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Evaluating the effectiveness of a classwide social skills intervention with preschoolers and kindergarteners

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EVALUATING THE EFFECTIVENESS OF A
CLASSWIDE SOCIAL SKILLS INTERVENTION WITH
PRESCHOOLERS AND KINDERGARTENERS

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ABSTRACT

The purpose of the current study was to determine the effectiveness of a manualized, universal social skills intervention for young students. Past research on the use of universal interventions within the domain of social skills has shown great promise, and the importance of social skills has been demonstrated through their empirical relation to academic and behavioral outcomes. Additional research has shown that, overall, social skills training interventions for young children are successful and have lasting effects. These findings convey the importance and need for effective, efficient, and early social skills training interventions. As such, this study used a quasi-experimental pretest-posttest control group design to test the effects of the Classwide Intervention Program on preschool and kindergarten children's prosocial behavior, motivation to learn, classroom behaviors, and early academic skills. Results indicated that children receiving the intervention were rated higher on measures of prosocial behaviors and social skills directly targeted by the intervention. Limitations of the study and implications for future research and practice are discussed.

   Keywords: universal, classwide, social skills, intervention, preschool

INTRODUCTION

Response to Intervention Models

Multitier intervention models are heuristics used to illustrate a hierarchy of service delivery that matches intervention intensity to the severity of a targeted concern, guided by a systematic progression through tiers (Walker & Shinn, 2010; Gresham, 2004). Such models are conceptually related to public health models, which emphasize primary, secondary, and tertiary prevention in an effort to prevent, reverse, or reduce harm, respectively (Gresham, 2004; Walker, et al., 1996). One such multitier model is response to intervention (RTI), and since its initial conceptualization in the 1970s, this model has evolved into two basic interpretations. One interpretation views RTI as an approach for the identification of specific learning disabilities (SLD; Gresham, Reschly, & Shinn, 2010). This interpretation of RTI is most evident in the Individuals with Disabilities in Education Improvement Act (IDEIA; 2004), which allows schools the option to use a student's response to an evidence-based intervention as a means for determining eligibility for special education services in place of an IQ-achievement discrepancy approach.

The second interpretation, and the one used in this study, extends the conceptualization of RTI beyond SLD identification and views it as a more general service delivery model (Barnett, VanDerHeyden, & Witt, 2007; Gresham, 2004). This interpretation theorizes RTI as a large-scale method for school improvement that focuses on early intervention and works to provide academic and behavioral supports to all students, in both general and special education (Gresham et al., 2010). The dissemination of this interpretation into the field of education is evident in programs such as School-wide Positive Behavioral Interventions and Supports (SWPBS; Sugai

& Horner, 2006), which emphasizes the prevention and reduction of problem behavior at a universal level through the use of evidence-based, behavior analytic principles.

Regardless of interpretation, the RTI model is built on certain core features, which Bradley, Danielson, and Doolittle (2005) identified as: (a) providing high-quality, researched based instruction and intervention to students, (b) conducting universal screening for academic and behavioral problems, (c) using progress monitoring tools to evaluate the effectiveness of intervention, (d) making decisions about tier progression based on data, and (e) holding interventionists accountable for proper implementation through the monitoring of treatment integrity. Measurement of treatment integrity involves assessing the degree to which an intervention is being implemented as planned or intended (Gresham, 1989).

Like the public health model, most multitier models, including RTI, use a three-tier framework. Tier one, or universal, interventions are delivered to an entire population (e.g., school, class) and are often part of the curriculum (Walker & Shinn, 2010). These interventions are sufficient supports for approximately 80-90% of students (Walker et al., 1996), who will not require further intervention in order to function effectively in their school environment. According to Gresham (2004), universal interventions help promote the academic and social development of all students.

