outbursts | Exaggerated expression of anger or frustration. Examples: crying, property destruction, hitting/kicking, yelling. | No more than X instances of temper tantrumming; No more than X instances of aggression; No more than X instances of property destruction |
| **Disruptive behavior** | **Actions with the potential to interrupt classroom activities. Examples: calling out, talking to others, getting out of seat, throwing objects, "silly" comments.** | No more than X instances of interrupting/getting out of seat without permission/distracting others |
| Impulsiveness | Sudden actions lacking advanced planning or consideration of consequences. Examples: impatience, blurting out comments, difficulty waiting, interruptions. | No more than X instances of interrupting others; Waits turn with no more than X redirections |
| Physical aggression toward others | Attempted or actual physical contact with another. Examples: hitting, kicking, biting, spitting. | No more than X instances of intentional aggression |
| Verbal aggression toward others | Loud and/or inappropriate verbal comments directed at another. Examples: shouting in one's face, threats, taunts, screaming, insults. | No more than X instances of bullying/verbal abuse/teasing/yelling |
| Property destruction | Breaks or damages items or structures. Examples: throws a glass, purposefully breaks a pencil, punches a wall, rips pages out of a book. | No instances of intentional destruction of property |
| Lying | Telling of false statements. Examples: untruthful comments intended to avoid responsibility, exaggerated statements that embellish the truth. | No more than X instances of lying |
| Stealing | Taking others' possessions without permission. Examples: taking of | No more than X instances of stealing; No more than X instances |

| | | |
|---|---|---|
| | toys, unpermitted use of classroom materials. | of accusations of stealing |
| Respect | Polite and socially appropriate responses to others. Examples: following classroom rules, waiting for one's turn, saying "please" and "thank you," taking care of others' belongings. | Child uses appropriate manners in lunch/classroom/adult interactions/peer interactions |
| Appropriate interactions with others | Socially acceptable interactions with peers. Examples: appropriate initiation of conversations, waiting one's turn, listening to others, cooperation, and use of appropriate tone. | (Really any of these items could fit here) |
| Respect for personal boundaries | Keeps hands, feet, and others objects to him or herself. Examples: walks with hands at side, stays one foot or more away from others when walking, does not give unwanted hugs. | No more than X reminders to keep hands/feet to self; No more than X reminders to respect personal space |
| Noncompliance | Lack of response to adult directions in a timely manner. Examples: not completing an assigned task within 5 seconds of direction, completion of an academic task in an alternative and unpermitted fashion. | No more than X instances of noncompliance; No more than X instances of repeated noncompliance |

**List of Possible Academic Behaviors**

| Behavior | Behavior Definition | Daily Report Card Stem |
|---|---|---|
| Difficulty working independently | Excessive reliance upon others to complete academic tasks. Examples: frequent requests for assistance from peers or adults, difficulty persisting in work without prompts or supervision. | No more than X requests for assistance after instructions are provided; Completes work independently; Seatwork completed with 80% accuracy or better |
| Distractedness | Lack of attention to ongoing academic or social activities. Examples: staring off, attending to items or events unrelated to instruction, difficulty following ongoing conversations with peers. | Needs no more than X reminders to stay on task; Completes work independently; No more than X interruptions |

