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RIVERSIDE

The Joint Effects of Academic and Behavioral Interventions on Behavioral Outcomes

A Thesis submitted in partial satisfaction  
of the requirements for the degree of

Master of Arts

in

Education

by

Mia Francesca Marciante

August 2013

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## ABSTRACT OF THE THESIS

The Joint Effects of Academic and Behavioral Interventions on Behavioral Outcomes

by

Mia Francesca Marciante

Master of Arts, Graduate Program in Education  
University of California, Riverside, August 2013  
Dr. Sara Castro-Olivo, Chairperson

Latino English Language Learners (ELLs) are at high risk for academic and social-behavioral problems. Prevention research suggests that a combination of behavioral and academic interventions is the most effective at addressing the diverse needs of this population. A single subject multiple baseline research design was employed to examine the joint effects of behavioral and academic interventions with kindergarten ELLs identified as at risk for behavioral and academic problems. Specifically, this study aimed to examine the effects of combining these interventions on behavioral outcomes [i.e., off-task, disruptive, and/or problem behaviors]. Participants included four (3 Males and 1 Female) Spanish speaking ELLs exhibiting similar disruptive behaviors maintained by attention and poor reading skills. Participants received adapted evidence based interventions for behavior (First Steps to Success) and reading (Reading Mastery) to target both at-risk areas. Results showed that a functional relationship between the combined interventions and improved behavioral outcomes was obtained. This study provides evidence that a combined approach to intervention targeting both behavior and academics is useful in both (a) decreasing problem behavior and (b) increase on-task behavior for ELL students.

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## The Joint Effects of Academic and Behavioral Interventions on Behavioral Outcomes

Recent research on the critical role of emotional and social well-being in school readiness and the negative trajectories of early problem behavior has led to a national focus on the importance of providing prevention and intervention services to young children with challenging behavior and their families (New Freedom Commission on Mental Health, 2003; Shonkoff & Phillips, 2000). Severe behavior problems in early childhood are associated with elevated risk of future emotional, academic, and social problems (Campbell 1995; Dodge, 1993; Kazdin, 1985; Reid, 1993; Shonkoff & Phillips, 2000). Specifically, children exhibiting early-onset behavioral problems are at especially high risk for life-course delinquency, substance use, violent behavior, academic failure, and depression (Kazdin, 1987; Moffitt, 1993; Shaw, Gilliom, & Ingldsby, 2003). Furthermore, when these symptoms reach the level of a diagnosable disorder in school-age children and adolescents, they are relatively resistant to treatment (Hinshaw, 1994; Kazdin, 1993). These findings highlight the importance of identifying, preventing, and resolving challenging behaviors in young children as early as possible, further emphasizing the significant need for evidence-based early interventions for these at-risk children (Conduct Problems Prevention Research Group, 1992; Dunlap et al., 2006; Furlong, Pavelski, & Saxton, 2002; Shepard & Dickstein, 2009; Walker, & Shinn, 2002). A goal for all practitioners should be to help provide appropriate and effective interventions to all struggling students. Yet there is an at-risk population that is too often underserved and under researched. Practitioners are often unfamiliar with the needs and of effective interventions for ethnic minority populations due to the lack of research

validating evidence based interventions with these populations (Lau, 2006). The need for more research with this population is evident given that most evidence-based interventions have been validated with mainstream populations, limiting the generalizations we can make about these results with ethnic minority populations (Lau, 2006). It is necessary to understand the risk factors and research background of this population in order to be effective at reducing the risks and improving the academic and social-behavioral outcomes of these populations.

### **Risk Factors for Hispanic Youth**

Research from the last fifty years has documented a clear disparity between the academic successes of culturally diverse populations and their white/non-Hispanic peers. Ethnic minority, specifically African American and Hispanic, students have lower levels of academic success compared to Caucasian students (Aud et al., 2011). This is an ongoing problem that creates challenges for minority students (Castro-Olivo, Preciado, Sanford & Perry, 2011). The National Assessment for Educational Progress (NAEP) reported mathematics and reading scores of Black and Hispanic students are consistency lower than their White peers (Aud et al., 2011). Academic and social-emotional adjustment of immigrant children have also been reported to be also lower than mainstream children across the country (Suarez-Orozco, Suarez-Orozco, & Todovora, 2008; Rong & Preissle, 2008).

Besides lower academic outcomes, Hispanic youth have also been identified to be at higher risks for behavioral and other negative social outcomes. As of 2008, Hispanics between 16 and 24 years old had the highest percentage of dropouts (18.3%) compared to

Blacks (9.9%) and Whites (4.8%). It is estimated that Hispanics born outside the United States have an even higher (32.8 %) dropout index (Chapman, Laird, & KewalRamani, 2010). Over the past forty years, Hispanics have continued to have the highest percentages of dropouts compared to their peers (Chapman, Laird, & KewalRamani, 2010). Further, minority youth, including Hispanics, are also over represented in the juvenile justice system and in school disciplinary practices (i.e., office referrals, suspensions, and expulsions) (Armour & Hammond, 2009; Skiba et al., 2011; Wallace, Goodkind, Wallace, & Bachman, 2008). This disproportionate number of school suspension and expulsions could be a contributing factor in the achievement gaps displayed with minority populations (Gregory, Skiba, & Noguera, 2010).

The high number of risk factors for Hispanic students is a clear problem that needs to be addressed. Research suggests that these students are at higher risk because they tend to come from disadvantaged backgrounds (Prelow & Loukas, 2003). Students' environments play a significant role in their academic and behavioral outcomes (Cooper, Masi, & Vick, 2009). Unfortunately, as a group Hispanics are less likely to seek out mental health services despite these high risk factors (APA, 2010). Given that this population is less likely to seek help, educators interested in seeing improve outcomes of Hispanic children must take a proactive approach and provide preventative interventions within school settings. Schools have been identified as potential gates to American society and a perfect setting to be able to provide supports for children in need. The interventions schools choose to facilitate success with this at-risk population must be evidenced-based, which means that these interventions need to have research support to

suggest their effectiveness with the target populations (Kratchwill & Stoiber, 2002; U. S. Department of Education, 2011).

A subgroup of Hispanic minority students identified to be at high risk for behavior and academic problems are Latino ELLs. Latino students are the fastest growing group in this country (Ennis, Rios-Vargas, & Albert, 2011). In California over 50% of the public school population self-identifies as Hispanic and just over 22% are identified as ELL (CDE, 2012). With these rapid demographic changes the need to address the diverse needs of Latino students, and specially Spanish speaking English language learners, has emerged.

### **Latino English Language Learners: Documented Academic and Behavioral Risks**

The need to intervene with Latino ELLs can be drawn from statistics that show how they are performing compared to peers. English Language Learners are often among the lowest performing students academically (Castro-Olivo et al., 2011). ELL students across all grades experience difficulties in reading (Anderson & Roit, 1998; Vaughn et al., 2005) and English language development (Gersten & Baker, 2000; 2003). ELLs have been found to continually perform significantly lower than their peers in reading and math (NCES, 2010).

Latino ELLs are also at risk to face a number of additional difficult challenges in school including low socio-economic status (SES), perceived discrimination, social victimization and persecution, language barriers, loneliness related to leaving their friends and family, parental economic and social-emotional stress, higher levels of acculturative stress, and low sense of school belonging (Blanco-Vega, Castro-Olivo &

Merrell, 2008). ELLs are perceived to be at higher risk for social- emotional and behavioral problems due to the many life challenges they face (Albeg, 2010; Castro-Olivo et al., 2011; Gonzales & Kim, 1997). This group has also been disproportionately represented in special education since the 1960s and found to have higher rates of dropout compared to peers of same ethnic backgrounds (Artiles & Trent, 1994; Castro-Olivo et al., 2011).

Many times due to the issues mentioned above, Latino ELLs also report feeling socially marginalized from their schools (Olsen, 1997). Feelings of marginalization and lack of school belonging have been linked to social and emotional problems (Caraway, Tucker, Reinke, & Hall, 2003; Olsen, 1997). While it is clear that Latino ELLs are at-risk for a number of academic, behavioral, and social emotional problems there is limited research regarding validated behavioral interventions with this population, especially for younger children.

### **Relationship Between Behavior and Academics**

Often, difficulties with academics can contribute to maintaining problem behaviors (Preciado et al., 2009). Students who do not receive adequate interventions/supports in their early academic life are more likely to engage in antisocial/delinquent behavior in the future. Therefore it makes sense that effective behavior support for students with problem behavior and academic deficits often requires blending behavioral and academic supports (McIntosh, Horner, Chard, Boland, & Good, 2006). In fact, a combination of behavioral and academic interventions has been found to be the most effective at addressing the diverse needs of Latino ELLs (Preciado et al.,

2009). The interest in the relationship between behavior and achievement derives strength in continuous efforts to prevent learning problems, especially for students at risk of experiencing acute and chronic school failure (Akgozzine, 2002; McIntosh, Horner, Chard, Boland, & Good, 2006; Vaughn et al., 2009).

There are multiple theories of how behavior and academics can affect and interact with each other. McIntosh (2005) suggests a coercive cycle of educational failure emerges in which students academic demands are aversive and engaging in problem behavior is maintained by escaping academic demands. This leads the child to lose access to instruction and fall behind academically, which fuels the aversion to academic demands. This cycle continues allowing the child to engage in more problem behaviors. However attention is another function of behavior that can be reinforcing and responsible for maintenance of problem behavior (Piazza et al., 1999). Miles and Stipek (2006) argue that academic skills could affect behavior due to frustration with the academic tasks. The authors suggest that this could result in aggression towards the teacher or classmates. This could lead to negative relationships with teachers and peers. While the theory behind the connection between academics and behavior is debated, there is general agreement that achievement and behavior are inversely related (Sutherland et al., 2008). Fessler and colleagues found that “slightly over one-half” of children referred for behavior problems have some degree of academic difficulty (Fessler, Rosenberg, & Rosenberg, 1991, p.101). Researchers have demonstrated that academic failure is one of the most powerful predictor of problem behavior and school failure (Manguin & Loeber, 1996).