Despite their general effectiveness, some students will not respond to universal interventions, and, as such, will go on to receive a Tier two, or selected, intervention. Tier two interventions are designed for implementation in small groups, and are effective for 10-15% of students (Walker & Shinn, 2010). The goal of selected interventions is to manipulate the events surrounding maladaptive academic and/or behavioral concerns, as well as provide students with skills to promote their academic and/or behavioral functioning (Gresham, 2004). However, a

small percentage (i.e., 3-5%) of students will not respond to Tier two interventions and will require additional supports. For these students, Tier three, or targeted/intensive, interventions are utilized. These interventions are typically designed for, and provided to, a single student, and are highly individualized to that student's needs (Walker & Shinn, 2010). In this tier, school professionals often use a function-based assessment to determine the social consequences maintaining the target behavior or academic concern, and tailor intervention based on their findings (Gresham, 2004).

By adhering to the core features of RTI, effective interventions at lower tiers can help reduce the need for more intensive interventions (Walker & Shinn, 2010). In other words, empirically-based universal interventions, in conjunction with high treatment integrity, are more likely to be sufficient supports for students. Furthermore, progression through intervention tiers is a direct reflection of the time, effort, and resources required for implementation, with Tier one requiring the least, and Tier three requiring the most (Barnett et al., 2007).

Tier One Strategies

Universal Screening. One core feature of RTI used in this study is universal screening. This Tier one practice involves administering research-based screening tools to an entire population as a means of early identification and prevention of academic and behavioral problems. Screening is typically conducted three times per school year: in the fall, winter, and spring (Walker, Severson, & Seeley, 2010). Universal screening is often viewed as a solution to a "wait-to-fail" approach, in that it serves to identify those children who are at-risk for academic and behavioral problems. This identification then leads to early intervention and the prevention of further impairment (Albers, Glover, & Kratochwill, 2007; Glover & Albers, 2007). Numerous screeners are currently available, though not all are equally valid or reliable. Glover and Albers

(2007) suggest that practitioners and researchers consider a screener's technical adequacy, usability, and appropriateness for its intended purpose when selecting one for use. Furthermore, Cook, Volpe, and Livanis (2010) suggest that screeners encompass multiple domains of functioning (e.g., academic and behavioral). Given the high levels of co-occurrence for such problems, these screeners would be not only more comprehensive, but also more cost-effective and efficient to administer.

Classwide Interventions. This study also employs the use of another Tier one strategy: Classwide interventions. Like universal screening, these interventions are a first line of defense against school-related problems that focus on prevention and early intervention (Hawkins, 2010). In general, classwide interventions are under teacher control and built on basic curriculum, routines, and activities (Gajus & Barnett, 2010). By blending into the existing ecology of the classroom, these interventions typically require less resources and place fewer demands on the delivery agent (Hawkins, 2010). The simplicity of classwide interventions also has positive implications for treatment integrity. According to Yeaton and Sechrest (1981), intervention complexity is directly related to treatment integrity, in that simpler treatments are generally implemented with greater integrity.

The effectiveness of classwide interventions has been demonstrated for academics in the areas of math (Axtell, McCallum, Bell, & Poncy, 2009; Codding, Chan-Iannetta, Palmer, & Lukito, 2009) and reading (Hawkins, Musti-Rao, Hale, McGuire, & Hailley, 2010; Pappas, Skinner, & Skinner, 2010). Behavioral interventions have been effective at the classwide level, as well. The Good Behavior Game (Barrish, Saunders, & Wolf, 1969), Positive Peer Reporting (Morrison & Jones, 2007), and the Mystery Motivator (Moore, Waguespack, Wickstrom, & Witt, 1994) are examples of such interventions. Additional effective classwide interventions have

targeted other domains and populations, including social skills (Durlak, Weissberg, Dymnicki, Taylor, & Schellinger, 2011; Webster-Stratton, Reid, & Stoolmiller, 2008; Domitrovich, Cortes, & Greenberg, 2007) and students with disabilities (Cihak, Kirk, & Boon, 2009). This study aims to contribute to the research base for effective classwide interventions for social skill acquisition and performance.