| | | |
|---|---|---|
| Cheating | Dishonesty intended to improve academic performance. Examples: copying a peer's exam answers, plagiarizing a paper found on the internet, falsifying lab results, not citing relevant sources. | No instances of cheating; Needs no reminders to keep eyes on own work |
| Unresponsiveness to corrective feedback | Lack of response to adult feedback in a timely and socially acceptable manner. Examples: ignoring adult feedback, delayed response to feedback, arguing with suggested revisions whining about additional work, only partial response to noted shortcomings. | No more than X instances of arguing; Complies with adult redirection with no more than X reminders |
| Organization | Materials and assignments are kept in order and are readily accessible. Examples: student's desk is neat and organized, homework assignments are kept in relevant folders, materials are brought home or to school when necessary. | Child is prepared with all materials needed for class; Child puts materials in the designated place; Agenda is appropriately completed |
| Interest in academic topics | Appropriate engagement in and excitement for instruction. Examples: active participation in classroom activities, expression of enjoyment in academic tasks, completion of tasks quickly and independently. | Needs no more than X reminders to stay on task |
| Production of acceptable work | Academic work is of sufficient quality. Examples: submitted work is complete, completed assignments are sufficiently detailed, performance meets teacher expectations and suggests adequate growth. | Seatwork completed with 80% accuracy or better; Work is completed and submitted on time |
| Timely completion of work | Submits completed academic work on time. Examples: hands in independent seatwork within allotted time, returns completed homework the following day. | Seatwork completed with 80% accuracy or better; Work is completed and submitted on time |
| Use of appropriate study skills | Engagement in activities intended to promote learning. Examples: accurate note-taking, review of prior notes, use of graphic organizers, creation and review of note cards, completion of assigned readings, minimization of distractions. | Notes are appropriately completed; Child is prepared with all notebooks and books needed for the assignments |
| **Academic engagement** | **Passive or active participation in ongoing academic activities. Examples: reading a book, raising one's hand, answering a question, writing, looking at the teacher or relevant instructional materials.** | Makes X or more contributions to the group discussion; Needs no more than X reminders to stay on task; Completes work independently; No more than X interruptions |

| | | |
|---|---|---|
| Persistence in academic tasks | Continuing an action despite difficulty or disruptions. Examples: completing a task despite losing a group member, continuing to work on a difficult problems, seeking out additional resources to complete a difficult homework task. | Seatwork completed with 80% accuracy or better; Work is completed and submitted on time |

**List of Possible Emotional Behaviors**

| Behavior | Behavior Definition | Daily Report Card Stem |
|---|---|---|
| Sadness | Expression of grief or unhappiness. Examples: displays lethargic behavior, subdued mood or affect, restricted use of preferred items or tasks | Does not respond to adult interaction; Refuses to join group activities |
| Crying | Expression of distress through visible tears. Examples: tears after corrective feedback, loud tantrum, audible yelling | Crying continuously for greater than 1 minute; Putting head down when upset; *Contrasting example:* Crying in an appropriate situation such as when injured |
| Complains of aches or pains | Verbal expression of physical or emotional pain. Examples: Child states that his belly hurts | Child makes more than X number of complaints about headaches/stomachaches/pains |
| Fearfulness | Verbal expression or physical display of fear or apprehension. Examples: reluctant to try new things, lack of initiative in situations, clings to care objects, appears anxious or fidgety | Child does not participate in group activities; Child does not participate in situations that were previously agreed upon (e.g., eating lunch in the cafeteria) |
| Difficulty rebounding from setbacks | Inability to return to typical emotional states following setback or correction. Examples: cries when situation is unresolved, inability to divert attention from upsetting situations, goes to unusual lengths to avoid failure | Avoiding tasks that have a potential for failure; Exhibits a tantrum in response to frustration. |
| **Withdrawal*** | **Drawing back from or out of a place or position. Examples: stays away from people, refusal to interact with others, does not speak, unusually quiet, keeps to self, disinterested in environment** | Child does not participate in group activities; Child does not participate in situations that were previously agreed upon (e.g., eating lunch in the cafeteria) |

| | | |
|---|---|---|
| Adaptable to change | Ability to change to fit in some situation or for some purpose. Examples: appears easygoing, willing to try new things, responsive to abrupt changes in schedule or routine | Child switches to a different group instead of staying with assigned group when asked; Child switches to a different activity instead of assigned activity when asked |
| Happiness | Expression of positive behavior such as smiling or laughing in response to a social cue. Examples: demonstrates enjoyment and contentment, shows curiosity, smiles or laughs with peers, appears hopeful | Child laughs at joke shared by peer or school personnel; Child smiles when participating in an activity or game; |
| Fatigue | Weariness or exhaustion from labor, exertion, or stress. Examples: yawning, expression of feelings of tiredness, falls asleep during inappropriate times, moves slower than usual through daily activities | Child has no instances of falling asleep in class; No instances of putting head down on the desk |
| Restlessness | Feeling nervous or bored and tending to move around a lot. Examples: continuously moving, verbal expression of discontent, inability to sit still | No more than X instances of being out of assigned seat or area. |