McIntosh (2006) found that both reading and behavior variables significantly predicted the number of discipline referrals received in later grades. Morgan and colleagues (2008) found that children with reading problems in first grade were significantly more likely to display poor task engagement, poor self-control, externalizing behavior problems, and internalizing behavior problems in third grade. Their findings suggest that the most effective type of interventions are likely to be those that target problems with reading and task focused behavior simultaneously. Both these results and the results from Preciado and colleagues (2009) suggest that when intervening with at risk Latino ELL a joint intervention would be most beneficial. It should also be noted that research investigating the prevention of problem behavior has shown that signs of antisocial and problem behavior emerge as early as kindergarten (Walker et al., 1998). Research indicates that both academic and behavioral interventions can increasingly lose effectiveness after third grade (Juel, 1988; Kazdin, 1987, Walker & Severson, 1992). These findings highlight the importance of early intervention for all students including at risk Latino ELLs.

### **Purpose**

The current study aims to add to the limited research on the effects of evidence-based interventions with younger ELL students. The purpose of this study is to examine the effects of combined evidence-based behavioral and academic interventions with kindergarten ELLs identified as at risk for behavioral and academic problems. Therefore this study will investigate if there is a functional relationship between the joint effects of academic and behavioral interventions on behavioral outcomes. The following section

describes the evidence-based interventions used for this study and the research that documents the effectiveness of these programs with mainstream populations.

### **Applied Behavior Analysis**

In order to provide behavioral support to this at-risk population one option is to provide an evidence-based intervention using applied behavior analysis components. Applied Behavioral Analysis (ABA) is the systematic application of behavioral principles to change socially significant behavior to a meaningful degree. Within ABA the general principles of learning and behavior are used to reduce problems of social relevance (Baer, Wolf, & Risley, 1968). ABA strives to demonstrate a functional relation between treatment and any observed changes in the target behavior (Baer et al., 1968).

Through the use of ABA techniques one can attempt to identify a function of the behavior by manipulating environmental events as independent variables and observing changes in behavior as dependent variable (Fisher, Piazza, & Roane, 2011). Methods in ABA range from validated intensive behavioral interventions to behavioral techniques. One evidence based intensive behavioral intervention that applies ABA is First Steps to Success (FSS). First Steps to Success utilizes ABA components that have been found to reduce problem behavior including group contingencies, positive reinforcement, explicitly teaching behavior skills (Alberto & Troutman, 2006; Cooper, Heron, & Heward, 1987, Theodore, Bray, & Kehle, 2004).

### **First Steps to Success**

First Steps to Success is an early intervention program designed to help children who are at risk for developing aggressive or antisocial behavioral patterns (Walker et al.,



1997). The program enhances early school experiences and assists at risk children by teaching them the necessary skills to appropriately engage in schoolwork and interact with teachers and peers (Walker et al., 1998). The components of the program will be provided in detail in the method section. FSS has been shown to be effective in decreasing the number of psychosocial risk factors associated with antisocial behavior and increasing the overall well-being and adjustment in young children at risk (Kashani, Jones, Bumby, & Thomas, 1999). Recent investigations have demonstrated robust effect sizes for decreasing aggressive and maladaptive behaviors as reported by the teachers, increasing adaptive behavior ratings as reported by the teacher, as well as increasing rating of adaptive behavior and classroom observations of on-task behavior (Golly, Sprague, Walker, Beard, & Gorham, 2000; Golly, Stiller, & Walker, 1998; Overton, McKenzie, King, & Osborne, 2002; Walker et al., 1998; Walker et al., 2009). FSS is an intervention supported by What Works Clearinghouse (U. S. Department of Education, 2012a). WWC is a nationally recognized resource for rigorously evaluating interventions that was created in 2002 by the U. S. Department of Education's Institute of Educational Sciences (IES) to review, summarize, and report research. WWC found that FSS has positive effects on external behavior, potentially positive effects on emotional/internal behavior, social outcomes, and other academic performance. Two studies of FSS were included in WWC evaluation (Walker et al., 1998; Walker et al., 2009).

Walker and colleagues (1998) reported the results of a four-year study designed to develop and initially evaluate FSS. Two cohorts of at-risk kindergartners, totaling 46 students, were identified and exposed to the FSS program during the 1993-1994 and

1994-1995 school years. A randomized, experimental, wait-list control-group design was used to evaluate FSS. Students were described as exhibiting antisocial behaviors, including victimizing others, severe tantrums, and aggression. The study reported student outcomes after approximately three months of program implementation in kindergarten. The study found the FSS program to be a promising approach to the reduction of antisocial behavior patterns among at-risk kindergartners.

Walker and colleagues (2009) conducted a large-scale randomized controlled trial of FSS to demonstrate its efficacy and to determine if program effects and outcomes in a highly urbanized school setting matched previous findings. While majority of the participants were Hispanic (57%), they came from primarily from English-speaking households (89.9%). The study was conducted over a four-year period and participants included 198 students in first through third grade. Teachers were randomly assigned to the FSS intervention or to a usual care control condition across two cohorts. Pre-post teacher and parent ratings of student behavior and social skills showed moderately robust effect sizes, ranging from .54 to .87, which favored the intervention group. While there were positive behavioral outcomes, direct measures of academic performance using curriculum-based measurement were not sensitive to the intervention.

Prior to Walker and colleagues' (2009) investigation, FSS had been evaluated primarily in suburban and rural school district settings using mainly single subject and quasi-experimental design. While Walker and colleagues' (2009) were able to add to the research validating FSS using a diverse (57% Hispanic) urbanized school setting, their sample did not include a large number of ELL students. FSS has yet to be validated with

this at-risk population. Overall more research is needed to determine the effectiveness of FSS with younger ELL students.

### **Reading Mastery**

Reading Mastery is a direct instruction reading program designed to provide explicit, systematic instruction in English language reading. Reading Mastery teaches basic reading skills using a direct instruction approach that addresses the critical skills identified by research as necessary for successful reading development (Adams, 1990; National Reading Panel Report, 2000). The components of the program will be provided with detail in the method section. Reading Mastery has been extensively validated in small-group and whole class settings, and is effective for teaching reading to low as well as higher performing students (Adams & Engelmann, 1996). The program is an intervention supported by What Works Clearinghouse (U. S. Department of Education, 2012b). WWC found that Reading Mastery has potentially positive effects on the reading achievement of English language learners (Gunn, Biglan, Smolkowski, & Ary, 2000).

Gunn and colleagues (2000) investigated the effects of supplemental reading instruction using Reading Mastery for students in kindergarten through Grade 3. Children who received the supplemental reading instruction performed significantly better on measures of word attack skills at the end of intervention and on measures of word attack, word identification, oral reading fluency, vocabulary, and reading comprehension at follow-up. There were no differences in the effectiveness of instruction when controlling for ELLs' level of English proficiency or as a function of student gender or grade.

### **Research Questions**

The present study will investigate if there is a function relationship between the joint effects of First Steps and Reading Mastery on behavioral outcomes. The research questions are as follows: (1) is there a functional relationship between the joint effects of evidence based academic and behavioral interventions on off-task behavior for Latino ELLs? and (2) is there a functional relationship between the joint effects of evidence based academic and behavioral interventions on problem behaviors for Latino ELLs?

## **Method**

### **Research Design**

A single subject multiple baseline design was employed to examine the impact of combined academic and behavior interventions on behavioral outcomes. Single case design has been established as a methodological approach for evaluating evidence based practices in school psychology and special education research (Gresham & Vanderwood, 2008; Horner et al., 2005). Rather than assigning participants to experimental and control groups, SCD uses single subjects and each subject serves as its own control. The purpose of SCD is to establish a functional relationship between the independent and dependent variables (Gresham & Vanderwood, 2008; Horner et al., 2005; Riley-Tillman & Burns, 2009). This is demonstrated when intervention data demonstrates a pattern that differs from baseline data which is then replicated across subjects (Christ, 2007; Horner et al., 2005; Riley-Tillman & Burns, 2009). Experimental control and intervention effect are demonstrated through multiple replications of effect (Kratochwill et al., 2010).

### **Participants**

This study took place in an urban school district in Southern California. The participating school district consisted predominantly of Hispanic or Latino students (66%), followed by Black or African American (18%), White (10%), Filipino (2%), Asian (2%), Native Hawaiian/Pacific Islander (1%), American Indian or Alaska Native (.3%), and Bi-racial (.7%). Among this population, 71% were classified as socio-economically disadvantaged as indicated by receiving Free or Reduced Price Meals, and 23% were classified as English language learners during the 2011- 2012 academic school year, as reported by the representing school district. Of these ELL students 95% were Spanish speaking English language learners. By working closely with the school district kindergarten teachers, a pool of at-risk kindergarten students who qualified for the First Step program were identified. Teachers were asked to nominate students exhibiting disruptive behaviors and poor reading skills.

Four students exhibiting disruptive behaviors and poor reading skills were selected to participate. All of the students were in kindergarten classrooms. The classrooms ranged in size from 25-30 students. The participants' ages ranged from five to six. Three of the students were male and one student was female. All of the participants were Latino Spanish speaking English Language Learners (ELLs). In addition, all of the participating students had at least one parent who was an immigrant who spoke Spanish as their primary language at home.

Teachers nominated the four participating students. The students were nominated because of disruptive problem behavior during class and academic difficulties with reading. Teacher nominations have been established as a valid way of identifying at risk

children (Ollendick, Oswald, & Francis, 1989). To assess students' problem behavior and "fit" for the study, teachers were interviewed using the Functional Assessment Checklist for Teachers and Staff (FACTS; McIntosh, Borgmeier, Anderson, Horner, Rodriguez, & Tobin, 2008). The FACTS has been shown to be a reliable and valid measure for functional behavior assessment to assist in behavior support (McIntosh et al., 2008). Teachers were interviewed to identify types of problem behaviors, time of occurrence, antecedents, consequences, and high frequency settings (See Appendix A). Antecedent, behavior, and consequence (ABC) observations were also conducted on the nominated students. All of the referred students had similar behavior problems in class including but not limited to yelling out in class and getting out of their seat. The information gathered by the FACTS and ABC observations indicated that for all four students, their problem behaviors were maintained by peer and adult attention. Additional observations were conducted during instructional periods to evaluate frequency of the problem behaviors. Students who engaged in disruptive behavior at least 30% of the intervals observed were invited to participate. Parental informed consent, teacher agreement, and student assent was obtained for all identified students who met the participation criteria. The informed consent procedures were conducted by the principal investigator of this study.