Social Skills

Social skills are learned, socially acceptable behaviors that facilitate positive interaction and allow an individual to escape or avoid negative interactions (Gresham & Elliott, 1990). Social skills have strong ties to classroom learning; so much so that they have been conceptualized as academic enablers, or attitudes or behaviors that allow a student to participate in, and benefit from, academic instruction (DiPerna & Elliott, 2002). In contrast, problem behaviors, especially externalizing problem behaviors such as bullying and aggression, have been conceptualized as academic disablers in that they are often related to lower levels of prosocial behavior and various academic deficits (Gresham, 2010). Caprara, Barbaranelli, Pastorelli, Bandura, and Zimbardo (2000) found further evidence for the link between social skills and classroom learning. In their study, they found that the demonstration of prosocial behavior in third grade was a better predictor of eighth grade academic achievement than was third grade academic achievement.

The beneficial effects of social skills can be seen long before third grade, however, as evidenced in studies on early social skills. Research on this topic has resulted in a categorization of early social skills into learning-related social skills and interpersonal social skills. Learning-related social skills are goal-oriented behaviors that are consistent with situational demands. Examples include listening, following directions, and paying attention to a task. Interpersonal

social skills are those behaviors that facilitate and maintain social relationships (Hojnoski & Missall, 2010). Within interpersonal social skills, a concentrated research focus has been dedicated to the effects of peer-related social skills in young children. Peer-related social skills include taking turns and engaging in cooperative play. Studies have found that both peer-related and learning-related social skills help promote school readiness in children (Fantuzzo, Bulotsky-Shearer, Fusco, & McWayne, 2005; McClelland & Morrison, 2003; Coolahan, Fantuzzo, Mendez, & McDermott, 2000; Cooper & Farran, 1988).

Social skills serve as academic enablers for young children, as well. One study found that early learning-related social skills predicted growth in reading and math outcomes between kindergarten and second grade (McClelland, Acock, & Morrison, 2006). In addition, findings from Agostin and Bain's (1997) study indicated that positive social skills such as cooperation and self-control were predictive of early elementary academic success. Related studies have demonstrated the permanence of early social skills. For instance, Ladd and Price (1987) found that positive interactions with peers during preschool tend to be stable behaviors that maintain over time and context, while a longitudinal study by Kamps, Tankersley, and Ellis (2000) found that students who received early social skills interventions exhibited more positive interactions and fewer inappropriate behaviors than controls, even after two years. Given this evidence, interventions that target social skills training in young children seem to be a worthy investment for both research and practice.

The definition of social skills as learned behaviors implies that they can be explicitly taught, and, in fact, research shows interventions that focus on social skills training have been effective. Gresham, Cook, Crews, and Kern (2004) investigated past meta-analyses of social skills training interventions, and found a mean effect size of $d = .60$, a medium effect (Cohen,

1988). Disaggregation of additional meta-analytic findings by age revealed that social skills training interventions are even more effective for preschool and kindergarten-age children (Beelman, Pfingsten, & Lösel, 1994; Godbold et al., 2010). In relation to the current study, a recent meta-analysis of classwide social skills interventions found that those implemented with preschoolers and kindergarteners had the highest overall effect sizes ($d = 0.55$; January et al., 2011). Therefore, it is not surprising that classwide interventions have been recommended as a strategy for the promotion of young children's peer interactions (Brown, Odom, & Conroy, 2001).

Purpose of the Study

In light of previous findings about the importance of social skills and the success of early social skills interventions, the purpose of this study is to evaluate the effectiveness of a classwide social skills intervention in preschool and kindergarten students. This study employed the Classwide Intervention Program (CIP; Elliott & Gresham, 2007a) to investigate these effects. The CIP is the Tier one component of the Social Skills Improvement System (SSIS; Elliott & Gresham, 1990, 2008a) intervention package, and is divided into three developmental levels: preschool/kindergarten, early elementary, and middle/upper elementary. The preschool/kindergarten version does not require recipients to have any reading skills, and uses developmentally-appropriate language and activities in its lessons.

The Classwide Intervention Program

The CIP is founded on social learning theory (Bandura, 1977), operant-learning principles of applied behavior analysis (Skinner, 1953), and cognitive-behavioral therapy (Weissburg, 1985). In addition to a solid theoretical foundation, the CIP uses a specific instructional sequence which includes the following components: (a) tell (coaching), (b) show

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(modeling), (c) do (role-playing), (d) practice (behavioral reversal), (e) progress monitoring (performance feedback), and (f) generalization exercises. These methods of instruction are a reflection of best practices in education, and each lesson uses all six components (Elliott & Gresham, 2007a).