APPENDIX C

# SYSTEMATIC DIRECT OBSERVATION FORM

## Systematic Direct Observation (SDO) Form

Momentary Time Sampling Recording: Use a ✓ to indicate behavior is observed at beginning of interval only

[Key: AENG=Academic Engagement; DSRP=Disruptive Behavior; WDRL=Withdrawal]

Name: _____ Grade/Teacher: _____ Activity: _____

Date: _____ Time Start: _____End: _____ Interval: __15-s__

Operational Definition (adtl beh):

_____

_____

__

Operational definitions for standard behaviors:

**Academic Engagement**: Passive or active participation in ongoing academic activities. Examples: reading a book, raising one's hand, answering a question, writing, looking at the teacher or relevant instructional materials.

**Disruptive Behavior**: Actions with the potential to interrupt classroom activities. Examples: calling out, talking to others, getting out of seat, throwing objects, "silly" comments.

**Withdrawal**: Drawing back from or out of a place or position. Examples: stays away from people, refusal to interact with others, does not speak, unusually quiet, keep to self, disinterested in environment.

| Beh→ / ↓ Inter | AENG | DSRP | WDRL | (adtl. beh) | | Anecdotal Log |
|---|---|---|---|---|---|---|
| 1 (15s) | | | | | | |
| 2 (30s) | | | | | | |
| 3 (45s) | | | | | | |
| 4 (00s) | | | | | | |
| 5 (15s) | | | | | | |
| 6 (30s) | | | | | | |
| 7 (45s) | | | | | | |
| 8 (00s) | | | | | | |
| 9 (15s) | | | | | | |
| 10 (30s) | | | | | | |
| 11 (45s) | | | | | | |
| 12 (00s) | | | | | | |
| 13 (15s) | | | | | | |
| 14 (30s) | | | | | | |
| 15 (45s) | | | | | | |
| 16 (00s) | | | | | | |
| 17 (15s) | | | | | | |
| 18 (30s) | | | | | | |
| 19 (45s) | | | | | | |
| 20 (00s) | | | | | | |
| 21 (15s) | | | | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| 22 (30s) | | | | | | |
| 23 (45s) | | | | | | |
| 24 (00s) | | | | | | |
| 25 (15s) | | | | | | |
| 26 (30s) | | | | | | |
| 27 (45s) | | | | | | |
| 28 (00s) | | | | | | |
| 29 (15s) | | | | | | |
| 30 (30s) | | | | | | |
| 31 (45s) | | | | | | |
| 32 (00s) | | | | | | |
| 33 (15s) | | | | | | |
| 34 (30s) | | | | | | |



| Beh → ↓Inter | AENG | DSRP | WDRL | (adtl. beh) | | Anecdotal Log |
|---|---|---|---|---|---|---|
| 35 (45s) | | | | | | |
| 36 (00s) | | | | | | |
| 37 (15s) | | | | | | |
| 38 (30s) | | | | | | |
| 39 (45s) | | | | | | |
| 40 (00s) | | | | | | |
| 41 (15s) | | | | | | |
| 42 (30s) | | | | | | |
| 43 (45s) | | | | | | |
| 44 (00s) | | | | | | |
| 45 (15s) | | | | | | |
| 46 (30s) | | | | | | |
| 47 (45s) | | | | | | |
| 48 (00s) | | | | | | |
| 49 (15s) | | | | | | |
| 50 (30s) | | | | | | |
| 51 (45s) | | | | | | |
| 52 (00s) | | | | | | |
| 53 (15s) | | | | | | |
| 54 (30s) | | | | | | |
| 55 (45s) | | | | | | |
| 56 (00s) | | | | | | |
| 57 (15s) | | | | | | |
| 58 (30s) | | | | | | |
| 59 (45s) | | | | | | |
| 60 (00s) | | | | | | |

Operational Definition (adtl beh):

_____

---

Operational definitions for standard behaviors:

**Academic Engagement**: Passive or active participation in ongoing academic activities. Examples: reading a book, raising one's hand, answering a question, writing, looking at the teacher or relevant instructional materials.

**Disruptive Behavior**: Actions with the potential to interrupt classroom activities. Examples: calling out, talking to others, getting out of seat, throwing objects, "silly" comments.