### **Interventions**

**First Steps to Success.** The First Step to Success program is an evidence-based positive behavior intervention made up of three major components including basic one-on-one social skills training, classroom intervention, and parent training. This intervention provides 30-60 days of intensive behavior support. During the intervention

environmental variables are manipulated to increase appropriate behavior and decrease inappropriate behavior. First Steps explicitly teaches students desired behaviors (follow directions, keep hands and feet to self, and raise their hand before talking) through individualized instruction and behavioral rehearsal, feedback, role-plays, and activity-based performance incentives. If the desired points are obtained by the student a class wide reward is earned.

A green/red point card was used (1) as a visual cue to the child that his/her behavior is either appropriate (Green) or inappropriate (Red), (2) to record points toward the class reward, and (3) to communicate with teachers and parents about the child's progress. This green/red point card provides immediate feedback to the child about the quality of his/her behavior. When following directions and behaving appropriately, the green side of the card is shown. If the child is not following directions or is engaged in inappropriate behavior, the interventionist turns the card to red. Verbal communication about negative behavior is not used so that inappropriate behavior is not inadvertently reward with negative attention. This green/red point card also keeps track of earned points. Point opportunities are brief intervals of time in which points are awarded. If a point opportunity occurs and the card is green one point is awarded. If a point opportunity occurs and the card is red, the child does not receive a point. In order for the child to meet their goal for the day, they must reach a minimum of 80% of the possible points during the 20-minute period. Information on the card provides a daily communication tool between home and school regarding the child's school progress (Golly et al., 2000; Walker, Stiller et al., 1998; Walker et al., 1997).

After a stable baseline was established, the program began with a “coach” phase where a trained graduate student researcher serving as main interventionist conducted the first 5-7 sessions with the child. The “teacher” generalization phase was then implemented with the coach serving as a consultant. Following the procedures outlined in the First Step to Success program guide, each successful “program day” was defined as the student having met the criteria for performance (defined as a percentage of intervals with appropriate behaviors). If the student met criteria, he or she then advanced to the next program day criteria. The number of sessions per day gradually increased in the following manner: 20 min on days 1-5; 30 min on days 6-7; 40 min on day 7; 60 min on day 8; 90 min on day 9; 120 min on days 10-12; and 150 min on day 13 to the end of the program.

The Home Base component of First Step is based on the belief that parents are children’s best natural resource for school success. The Home Base intervention consisted of lessons and parent child activities designed to build child competencies in six key areas that affect school adjustment and performance. Home Base required six weeks for implementation (one skill per week) and was initiated at week two of the school intervention. Topics included sharing the day, cooperation, limit setting, problem solving, friendship skills, and building confidence/self-esteem. During this time, the First Step to Success program PI conducted these lessons with the parent(s) in a culturally responsive manner. All lessons went over minor cultural adaptations to ensure relevance with participating parents (see Castro-Olivo, Preciado, Marciante and Garcia, In Progress for a description of the cultural adaptations made to the parent component of this study).



All of the lessons were conducted in Spanish, as this was the primary language in the home. The PI is a bilingual interventionist trained on cultural competence and has multiple experiences working with immigrant Latino populations. Materials that supported and encouraged review and practice of each skill were left with the parent(s). The parent(s) were encouraged to engage the child in skill-building activities and practice these activities for 10-15 min each day (Walker et al., 1997).

**Reading Mastery.** Direct reading instruction adapted from the Reading Mastery program was employed for this study. Students received instruction three times per a week for fifteen minutes per a lesson. Students started the Reading Mastery once the behavior intervention started, following the multiple baseline deigns. Reading Mastery is a direct instruction program designed to provide explicit, systematic instruction in English language reading. The lessons consist of 4 activities: Oral Language Building (Put the bug inside of the bag... where is the bug?), Phonemic Awareness (Say the sounds in the word bug), Letter Sounds (Give me the sound for the following letters), and Decoding (We are going to learn to read some words. I will sound out this word: bug /b/u/g/. Word?). Content was determined based on the student's performance from the previous day. These lessons are designed to facilitate teacher-student interactions and active student participation. The overarching teaching routine repeated throughout the curriculum is composed of the following steps: modeling new content, providing guided practice, and implementing individual practice and application. Lesson scripts act as a guide for interventionist.

## **Instruments**

Four areas of interest were measured and used in analysis: (1) on-task behavior; (2) problem behaviors; (3) integrity of intervention implementation; and (4) social validity (See Appendixes).

**On-task behavior.** Direct observation data were collected for on- and off-task behavior using categories from the Behavioral Observation of Students in Schools (BOSS) structured observation tool (Shapiro, 2004). On-task behavior was defined as the student actively or passively attending to instruction or assigned work and the absence of off-task behavior during the observed interval. Three possible categories of off-task behavior were recorded: off-task motor, off-task verbal, and off-task passive behaviors. Off-task motor behaviors were defined as any motor movement that occurred that was not associated with the academic task at hand (e.g., randomly flipping pages in a textbook or out of seat). Off-task verbal behaviors were coded whenever the student made any audible verbalizations that were not relevant to the assigned task or not permitted during the assigned task (e.g., talking to peers, humming, or calling out answers). Off-task passive behaviors occurred whenever there was passive disengagement for a period of at least 3 consecutive seconds (e.g., looking away from assigned material).

Data were collected using a 15-second partial interval recording system. Direct observations were conducted for 20 min per day, three times per week for each student for each outcome of interest (i.e. on-task, problem behavior, etc). Observations were conducted during instructional periods. Interobserver agreement data were collected for 35% of the total sessions observed. Interobserver agreement was calculated by dividing

total interval agreements by total intervals observed (Kazdin, 1982). The mean percentage of overall agreement was 94% (ranging from 75–100%).

**Problem behaviors.** Problem behaviors were operationally defined and specific to each child. Problem Behavior Measurement System (PBMS), a direct behavioral observation tool was developed for this study. Problem behaviors include talking out in class, being out of their seat, and being physical with peers. This tool uses partial interval recording system where students' problem behavior (examples: disruptive, aggressive, off-task etc) are observed and compared to a peer. Data were collected using a 15-s partial interval recording system. Direct observations were conducted for 20 min per day, three times per week for each student. Observations were conducted during instructional periods. Interobserver agreement data were collected for 29% of the total sessions observed. The overall agreement averaged 96% (ranging from 89-99%).

**Treatment integrity.** Treatment integrity was assessed with a checklist detailing specific steps of the interventions (See Appendixes D-E). Both interventions were assessed for treatment integrity. This measure checked to see if the treatment conditions were administered as intended according to manualized and recommended guidelines by evaluating the completeness, accuracy, and sequencing of the interventions. Items for the First Steps integrity measure indicated whether the interventionist presented the green card and stated the contingency for the day, presented the red card with minimal verbal feedback contingent on problem behavior, included the class in positive feedback, and provided a small reward for successful goal attainment by the student. Items for the First Steps integrity measure included “did implementer elicit a pledge of cooperation from the

entire class,” “is the green/red card visible to the child,” and “following instance of problem behavior did the implementer turned the card to red”. Treatment integrity was collected for 28% of the reading intervention sessions and 10% of the behavior intervention sessions. Adherence to all steps in the intervention occurred 100% of the time for First Steps coach phase, 80% of the time for First Steps teacher phase, and 96% of the time for Reading Mastery.

**Social validity.** A questionnaire was given to the participating teachers after completion of the study to assess social significance of intervention goals, social acceptability of intervention procedure, and social importance of effects produced by the intervention (Wolf, 1978). The questionnaire evaluated the ease of implementation of the First Step to Success program, satisfaction with the treatment procedures, changes in behavior, and student outcomes. Teachers were asked to rate their level of satisfaction across a variety of questions, and to give program recommendations. The questionnaire consisted of 14 items, 12 Likert-scale items and two yes/no items. The Likert-scale ranged from strongly-agree (6) to strongly disagree (0). Likert-items on the scale included statements such as the target student benefited from this program, I found the program easy for me to implement, and I am satisfied with the results of the program (See Table 1). The discrete questions included were there any significant positive effects of the intervention and do you think the program can be improved in anyway.

### **Training**

Graduate students were trained in both First Steps and Reading Mastery. This consisted of a 4-hour training on the theoretical base and implantation of the intervention.

During the training modeling, role-playing, and treatment integrity checks were included. A training video developed by First Steps was also provided. These students were already trained and familiar with the measures used for data collection.

Teachers participating also received training. A teacher-training portion of the program was carried out prior to the school intervention. This consisted of a 2- hour training on positive behavior support and main components of First Step. Teachers were also provided with a training video developed by First Steps on how to implement the intervention. The coach phase of the intervention also provided a modeling of the intervention for teachers. In addition, teachers also received ongoing consultation, support, and modeling on basic positive behavior support classroom management techniques

### **Procedures**

Teachers nominated ELL students at risk for behavior and academic problems. After observations and a FACTS interview it was determined that all referred students had similar problem behaviors and the behaviors were a function of attention. These students were invited to participate in the study and all of the students accepted. Baseline and intervention data were collected three times per week for ten weeks. Each participating student received a minimum of two weeks of the behavioral intervention. The students received intervention following a multiple baseline design. After the coaching phase of the intervention the child's classroom teacher took over as the interventionist. An academic intervention was coupled with the behavioral intervention. The academic intervention was for 15-20 minutes per a day, 3 times a week. Parents also

received 6 culturally adapted lessons on basic parent training skills in Spanish in the home. Through out the study treatment integrity checks were conducted on both the behavior and academic interventions.