The curriculum of the CIP is includes the 10 social skills that teachers rate as being most important for classroom success, referred hereafter as the "Top 10". They are: (a) listening to others, (b) following directions, (c) following classroom rules, (d) ignoring peer distractions, (e) asking for help (f) taking turns in conversation, (g) cooperating with others, (h) controlling temper in conflict situations, (i) acting responsibly with others, and (j) showing kindness to others (Elliott & Gresham, 2007a). The skills are taught in 10 units, with one unit dedicated to each social skill. Each unit includes three lessons for each social skill, resulting in a total of 30 lessons. Each lesson requires approximately 30 minutes to complete. The objective of the intervention is that children will acquire the Top 10 social skills and demonstrate them effectively and appropriately.

Previous research on the use of the CIP in schools is scant, but preliminary results of the implementation of the CIP in a small sample of preschool-1st graders are promising (Vance et al., 2010). This study did not use a control group for comparison in their design, as it was conducted during the development phase of a federal research grant. Despite this, the study found that 47% of participants had an increase of at least one point in ratings of prosocial behavior, and 41% saw an increase of at least one point in ratings of motivation to learn. Some participants also saw increases in early academic skills, but it is unclear whether the intervention accounted for these improvements, as academic skills were not a direct target of the intervention. Overall, difference

scores indicated the largest effect sizes for prosocial behavior ($d = .69$), followed by motivation to learn ($d = .57$), early math skills ($d = .22$), and early reading skills ($d = .19$).

This study aimed to extend the research base behind the CIP by conducting a controlled evaluation of its effectiveness in young children. It was hypothesized that students receiving the CIP would demonstrate greater improvement on overall ratings of classroom behavior and social skills than students in the control condition. Moreover, it was predicted that the strongest effects would be found in ratings of prosocial behavior, and use of the Top 10 social skills, as these variables are the explicit targets of the intervention. Furthermore, it was hypothesized that improvements in ratings of early academic skills would occur for the treatment group, but they would not be significantly different than those of the control group.

METHOD

Participants

Participants included 55 students from four general education preschool and kindergarten classrooms in a rural southeastern Louisiana school district. There were 25 students in the control condition and 30 students in the CIP condition. Based on a power analysis (G*Power 3; Faul, Erdfelder, Lang, & Buchner, 2007) using a significance level of $\alpha = .05$ and an effect size of $d = .25$, the study required at least 54 student participants to attain a desired power of .80.

Three of the four classrooms used in this study were located in the same school and a fourth was located in another school in the district. Both preschool classrooms participated in the Cecil J. Picard LA 4 Program, a Louisiana Department of Education program offering access to high quality, developmentally appropriate preschool classes for four year old children eligible to enter kindergarten the following year (Louisiana Department of Education, 2010). Demographic variables for the participants are found in Table 1.

Table 1

Demographic Variables by Group

Variable	Category	CIP n (%)	Control n (%)	Total n (% of N)
Grade	Preschool	16 (53%)	14 (56%)	30 (55%)
	Kindergarten	14 (47%)	11 (44%)	25 (45%)
Race	Caucasian	4 (13%)	11 (44%)	15 (27%)
	African American	24 (80%)	14 (56%)	38 (69%)
	Other	2 (7%)	0 (0%)	2 (4%)
Gender	Male	15 (50%)	12 (48%)	28 (51%)
	Female	15 (50%)	13 (52%)	27 (49%)
Total		n = 30	n = 25	N = 55

Materials and Measures

The CIP is a scripted, packaged intervention, and it includes all materials necessary for implementation. These materials include a teacher's guide containing lesson plans and two supplemental compact discs. One disc contains video clips used to model each social skill, and the second contains various resources such as progress monitoring and treatment integrity tools. Finally, the CIP contains student booklets that correspond to the lesson plans and contain developmentally appropriate activities. The following measures were administered and scored during pre-and-post-intervention phases to assess the effects of the intervention:

Performance Screening Guide. The *Performance Screening Guide* (PSG; Elliott & Gresham, 2007b) is a brief, four-item rating scale intended for use as a universal screener as part of the SSIS intervention package. The PSG uses a 4-point Likert-type scale to assess each student's prosocial behavior, motivation to learn, reading, and math skills.