**Withdrawal**: Drawing back from or out of a place or position. Examples: stays away from people, refusal to interact with others, does not speak, unusually quiet, keep to self, disinterested in environment.

APPENDIX D

## USAGE RATING PROFILE – ASSESSMENT (URP-A)



# URP-Assessment

Directions: Consider the described assessment when answering each of the following statements. Circle the number that best reflects your agreement with the statement, using the scale provided below.

| | | Strongly Disagree | Disagree | Slightly Disagree | Slightly Agree | Agree | Strongly Agree |
|---|---|---|---|---|---|---|---|
| 1. | This assessment is an effective choice for understanding a variety of problems. | 1 | 2 | 3 | 4 | 5 | 6 |
| 2. | I would need additional resources to carry out this assessment. | 1 | 2 | 3 | 4 | 5 | 6 |
| 3. | I would be able to allocate my time to implement this assessment. | 1 | 2 | 3 | 4 | 5 | 6 |
| 4. | I understand how to use this assessment. | 1 | 2 | 3 | 4 | 5 | 6 |
| 5. | A positive home-school relationship is needed to use this assessment. | 1 | 2 | 3 | 4 | 5 | 6 |
| 6. | I am knowledgeable about the assessment procedures. | 1 | 2 | 3 | 4 | 5 | 6 |
| 7. | The assessment is a fair way to evaluate the child's behavior problem. | 1 | 2 | 3 | 4 | 5 | 6 |
| 8. | The total time required to implement the assessment procedures would be manageable. | 1 | 2 | 3 | 4 | 5 | 6 |
| 9. | I would not be interested in implementing this assessment. | 1 | 2 | 3 | 4 | 5 | 6 |
| 10. | My administrator would be supportive of my use of this assessment. | 1 | 2 | 3 | 4 | 5 | 6 |
| 11. | I would have positive attitudes about implementing this assessment. | 1 | 2 | 3 | 4 | 5 | 6 |
| 12. | This is a good way to assess the child's behavior problem. | 1 | 2 | 3 | 4 | 5 | 6 |
| 13. | Preparation of materials needed for this assessment would be minimal. | 1 | 2 | 3 | 4 | 5 | 6 |
| 14. | Use of this assessment would be consistent with the mission of my school. | 1 | 2 | 3 | 4 | 5 | 6 |

| | | Strongly Disagree | Disagree | Slightly Disagree | Slightly Agree | Agree | Strongly Agree |
|---|---|---|---|---|---|---|---|
| 15. | Parental collaboration is required in order to use this assessment. | 1 | 2 | 3 | 4 | 5 | 6 |
| 16. | Material resources needed for this assessment are reasonable. | 1 | 2 | 3 | 4 | 5 | 6 |
| 17. | I would implement this assessment with a good deal of enthusiasm. | 1 | 2 | 3 | 4 | 5 | 6 |
| 18. | This assessment is too complex to carry out accurately. | 1 | 2 | 3 | 4 | 5 | 6 |
| 19. | These assessment procedures are consistent with the way things are done in my system. | 1 | 2 | 3 | 4 | 5 | 6 |
| 20. | Use of this assessment would not be disruptive to students. | 1 | 2 | 3 | 4 | 5 | 6 |
| 21. | I would be committed to carrying out this assessment. | 1 | 2 | 3 | 4 | 5 | 6 |
| 22. | The assessment procedures easily fit in with my current practices. | 1 | 2 | 3 | 4 | 5 | 6 |
| 23. | I would need consultative support to implement this assessment. | 1 | 2 | 3 | 4 | 5 | 6 |
| 24. | I understand the procedures of this assessment. | 1 | 2 | 3 | 4 | 5 | 6 |
| 25. | My work environment is conducive to implementation of an assessment like this one. | 1 | 2 | 3 | 4 | 5 | 6 |
| 26. | The amount of time required for record keeping would be reasonable. | 1 | 2 | 3 | 4 | 5 | 6 |
| 27. | Regular home-school communication is needed to implement these assessment procedures. | 1 | 2 | 3 | 4 | 5 | 6 |
| 28. | I would require additional professional development in order to implement this assessment. | 1 | 2 | 3 | 4 | 5 | 6 |

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