### **Data Analysis**

The traditional approach to examining the existence of a functional relationship with SCD is through visual examination of between and across phase data (Horner et al., 2005; Riley- Tillman & Burns, 2009). With visual examination the degree to which the behavior of measurement varies within and between baseline and treatment conditions is analyzed (Gresham & Vanderwood, 2008; Riley-Tillman & Burns, 2009). Visual components analyzed include level, trend, immediacy, and variability (Horner et al., 2005; Riley- Tillman & Burns, 2009). With SCD visual analysis is the preferred analysis method, over statistical analysis (Brossart, Parker, Olson, & Mahadevan, 2006). In addition to visual examination, effect sizes will also be calculated. The standardized mean difference will be calculated. This effect size is the difference between the average level of the intervention phase and the average level of a baseline phase divided by the pool standard deviation. Methods such as Percent of All Non-overlapping Data (PAND) and Pearson's Phi are commonly used and simple ways of estimating effect size (Kratochwill et al., 2010) and will also be calculated.

PAND is calculated by dividing the total number of intervention data points that overlapped baseline by the number of all data points (intervention and baseline combined). PAND is particularly beneficial as it can be converted into of Phi ( $\Phi$ ), which is a regression-based estimate that is comparable to between-group effect sizes (Maggin

et al., 2011; Parker, Hagan-Burke & Vannest, 2007; Riley-Tillman & Burns, 2009). The effect size PND is similar to PAND in that it involves visual analysis of the data to calculate an effect size based on percentage of overlap between phases (Parker, Hagan-Burke & Vannest, 2007). However, PND only takes into account one baseline phase data point, the highest point, into its calculation and therefore will not be used in analysis. PAND can also be converted into the Phi effect size (Riley-Tillman & Burns, 2009). Phi will be calculated by the procedure outline in Parker and colleagues (2007). All of these effect sizes will be considered when evaluating the effect of the interventions in addition to visual analysis.

## **Results**

The purpose of this study was to examine the effects of combined evidence-based behavioral and academic interventions with kindergarten ELLs identified as at risk for behavioral and academic problems. A functional relationship between the combined interventions and behavioral outcomes was supported. Specifically, a reduction in problem behavior and increase in on-task behavior was observed. Four participants were included in the analysis including 3 boys and 1 girl at-risk for behavior and reading problems. Visual analysis and effect size calculations were utilized to evaluate the behavioral results (i.e. on task and problem behavior) for each child (See Tables 2-3). Figures 1-2 provide the results for each participant across all phases (i.e., baseline, intervention, and follow-up) of the study.

All four students displayed a pattern of significant reduction in problem behavior and increase in on-task behavior from baseline to intervention phases. Figure 1 displays

baseline and intervention data for Carla, Manuel, Osvaldo, and Josue for disruptive behavior. During baseline they exhibited, on average, 67%, 65%, 50%, and 28% of intervals with disruptive problem behavior, respectively. After intervention was introduced, problem behavior for Carla, Manuel, Osvaldo, and Josue decreased to 15%, 27%, 18%, and 9% respectively. These show reductions of 52%, 38%, 32%, and 19% problem behavior from baseline for four students.

Figure 1 shows that level of problem behavior decreased with all four students. Immediate decreases were seen with all but one student (Manuel). Manuel had a decrease in problem behavior after the first two intervals of intervention. Differences in trend were observed for each of the children but were more significant for Carla and Osvaldo. A change in variability was observed with Manuel, with the intervention phase having more variability. Effect size analysis indicated a large effect. PAND for problem behavior was 94.23%. This resulted in a Phi of .88. The SMD of -1.80 also indicated a large effect.

All four students displayed a pattern of increase in on-task behavior following the implementation of the intervention program. Figure 2 displays baseline and intervention data for Carla, Manuel, Osvaldo, and Josue for on-task behavior. During baseline they were, on average, 41%, 54%, 56%, and 68% of intervals on-task, respectively. After intervention was introduced, on-task behavior for Carla, Manuel, Osvaldo, and Josue increased to 86%, 91%, 74%, and 93% respectively. These show increases of 45%, 37%, 18%, and 25% on-task behavior from baseline for four students.

Figure 1 shows that level of on-task behavior increased with all four students. Immediate decreases were seen with all but one student (Josue). Josue had an increase in



on-task behavior after the first interval of intervention. Differences in trend were observed for only two of the children (Manuel and Osvaldo). A change in variability was observed with all but one student (Osvaldo), each with greater variability in the baseline phase. Effect sized analysis indicated a large effect. PAND for problem behavior was 89.33%. This resulted in a Phi of .78. The SMD of 1.61 also indicated a large effect.

Three of the four participating teachers responded to the social validity survey. All of the teachers agreed to all of the items indicating that the program was feasible to implement and overall beneficial (See Table 1). All of the teachers also agreed that there were significant positive events due to the program and that they would not improve the program in anyway.

### **Discussion**

The purpose of this study was to examine the effects of combined evidence-based behavioral and academic interventions with kindergarten ELLs identified as at risk for behavioral and academic problems. Specifically, the author aimed to examine the effects of combining these interventions on behavioral outcomes [i.e., off-task, disruptive, and/or problem behaviors). The results of this study show a functional relationship between the First Steps to Success program coupled with direct reading instruction on improved behavioral outcomes. Across all participants a decrease in problem behavior and an increase on-task behaviors was observed.

Previous studies have documented the positive direct effects of the First Step to Success program (Beard, 1998; Golly et al., 2000; Golly et al., 1998; Walker, Kavanagh et al., 1998, Walker et al., 2000). While past results have supported a functional

relationship between First Steps and decreases in problem behavior and increases in on-task behavior, these results have not included ELLs. In addition theory dictates that with this at-risk population, Latino ELLs, a combined intervention utilizing both behavior and academic components is necessary (Morgan et al., 2008; Preciado et al., 2009). The results of the current study validate and add to previous research finding that the First Steps Intervention coupled with Reading Mastery is also effective for use with a at risk population of Latino ELLs. This study provides evidence that a combined approach to intervention targeting both behavior and academics is useful in both (a) decreasing problem behavior and (b) increase on-task behavior for ELL students. Participating teachers also reported high levels of social validity and satisfaction to the combined intervention program. This initial pilot study shows that the First Steps to Success program (as adapted for this study) is an adequate intervention for use with children from an ELL-Latino background and will help guide future research questions.

### **Limitations**

While the current study produced positive outcomes for Latino ELL students there were some limitations. This was an initial pilot study to help direct future research. Another limitation was a violation in multiple baseline procedures. Two of the participating students completed intervention at the same time due to the schools' end of the school calendar. A third limitation is the dependence on teacher nomination to determine academic risk. Future studies should replicate this study with participants meeting data-based inclusion criteria and earlier in the academic year to provide more

intervention time. Researchers should also consider validating the culturally adaptive parent component of First Steps.

### **Practical Implications**

Practitioners can feel at a lost when an intervention is needed for the at-risk group of Latino ELLs. This study provides an option for practitioners in need of an evidence-based intervention validated with Latino ELLs. The results demonstrate that a combination of academic and behavior intervention can decrease problem behavior and increase on-task behavior in this population for Latino ELLs. Teachers also found this intervention feasible, socially valid, and beneficial indicating it is a realistic option for practitioners who are developing intervention plans for Latino ELLs. Additional practical implications include the support of the importance of intervening in both academics and behavior for at-risk populations. Practitioners should consider both areas of intervention in order to decrease the probability of problem behavior in the future.

## References

- Adams, G. L., & Engelmann, S. E. (1996). *Research on direct instruction: 25 years beyond DISTAR*. Seattle, WA: Educational Achievement Systems.
- Adams, M. J. (1990). *Beginning to read: Thinking and learning about print*. Cambridge, MA: MIT Press.
- Albeg, L. (2010). *A study of the relationship of symptoms of mental health, acculturative stress and academic performance*. Unpublished Masters' Thesis. University of California, Riverside.
- Alberto, P.A., & Troutman, A.C. (2006). *Applied behavior analysis for teachers*. Upper Saddle River, NJ: Merrill.
- Algozzine, B. (2002). Building effective prevention practices. In B. Algozzine & P. Kay (Eds.), *Preventing problem behavior* (pp. 220-234). Thousand Oaks, CA: Corwin Press.
- American Psychiatric Association (APA). (2010). *Mental health disparities: Hispanics/Latinos*. APA Fact Sheet. Retrieved from: <http://www.psych.org/Share/OMNA/Mental-Health-Disparities-Fact-Sheet--Latinos.aspx>
- Anderson, V., & Roit, M. (1998). Reading as a gateway to language proficiency for language minority students in the elementary grades. In R. M. Gersten & R. T. Jiménez (Eds.), *Promoting learning for culturally and linguistically diverse students: Classroom applications from contemporary research* (pp. 42–54). Belmont, CA: Wadsworth.

- Armour, J., & Hammond, S. (2009). *Minority youth in the juvenile justice system: Disproportionate Minority Contact*. National Conference of State Legislatures. Retrieved from: <http://www.ncsl.org/print/cj/minoritiesinjj.pdf>
- Artiles, A.J., & Trent, S.C. (1994). Over-representation of minority students in special education. *Journal of Special Education, 27*, 410-437.
- Aud, S., Hussar, W., Kena, G., Bianco, K., Frohlich, L., Kemp, J., & Tahan, K. (2011). *The Condition of Education 2011* (NCES 2011-033). U.S. Department of Education, National Center for Education Statistics. Washington, DC: U.S. Government Printing Office.
- Blanco-Vega, C., Castro Olivo, S. & Merrell, K. (2008). Social and emotional needs of Latino immigrant students: An ecological model for developing, planning and implementing culturally sensitive interventions. *Journal of Latinos and Education 7*(1), 43-61. DOI: 10.1080/15348430701693390
- Brossart, D.F., Parker, R.I., Olson, E.A., & Mahadevan, L. (2006). The relationship between visual analysis and five statistical analyses in a simple AB single-case research design. *Behavior Modification, 30*(5), 531-563.
- California Department of Education (CDE). (2012). *Students by ethnicity and English language learners 2011-2012: DataQuest*. Retrieved from: <http://dq.cde.ca.gov/dataquest/>.
- Campbell, S. B. (1995). Behavior problems in preschool children: A review of recent research. *Journal of Child Psychology and Psychiatry, 36*, 113–149.