Teachers rate each student from a 1 (*low performance*) to 4 (*high performance*) scale based on skill level. The PSG has three versions: Preschool, Elementary, and Secondary. The Preschool version, which will be used in this study, has very good test-retest reliabilities, with an average intraclass correlation of $r = .57$ based on an average interval of 74 days between assessments. In addition, the Preschool PSG has high inter-observer reliability ($r = .69$) across raters. The PSG is based on criterion-related goals instead of relative classroom norms, and is therefore a quick way to identify students who may be struggling, either academically or behaviorally (Gresham, Elliott, Vance, & Cook, 2011). In addition, the PSG is an excellent example of a multi-domain screener recommended by Cook et al. (2010), as it quickly and easily assesses both academic and social behavior domains.

According to Elliott and Gresham (2007b), prosocial behaviors (PSB) are those directed toward others and involve effective communication, cooperation, and self-control in difficult situations. Examples include children who act prosocially to resolve conflict, invite peers to join activities, volunteer to help others, and listen when others are speaking.

The second variable measured by the PSG, motivation to learn (MTL), is a state of excitement and activity that is directed toward learning and completion of education-related activities and tasks. Motivated children show interest, active engagement, and persistence in academic tasks and social interactions (Elliot & Gresham, 2007b). Like social skills, motivation is conceptualized as an academic enabler, in that it serves to moderate academic achievement (Diperna, 2006).

Finally, the PSG also screens for two academic areas. Early reading skills (ERS) are assessed by the PSG based on student performance in the domains of letter and sound recognition, recognition of sight words, and early reading comprehension in context. In general, students progress through domains in the order listed (Elliott & Gresham, 2007b)**.** Teachers rate students' early math skills (EMS) according to their performance in number recognition, basic operations, geometric shapes, and simple measurements. In general, students progress through domains in the order listed (Elliott & Gresham, 2007b).

Classwide social skills progress chart. The classwide social skills progress chart (CSS) is a measure developed as part of a federal research grant (Vance et al., 2010) to assess proficiency in the Top 10 social skills. Teachers rate each of their students on each of the Top 10 social skills using a 5-point Likert-type scale with anchors of 5 (*Student does this skill well, all the time*), and 1 (*Student does not have this skill at all*).

Conduct grades. Conduct grades are a daily evaluation of student behavior. For the school participating in the current study, behavior is represented by a letter grade on a 6-point scale (A+, A, B, C, D, F). Like academic grades, an "A+" represents excellent performance, while an "F" indicates unsatisfactory performance. These grades are converted to numerical scores, with an "A+" representing six points and an "F" representing one point. In doing so, a mathematical average of conduct grades can be obtained for comparison across time, context, or groups, with higher averages indicating better behavior. Conduct grades were used to supplement the primary outcome measures of the study (i.e., PSG and CSS scores).

Systematic direct observations. Systematic direct observations (SDOs) of classroom behavior are used to assess students' on task, off task, and inattentive behaviors, and like conduct grades, were used as supplementary outcome measures. The classwide observations used in this study were adapted from procedures used by Methe and Hintze (2003), and involved observing each student in the classroom for a total of 75 seconds per observation. Each student was assigned a number based on his or her location in the classroom. The observer(s) then observed each student for 15 seconds, beginning with student 1 and continuing chronologically until all students were observed. This procedure was repeated until each student has been observed five times. On task behavior was coded if the student stayed engaged in his/her academic task for the entire interval. Examples of off task behaviors include talking out during quiet tasks, touching others, or being out of seat or area. Inattentive behaviors were coded when the student was not engaged in an academic task in some nondisruptive way, such as staring.