- Caraway, K., Tucker, C. M., Reinke, W. M. & Hall, C. (2003). Self-efficacy, goal orientation, and fear of failure as predictors of school engagement in high school students. *Psychology in the Schools*, 40(4),17–427.
- Castro-Olivo, S., Preciado, J., Sanford, A. K., & Perry, V. (2011). The academic and social-emotional needs of secondary Latino English Learners: Implications for screening, identification, and instructional planning. *Exceptionality*, 19(3), 160-174.
- Christ, T.J. (2007). Experimental control and threats to internal validity of concurrent and nonconcurrent multiple baseline designs. *Psychology in the Schools*, 44(5), 451-459.
- Conduct Problems Prevention Research Group. (1992). A developmental and clinical model for the prevention of conduct disorder: The FAST Track Program. *Development and Psychopathology*, 4, 509–527.
- Cooper, J. L., Masi, R., & Vick, J. (2009). *Social-emotional development in early childhood: What every policymaker should know*. National Center for Children in Poverty. Retrieved from: [http://www.nccp.org/publications/pdf/text\\_882.pdf](http://www.nccp.org/publications/pdf/text_882.pdf)
- Cooper, J. O., Heron, T. E., & Heward, W. L. (1987). *Applied behavior analysis*. Upper Saddle River, NJ: Merrill.
- Chapman, C., Laird, J., and KewalRamani, A. (2010). *Trends in High School Dropout and Completion Rates in the United States: 1972–2008* (NCES 2011-012). National Center for Education Statistics, Institute of Education Sciences, U.S.

Department of Education. Washington, DC. Retrieved from: <http://nces.ed.gov/pubs2011/2011012.pdf>

- Dodge, K. (1993). The future of research on conduct disorder. *Development and Psychopathology, 5*, 311–320.
- Dunlap, G., Strain, P.S., Fox, L., Carta, J., Conroy, M., Smith, B.J., ... Sowell, C. (2006). Prevention and intervention with young children's challenging behavior: Perspectives regarding current knowledge. *Behavioral Disorders, 32* (1), 29–45.
- Ennis, S., Rios-Vargas, M., & Albert, N. G. (2011). The Hispanic population: 2010 Census briefs. The United States Census Bureau. Retrieved from: <http://www.census.gov/prod/cen2010/briefs/c2010br-04.pdf>
- Fessler, M. A., Rosenberg, M. S., & Rosenberg, L. A. (1991). Concomitant learning disabilities and learning problems among students with behavioral/emotional disorders. *Behavioral Disorders, 16*, 97-106.
- Furlong, M. J., Pavelski, R., & Saxton, J. (2002). The prevention of school violence. In S. Brock, P. Lazarus, & S. Jimerson (Eds.), *Best practices in school crisis management* (pp. 131–150). Washington, DC: National Association of School Psychologists.
- Gersten, R., & Baker, S. (2000). What we know about effective instructional practices for English learners. *Exceptional Children, 66*, 454-470.
- Gersten, R., & Baker, S. (2003). *English-language learners with leaning disabilities*. In H. Swanson, K. R. Harris, S. Graham, H.

- Gregory, A., Skiba, R. J., & Noguera, P. A. (2010). The achievement gap and the discipline gap: Two sides of the same coin? *Educational Researcher*, 39(1), 59-68. DOI: 10.3102/0013189X09357621
- Gresham, F.L. & Vanderwood, M. (2008). Quantitative research methods and designs in consultation. W. Erchul & S. Sheridan (Eds.), *Handbook of Research in School Consultation* (pp.63-88), New York: Lawrence Erlbaum Associates.
- Golly, A. M., Stiller, B., & Walker, H. M. (1998). First Step to Success: Replication and social validation of an early intervention program. *Journal of Emotional and Behavioral Disorders*, 6(4), 243-250.
- Golly, A., Sprague, J., Walker, H. M., Beard, K., & Gorham, G. (2000). The First Step to Success program: An analysis of outcomes with identical twins across multiple baselines. *Behavioral Disorders*, 25(3), 170-182.
- Gonzales, N. A., & Kim, L. (1997). Stress and coping in an ethnic minority context: Children's cultural ecologies. In S. A. Wolchik & I.N. Sandler (Eds.), *Children's coping with common stressors: linking theory, research and interventions* (pp. 481-511). New York: Plenum.
- Gunn, B., Biglan, A., Smolkowski, K., & Ary, D. (2000). The efficacy of supplemental instruction in decoding skills for Hispanic and non-Hispanic students in early elementary school. *The Journal of Special Education*, 34, 90-103.
- Hinshaw, S. P. (1994). *Attention deficits and hyperactivity in children*. Thousand Oaks, CA: Sage.



- Horner, R. H., Carr E. G., Halle, J., McGee, G., Odom, S., & Wolery, M. (2005). The use of single-subject research design to identify evidence-based practice in special education. *Council for Exceptional Children, 71*(2), 165 – 179.
- Juel, C. (1988). Learning to read and write: A longitudinal study of 54 children from first through fourth grades. *Journal of Educational Psychology, 80*(4), 437-447.  
doi:10.1037/0022-0663.80.4.437.
- Kashani, J. H., Jones, M. R., Bumby, K. M., & Thomas, L. A. (1999). Youth violence: Psychosocial risk factors, treatment, prevention, and recommendations. *Journal of Emotional and Behavioral Disorders, 7*, 200–210.
- Kazdin, A. (1985). *Treatment of antisocial behavior*. Homewood, IL: Dorsey.
- Kazdin, A. E. (1987). *Conduct disorders in childhood and adolescence*. London: Sage.
- Kazdin, A. E. (1987). Treatment of antisocial behavior in children: Current status and future directions. *Psychological Bulletin, 102*, 187-203.
- Kazdin, A. E. (1993). Treatment of conduct disorder: Progress and directions in psychotherapy research. *Development and Psychopathology, 5*, 277–310.
- Kratochwill, T. R., Hitchcock, J., Horner, R. H., Levin, J. R., Odom, S. L., ... Shadish, W. R. (2010). Single-case design technical documentation. Retrieved from What Works Clearinghouse website: [http://ies.ed.gov/ncee/wwc/pdf/wwc\\_scd.pdf](http://ies.ed.gov/ncee/wwc/pdf/wwc_scd.pdf)
- Kratochwill, T. R., & Stoiber, K. C. (2002). Evidence-based interventions in school psychology: Conceptual foundations of the Procedural and Coding Manual of Division 16 and the Society for the Study of school psychology Task Force. *School Psychology Quarterly, 17*. 341-389.

- Lau, A.S. (2006). Making the case for selective and directed cultural adaptations of evidence-based treatments: Examples from parent training. *Clinical Psychology: Science and Practice, 13*(4), 295-310.
- Maggin, D. M., Swaminathan, H., Rogers, H. J., O'Keefe, B. V., & Horner, R. H. (2011). A generalized least squares regression approach for computing effect sizes in single- case research: Application examples. *Journal of School Psychology, 49*, 301-321.
- Manguin, E., & Loeber, R. (1996). Academic performance and delinquency. In M. Tonry (Ed.), *Crime and justice: An annual review of research: Vol. 20* (p. 145-264). Chicago, IL: University of Chicago Press.
- March, R. E., Horner, R. H., Lewis-Palmer, T., Brown, D., Crone, D., Todd, A.W., et al. (2000). *Functional Assessment Checklist: Teachers and Staff*. Eugene, OR: Educational and Community Supports.
- McIntosh, K. (2005). *Academic, behavioral, and functional predictors of chronic problem behavior in elementary grades* (Research Brief). Eugene, OR: Research Center on School- Wide Positive Behavior Support.
- McIntosh, K., Borgmeier, C., Anderson, C.M., Horner, R.H., Rodriguez, B.J., & Tobin, T.J. (2008). Technical adequacy of the Functional Assessment Checklist: Teachers and Staff (FACTS) FBA interview. *Journal of Positive Behavior Interventions, 10*(1), 33-45.
- McIntosh, K., Chard, D., Boland, J., & Horner, R. H. (2006). A demonstration of combined efforts in school-wide academic and behavioral systems and incidence

- of reading and behavior challenges in early elementary grades. *Journal of Positive Behavior Interventions*, 8, 146–154.
- McIntosh, K., Horner, R. H., Chard, D. J., Boland, J. B., & Good, R. H. (2006). The use of reading and behavior screening measures to predict non-response to School-Wide Positive Behavior Support: A longitudinal analysis. *School Psychology Review*, 35, 275-291.
- McIntosh, K., Horner, R. H., Chard, D. J., Dickey, C., & Braun, D. (2008). Reading skills and function of problem behavior in typical school settings. *Journal of Special Education*, 42(3), 131-147.
- Miles, S. B., & Stipek, D. (2006). Contemporaneous and longitudinal associations between social behavior and literacy achievement in a sample of low-income elementary school children. *Child Development*, 77, 103-117.
- Moffitt, T.E. (1993). Life course persistent and adolescent limited antisocial behavior: A developmental taxonomy. *Psychological Review*, 100, 674-701.
- Morgan, P. L., Farkas, G., Tufis, P. A., & Sperling, R. A. (2008). Are reading and behavior problems risk factors for each other? *Journal of Learning Disabilities*, 41, 417-436.
- National Reading Panel Report (2000). Teaching children to read: An evidence-based assessment of the scientific research literature on reading and its implications for reading instruction. Retrieved from <http://www.nichd.nih.gov/publications/pubs/jeffords.htm>.
- New Freedom Commission on Mental Health. (2003). *Achieving the promise:*

- Transforming mental health care in America*. Final report. DHHS Pub. No. SMA-03-3832. Rockville, MD: US Department of Health and Human Services.
- Ollendick, T.H., Oswald, D.P., & Francis, G. (1989). Validity of teacher nomination in identifying aggressive, withdrawn, and popular children. *Journal of Clinical Child Psychology*, 18(3), 221-229.
- Olsen, L. (1997). *Made in America: Immigrant students in our public schools*. NY: The New Press.
- Overton, S., McKenzie, L., & King, K. (2002). Replication of the First Step to Success model: A multiple-case study of implementation effectiveness. *Behavioral Disorders*, 28(1), 40-56.
- Parker, R.I., Hagan-Burke, S., & Vannest, K. (2007). Percentage of all non-overlapping data (PAND): An alternative to PND. *Journal of Special Education*, 40(4), 194-204.
- Parker, R.I., Hagan-Burke, S., & Vannest, K. (2007). Percentage of all non-overlapping data (PAND): An alternative to PND. *Journal of Special Education*, 40(4), 194-204.
- Piazza, C.C, Bowman, L.G, Contrucci, S.A, Delia, M.D, Adelinis, J.D, & Goh, H. (1999) An evaluation of the properties of attention as reinforcement for destructive and appropriate behavior. *Journal of Applied Behavior Analysis*, 32, 437-449.
- Praciado, J.A., Horner, R.H., & Baker, S.K. (2009). Using a function-based approach to decrease problem behaviors and increase academic engagement for Latino English language learners. *The Journal of Special Education*, 42(4), 227- 240.

- Prelow, H. M., & Loukas, A. (2003). The role of resource, protective, and risk factors on academic achievement-related outcomes of economically disadvantaged Latino Youth. *Journal of Community Psychology, 31*(5), 513-529. DOI: 10.1002/jcop.10064
- Reid, J. (1993). Prevention of conduct disorder before and after school entry: Relating interventions to developmental findings. *Development and Psychopathology, 5*, 243–262.
- Riley-Tillman, T. C. & Burns, M. K. (2009). *Single case design for measuring response to educational intervention*. New York: Guilford.
- Rong, X.L., & Preissle, J. (2008). *Educating immigrant students in the 21st century: What educators need to know*. Thousand Oaks, California: Corwin.
- Shapiro, E. S. (2004). *Academic skills problems workbook* (rev.). New York: The Guilford Press.
- Shaw, D.S., Gilliom, M., Ingoldsby, E.M., & Nagin, D.S. (2003). Trajectories leading to school-age conduct problems. *Developmental Psychology, 39*, 189-200.
- Shepard, S.A., & Dickstein, S. (2009). Preventive intervention for early childhood behavioral problems: An ecological perspective. *Child Adolescent Psychiatric Clinics of North America, 18*(3), 687–706.
- Shonkoff, J. P., & Phillips, D. A. (2000). *From neurons to neighborhoods: The science of early childhood development*. Washington, DC: National Academy Press.

- Skiba, R.J., Horner, R.H., Chung, C, Rausch, M.K., May, S.L., & Tobin, T. (2011). Race is not neutral: A national investigation of African American and Latino disproportionally in school discipline. *School Psychology Review, 40(1)*, 85-107.
- Suarez-Orozco, C., Suarez-Orozco, M.M., & Todorova, I. (2010). *Learning a new land: Immigrant students in American society*. United States of America: Belknap Press of Harvard University Press.
- Sutherland, K. S., Lewis-Palmer, T., Stichter, J., & Morgan, P. L.(2008). Examining the influence of teacher behavior and class- room context on the behavioral and academic outcomes for students with emotional or behavioral disorders. *Journal of Special Education, 41*, 223-233.
- Theodore, L.A., Bray, M.A., & Kehle, T.J. (2004). A comparative study of group contingencies and randomized reinforces to reduce disruptive classroom behavior. *School Psychology Quarterly, 19(3)*, 253-271.
- U. S. Department of Education, Institute of Education Sciences (2011). What works clearinghouse: Procedures and Standards Handbook. Retrieved from [http://ies.ed.gov/ncee/wwc/pdf/reference\\_resources/wwc\\_procedures\\_v2\\_1\\_standards\\_handbook.pdf](http://ies.ed.gov/ncee/wwc/pdf/reference_resources/wwc_procedures_v2_1_standards_handbook.pdf)
- U. S. Department of Education, Institute of Educational Sciences (2012a). What works clearinghouse intervention report: First steps to success. Retrieved from [http://ies.ed.gov/ncee/wwc/pdf/intervention\\_reports/wwc\\_firststep\\_030612.pdf](http://ies.ed.gov/ncee/wwc/pdf/intervention_reports/wwc_firststep_030612.pdf)
- U. S. Department of Education, Institute of Educational Sciences (2012b). What works clearinghouse intervention report: Reading mastery. Retrieved from

[http://ies.ed.gov/ncee/wwc/pdf/intervention\\_reports/WWC\\_Reading\\_Mastery\\_09\\_2806.pdf](http://ies.ed.gov/ncee/wwc/pdf/intervention_reports/WWC_Reading_Mastery_09_2806.pdf)

- Vaughn, S., Mathes, P. G., Linan-Thompson, S., & Francis, D. J. (2005). Teaching English language learners at risk for reading disabilities to read: Putting research into practice. *Learning Disabilities, 20*, 58–67.
- Vaughn, S., Wanzek, J., Murray, C. S., Sammacca, N., Linan-Thompson, S., & Woodruff, A. L. (2009). Response to early reading intervention: Examining higher and lower responders. *Exceptional Children, 75*, 165-183.
- Vega, W., Zimmerman, R., Warheit, G., & Gil, A. (2003). *Acculturation, stress and Latino adolescent drug use*. Socioeconomic conditions, stress and mental disorders: Toward a new synthesis of research and public policy. National Institute of Mental Health ed, Bethesda, MD. Retrieved from: <http://www.mhsip.org/pdfs/Vega.pdf>
- Walker, H. M. (1998). First steps to prevent antisocial behavior. *Teaching Exceptional Children, 30*(4) (Special issue on Discipline), 16-19.
- Walker, H. M., Kavanagh, K., Stiller, B., Golly, A., Severson, H. H., & Feil, E. G. (1998). First Step to Success: An early intervention approach for preventing school antisocial behavior. *Journal of Emotional and Behavioral Disorders, 6*(2), 66-80.
- Walker, H. M., & Shinn, M. R. (2002). Structuring school-based interventions to achieve integrated primary, secondary, and tertiary prevention goals for safe and effective schools. In M. R. Shinn, G. Stoner, & H. M. Walker (Eds.), *Interventions for*

- academic and behavior problems: Preventive and remedial approaches* (pp. 1–26). Silver Spring, MD: National Association of School Psychologists.
- Walker, H.M., Seely, J.R., Small, J., Severson, H.H., Graham, B.A, Feil, E.G., Forness, S.R. (2009). A randomized controlled trial of the first step to success early intervention: Demonstration of program efficacy outcomes in a diverse, urban school district. *Journal of Emotional and Behavioral Disorders, 17*(4),197-212.
- Walker, H.M., & Severson, H. (1992). *Systematic screening for behavior disorders* (2<sup>nd</sup> ed.) Longmont, CO: Sopris West.
- Walker, H. M., Stiller, B., & Golly, A. (1998). First Step to Success: A collaborative home-school intervention for preventing antisocial behavior at the point of school entry. *Young Exceptional Children, 1*(2), 2-6.
- Walker, H., Stiller, B., Golly, A., Kavanagh, K., Severson, H., & Feil, E. (1997). First Step to Success: Helping young children overcome antisocial behavior (an early intervention program for grades K-3). Longmont, CO: Sopris West.
- Walker, H. M., Stiller, B., Severson, H. H., & Golly, A. (1998). First Step to Success: Intervening at the point of school entry to prevent antisocial behavior patterns. *Psychology in the Schools, 35*(3), 259-269.
- Walker, H.M., Stiller, B., Severson, H., Golly, A., & Feil, E. (1998). First Step to Success: Intervening at the point of the school entry to prevent antisocial behavior patterns. *Psychology in the Schools, 35*(3), 259-269.
- Wallace, J. M., Goodkind, S., Wallace, C. N., & Bachman, J. G. (2008). Racial, ethnic, and gender differences in school discipline among U.S. high school students:



1991-2005. *The Negro Educational Review*, 45(1-2), 47-62. Retrieved from:  
[http://vnweb.hwwilsonweb.com/hww/results/results\\_common.jhtml;hwwilsonid=DCHPIYHRMIQ3BQA3DINCFGOADUNGIIV0](http://vnweb.hwwilsonweb.com/hww/results/results_common.jhtml;hwwilsonid=DCHPIYHRMIQ3BQA3DINCFGOADUNGIIV0)

Wolf, M. M. (1978). Social validity: The case for subjective measurement or how applied behavior analysis is finding its heart. *Journal of Applied Behavior Analysis*, 11(2), 203 – 214.

Table 1

*Social Validity Questionnaire*

	Average (SD)	Agreement Percentage
I liked the first steps program	5.67 (.58)	100
The target student benefited from the program	6.00 (0)	100
The rest of my class benefited from this program	5.67 (.58)	100
The target student is likely to use the skills that were taught to him/her in this program	5.67 (.58)	100
I found the program easy for me to implement	5.00 (0)	100
I would use this program again	5.33 (.58)	100
The target student learned valuable skills from this program	5.67 (.58)	100
The graduate students were very professional	5.67 (.58)	100
The skills taught were appropriate for this age group	5.67 (.58)	100
The goals of this program were clear and apparent	5.67 (.58)	100
The goals of this program were aligned with my goals of my classroom	5.67 (.58)	100
I am satisfied with the results of the program	5.67 (.58)	100

*Note.* SD= Standard Deviation.

Table 2

*Effect Size Statistics*

	SMD	PAND	PHI
Problem Behavior	-1.80	94.23%	.88
On-Task Behavior	1.61	89.33%	.78

*Note.* SMD = Standard Mean Difference, PAND= Percentage of All Nonoverlapping Data.

Table 3

*Average Percentages for Baseline and Intervention Phases*

	Baseline Mean	Intervention Mean	Mean Difference
Carla			
On-Task Behavior	41	86	45
Problem Behavior	67	15	52
Manuel			
On-Task Behavior	54	91	37
Problem Behavior	65	27	38
Oswaldo			
On-Task Behavior	56	74	18
Problem Behavior	50	18	32
Josue			
On-Task Behavior	68	93	25
Problem Behavior	28	9	19

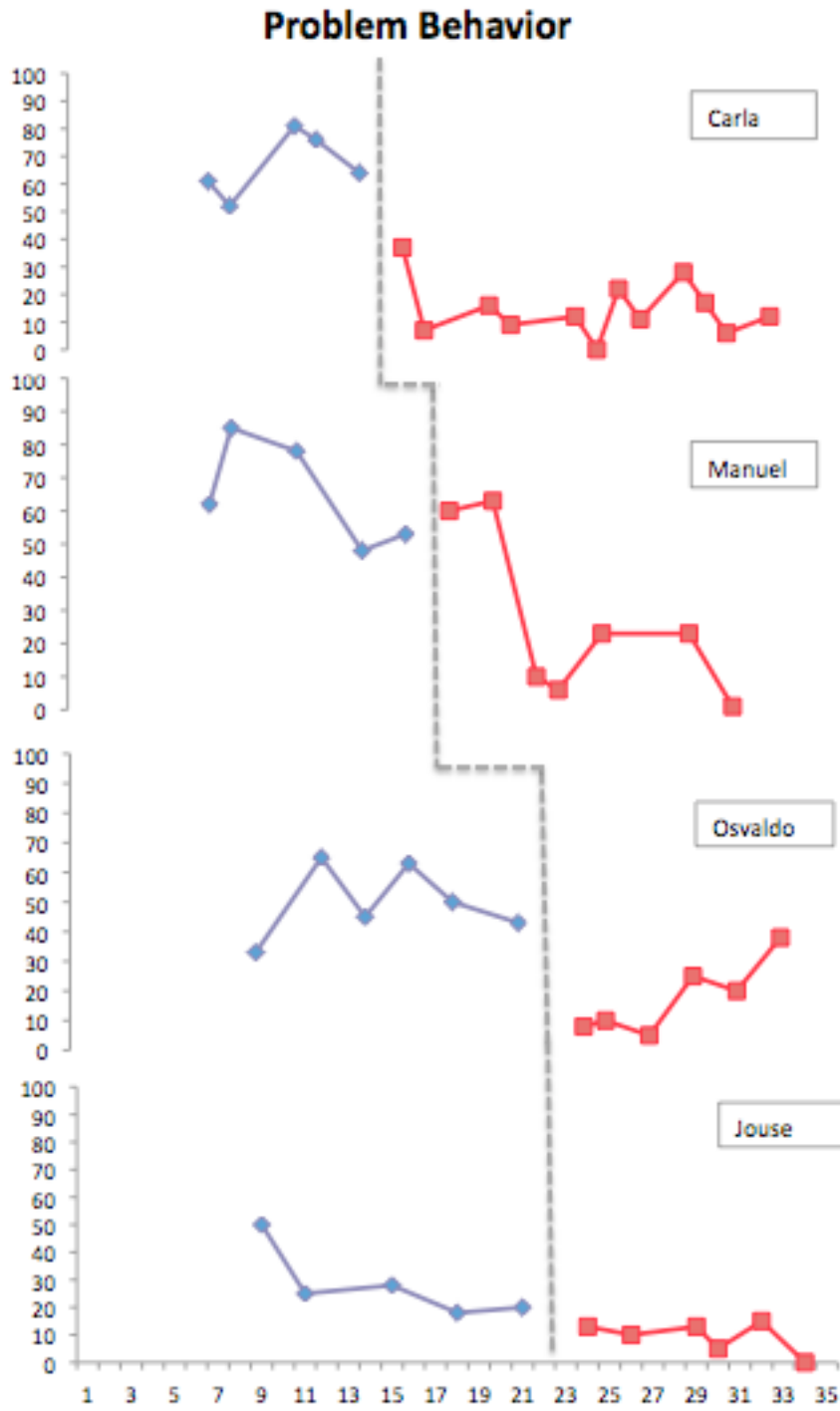


Figure 1. Percent of intervals with problem behavior during time observed.

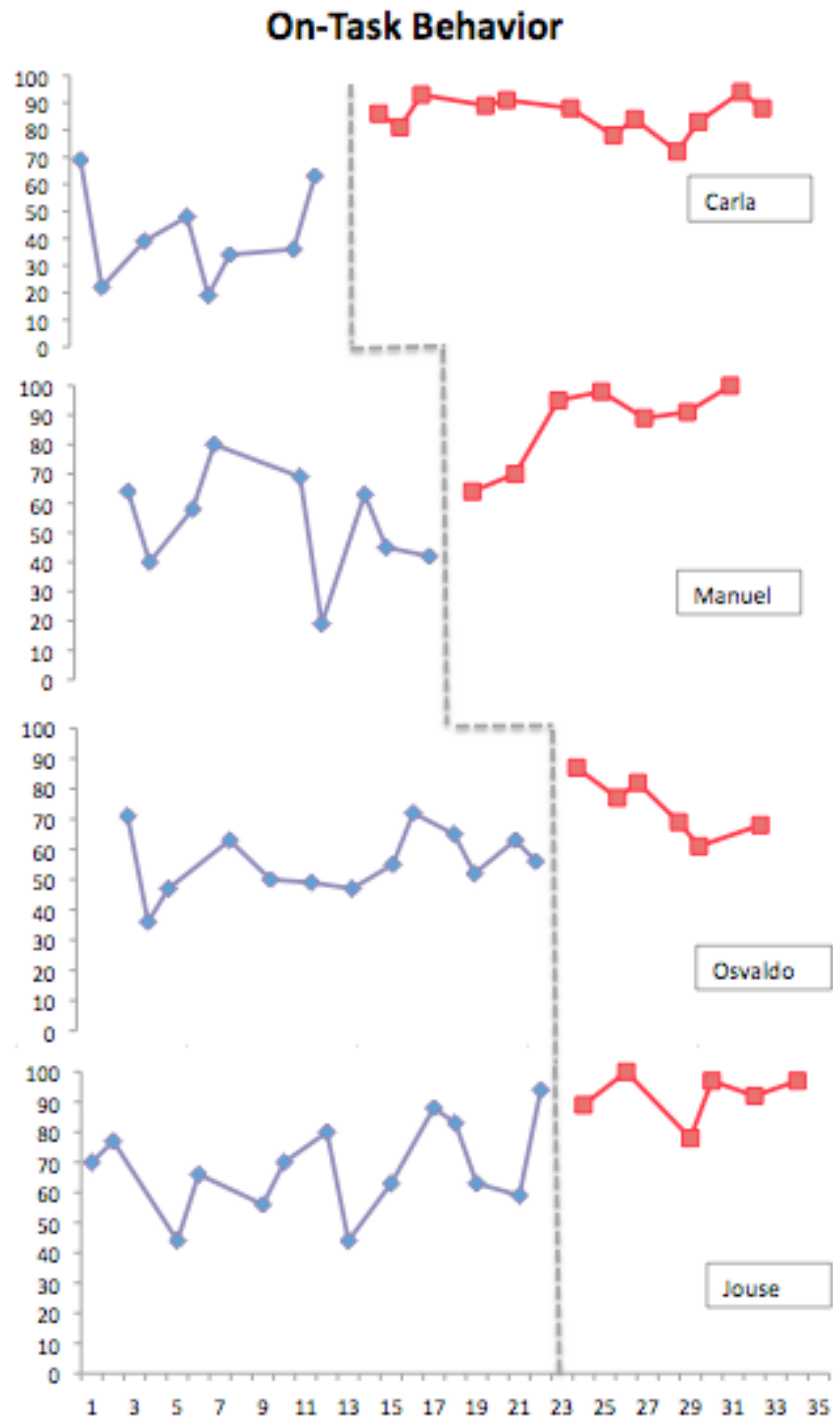


Figure 2. Percent of intervals of on-task behavior during time observed.

## Appendix A

### Functional Assessment Checklist for Teachers and Staff (FACTS-Part A)

Student/ Grade: \_\_\_\_\_ Date: \_\_\_\_\_  
 Interviewer: \_\_\_\_\_ Respondent(s): \_\_\_\_\_

**Student Profile:** Please identify at least three strengths or contributions the student brings to school.

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

**Problem Behavior(s): Identify problem behaviors**

<input type="checkbox"/> Tardy	<input type="checkbox"/> Fight/physical Aggression	<input type="checkbox"/> Disruptive	<input type="checkbox"/> Theft
<input type="checkbox"/> Unresponsive	<input type="checkbox"/> Inappropriate Language	<input type="checkbox"/> Insubordination	<input type="checkbox"/> Vandalism
<input type="checkbox"/> Withdrawn	<input type="checkbox"/> Verbal Harassment	<input type="checkbox"/> Work not done	<input type="checkbox"/> Other
	<input type="checkbox"/> Verbally Inappropriate	<input type="checkbox"/> Self-injury	

Describe problem behavior: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

**Identifying Routines: Where, When and With Whom Problem Behaviors are Most Likely.**

Schedule (Times)	Activity	Likelihood of Problem Behavior						Specific Problem Behavior
		Low					High	
		1	2	3	4	5	6	
		1	2	3	4	5	6	
		1	2	3	4	5	6	
		1	2	3	4	5	6	
		1	2	3	4	5	6	
		1	2	3	4	5	6	
		1	2	3	4	5	6	

## Functional Assessment Checklist for Teachers & Staff (FACTS-Part B)

Student/ Grade: \_\_\_\_\_

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

Interviewer: \_\_\_\_\_

Respondent(s): \_\_\_\_\_

**Routine/Activities/Context:** Which routine (only one) from the FACTS-Part A is assessed?

Routine/Activities/Context	Problem Behavior(s)

**Provide more detail about the problem behavior(s):**

--

**What are the events that predict when the problem behavior(s) will occur? (Predictors)**

Related Issues (setting events)	Environmental Features
<input type="checkbox"/> illness                      Other: _____ <input type="checkbox"/> drug use                      _____ <input type="checkbox"/> negative social              _____ <input type="checkbox"/> conflict at home              _____ <input type="checkbox"/> Academic failure              _____	<input type="checkbox"/> reprimand/correction      _____ structured activity <input type="checkbox"/> physical demands            _____ unstructured time <input type="checkbox"/> socially isolated              _____ tasks too boring <input type="checkbox"/> with peers                      _____ activity too long <input type="checkbox"/> Other                              _____ tasks too difficult _____

**What consequences appear most likely to maintain the problem behavior(s)?**

Things that are Obtained	Things Avoided or Escaped From
<input type="checkbox"/> adult attention              Other: _____ <input type="checkbox"/> peer attention                _____ <input type="checkbox"/> preferred activity            _____ <input type="checkbox"/> money/things                _____	<input type="checkbox"/> hard tasks                      Other: _____ <input type="checkbox"/> reprimands                    _____ <input type="checkbox"/> peer negatives                _____ <input type="checkbox"/> physical effort                _____ <input type="checkbox"/> adult attention                _____

### SUMMARY OF BEHAVIOR

Identify the summary that will be used to build a plan of behavior support.

Setting Events & Predictors	Problem Behavior(s)	Maintaining Consequence(s)

**How confident are you that the Summary of Behavior is accurate?**

Not very confident					Very Confident
1	2	3	4	5	6

**What current efforts have been used to control the problem behavior?**

Strategies for preventing problem behavior	Strategies for responding to problem behavior
<input type="checkbox"/> schedule change              Other: _____ <input type="checkbox"/> seating change <input type="checkbox"/> curriculum change	<input type="checkbox"/> reprimand                      Other <input type="checkbox"/> office referral <input type="checkbox"/> detention



# Appendix B

## Observation Measurement System Problem Behavior

Date: \_\_\_\_\_ Time: \_\_\_\_\_ Observer: \_\_\_\_\_ Student: \_\_\_\_\_

Class Subject: \_\_\_\_\_ Teacher: \_\_\_\_\_

**Directions:** For 15-second intervals mark with a *D* or *A* every time the target behaviors (i.e. disruptive= *D* or Aggressive= *A*) are displayed either by the target student or comparison peer. If behavior is not displayed during the 20 seconds, leave box blank.

**Target behaviors/Operational Definition:**

**Disruptive behavior:** student engages in any behavior that disrupts the flow of instruction/education activity

Example: talk outs, out of seat, taking papers from others, hiding materials, etc  
 Non-example: Student raises his hand to talk, students are expected to talk out answers

**Aggressive behavior:** student engages in any behavior that intentionally hurts objects or others children. The inflicted pain can either physically and/or emotionally.

Example: hitting, biting, teasing, breaking objects, intending to break/rip objects (like papers or materials), etc  
 Non-example: student uses physical aggression to defend him/herself.

- Make sure to compare target student's behaviors with a peer's behavior during the highlighted intervals.

0:01-0:15	0:16-0:30	0:31-0:45	0:46 -1:00	1:01-1:15
A= D=	A= D=	A= D=	A= D=	A= D=
1:16-1:30	1:31-1:45	1:46-2:00	2:01-2:15	2:16-2:30
A= D=	A= D=	A= D=	A= D=	A= D=
2:31-2:45	2:46-3:00	3:01-3:15	3:16-3:30	3:31-3:45
A= D=	A= D=	A= D=	A= D=	A= D=
3:46-4:00	4:01-4:15	4:16-4:30	4:31-4:45	4:46-5:00
A= D=	A= D=	A= D=	A= D=	A= D=
5:01-5:15	5:16-5:30	5:31-5:45	5:46-6:00	6:01-6:15
A= D=	A= D=	A= D=	A= D=	A= D=
6:16-6:30	6:31-6:45	6:46-7:00	7:01-7:15	7:16-7:30
A= D=	A= D=	A= D=	A= D=	A= D=

7:31-7:45	7:46-8:00	8:01-8:15	8:16 -8:30	8:31-8:45
A= D=	A= D=	A= D=	A= D=	A= D=
8:46-9:00	9:01-9:15	9:16-9:30	9:31-9:45	9:46-10:00
A= D=	A= D=	A= D=	A= D=	A= D=
10:01-10:15	10:16-10:30	10:31-10:45	10:46-11:00	11:01-11:15
A= D=	A= D=	A= D=	A= D=	A= D=
11:16-11:30	11:31-11:45	11:46-12:00	12:01-12:15	12:16-12:30
A= D=	A= D=	A= D=	A= D=	A= D=
12:31-12:45	12:46-13:00	13:01-13:15	13:16-13:30	13:31-13:45
A= D=	A= D=	A= D=	A= D=	A= D=
13:46-14:00	14:01-14:15	14:16-14:30	14:31-14:45	14:46-15:00
A= D=	A= D=	A= D=	A= D=	A= D=

15:01-15:15	15:16-15:30	15:31-15:45	15:46 -16:00	16:01-16:15
A= D=	A= D=	A= D=	A= D=	A= D=
16:16-16:30	16:31-16:45	16:46-17:00	17:01-17:15	17:16-17:30
A= D=	A= D=	A= D=	A= D=	A= D=
17:31-17:45	17:46-18:00	18:01-18:15	18:16-18:30	18:31-18:45
A= D=	A= D=	A= D=	A= D=	A= D=
18:46-19:00	19:01-19:15	19:16-19:30	19:31-19:45	19:46-20:00
A= D=	A= D=	A= D=	A= D=	A= D=

	Target Student	Peer
D= total intervals of observed occurrences/all possible observed intervals	/54=	/26=
A= total intervals of observed occurrences/all possible observed intervals	/54=	/26=

## Appendix C

DATE: \_\_\_\_\_

ERI FIDELITY SCORE: \_\_\_\_\_ TGBG FIDELITY SCORE: \_\_\_\_\_

### Early Reading Intervention FIDELITY OF IMPLEMENTATION CHECKLIST

School : _____	Instructor: _____	Observer _____
Lesson #: _____		Time began: _____
Number of children in group today: _____		Time ended: _____

Scoring	Critical Instructional Features	Comments
yes mostly sometimes no	Used wording from script.	
yes mostly sometimes no	Completed each activity in order.	
yes mostly sometimes no	Completed all steps in each activity before moving onto the next	
yes mostly sometimes no	Teacher modeled new material (or at least 1 example)	
yes mostly sometimes no	Teacher used signals effectively	
yes mostly sometimes no	All students participated with group and written responses	
yes mostly sometimes no	Teacher corrected student mistakes	
yes mostly sometimes no	Teacher leads/tests students on remaining examples/material	

**TO SCORE FIDELITY OF IMPLEMENTATION:**

Yes (90% or more) = 3 points,  
Mostly (60-90%) = 2 points,  
Sometimes (<60%) = 1,  
No = 0 points

Add all points: \_\_\_\_\_ =

Total possible

GENERAL CONSIDERATIONS:		COMMENTS
_____	Quality of Lesson Delivery (high, medium, low).	
_____	Student Engagement (high, medium, low).	
_____	Completed All Activities in the Lesson.	
_____	Completed All Activities Within 15 minutes.	

## Appendix D

Overall Fidelity Score: \_\_\_\_\_ Critical Features Fidelity Score: \_\_\_\_\_

### First Step Implementation Fidelity Checklist

#### Sections 1-4 completed by data collector at time of observation

Section 1			
Student # _____	School _____	Date _____	
Observer _____		Intervention Phase: _____ (descriptive, baseline, fidelity)	
<b>Section 2 Prior to implementing red/green card</b>			
Did implementer inform the class of the reward that had been chosen prior to beginning the session?	No <input type="checkbox"/> Yes <input type="checkbox"/>		
Did implementer elicit a pledge of cooperation from the entire class?	No <input type="checkbox"/> Yes <input type="checkbox"/>		
<b>Section 3 During red/green card game</b>			
Is the Green/Red card visible to the child?	0-30%	31-69%	>70%
<b>Section 4 After red/green card game</b>			
Did implementer announce the end of the red/green card game?	No <input type="checkbox"/>	Yes <input type="checkbox"/>	Not observed
If the student met criteria, did implementer provide a reward activity for the entire class?	No <input type="checkbox"/>	Yes <input type="checkbox"/>	Not observed
Did implementer make the student be "the star" of the reward activity?	No <input type="checkbox"/>	Yes <input type="checkbox"/>	Not observed
Did implementer elicit positive comments for student from peers during the reward?	No <input type="checkbox"/>	Yes <input type="checkbox"/>	Not observed
Did implementer sign the Green/Red card and remind student to take it home?	No <input type="checkbox"/>	Yes <input type="checkbox"/>	Not observed
Did peers participate in the reward activity?	No <input type="checkbox"/>	Yes <input type="checkbox"/>	Not observed

#### Section 5 (to be completed by researcher using direct observation data)

During red/green card game	0	1	2	
Is the Green/Red card visible to the child?	0-30%	31-69%	>70%	
Does implementer provide positive feedback (e.g., thumbs up, pat on back, smile, comment) to the child during the game (when the card is on green)?	Not at all	1 time	More than once	
Following instances of problem behavior, did the implementer turn the card to Red?	0-30%	31-69%	>70%	If there was no problem behavior
When the card is turned to red, does implementer refrain from interaction with the child (brief redirection is ok)?	0-30%	31-69%	>70%	If implementer never turned the card to red
When implementer turns the card to red for inappropriate behavior, do they turn the card immediately back to green for appropriate behavior?	0-30%	31-69%	>70%	If implementer never turned the card to red