Follow-up measures. The Social Skills Improvement System- Rating scales (SSIS-RS; Gresham & Elliott, 2008a) Teacher form is an 83-item questionnaire that assesses students on social skills and problem behaviors, and academic competence. The measure is suited for grades

pre-K through 12, though pre-K children are not rated on academic competence. The SSIS-RS measures social skills using seven subscales: (a) cooperation, (b) assertion, (c) self-control, (d) communication, (e) empathy, (f) engagement, and (g) responsibility. Problem behaviors are categorized by internalizing, externalizing, hyperactive/inattentive, and bullying behaviors. The measure also includes an autism spectrum subscale.

The SSIS-RS has very good psychometric properties, including a teacher form test-retest reliability coefficient of $r = .81$ and internal consistency reliability for major scales of $\alpha = .96$ (Gresham & Elliott, 2008b). The results of the SSIS-RS are compiled to generate a detailed score report of the student's social skills, problem behaviors, and academic competence, if applicable. Based on this report, school professionals are able to design academic or behavioral interventions suited to the student's needs.

Experimental Design

A pretest-posttest control group quasi-experimental design was used to examine the effectiveness of the intervention (Kazdin, 1992). The between-subjects factor (group) has two levels: intervention and control. The within-subjects factor (time) also has two levels: pre-intervention scores and post-intervention scores on the dependent measures. Due to the nature of school structure and schedules, complete randomization in intervention studies can be difficult. As such, this design used a control group for comparison, but experimental conditions were assigned to intact groups (i.e., classrooms).

Procedure

Pretest. Classrooms included in the study were selected based on administration and teacher approval. The first two preschool teachers and first two kindergarten teachers to agree to their class's participation were included in the study. One preschool classroom and one

kindergarten classroom were assigned to each condition, with the first consenting classes from each grade being assigned to the treatment (CIP) condition. The researcher then gained active parental consent for all students included in the study and participating teachers offered alternative activities for students whose parents chose that their children not participate. The researcher then conducted SDOs of each class included in the study to obtain baseline levels of academic engaged time, disruptive behavior, and inattentive behavior. Inter-observer agreement (IOA) was taken during 27% of these observations, with an average agreement of 84% (range 80%-92%).

The researcher also collected conduct grades for each kindergarten student during the two weeks leading up to the intervention. The preschool classes in the participating district did not have a daily conduct system in place that was comparable to the standard method like that used in its kindergarten classes. Finally, classroom teachers completed the PSG and CSS for each child in their classroom who was participating in the study.

Intervention. Following the collection of pretest measures, the researcher implemented the CIP in the two classrooms assigned to the experimental condition. Though the CIP was designed for implementation by a classroom teacher, it was implemented by the researcher for the purposes of this study. Doing so was thought to control for effects that could be attributed to different interventionists across classes (e.g., treatment integrity). The researcher followed the manualized intervention save for the modifications listed in the next section. The intervention was delivered to each grade level separately in their respective classrooms, and all interventions took place in the afternoon after nap and snack time.

Modifications to intervention. Based on feedback from previous implementation of the CIP (Vance et al., 2009), the researcher made certain modifications that serve to facilitate

implementation while preserving the theoretical and instructional components of the intervention. These modifications include the use of Powerpoint software to present lessons, modifying lessons to make them specific to participants (e.g., incorporating school mascots, relevant school activities, or games into lessons), and arranging the delivery of lessons to accommodate any schedule constraints. Numerous schedule constraints throughout the course of the study (e.g., field trips, inclement weather) necessitated the combination of several lessons in order to present all 10 CIP units. While the original formulation of the CIP is for 30 lessons to present all 10 units, it was necessary to present the same 10 units in only 24 sessions during the current study. Because each lesson was delivered separately to the preschool and kindergarten groups, this resulted in a total of 48 CIP lessons. These lesson truncations are further discussed in the results and discussion sections.

Treatment integrity. The study used a modified treatment integrity form to monitor intervention implementation. This self-report form, designed as part of the aforementioned research grant, monitors more components of the intervention and resulted in more stringent evaluation of the delivery agent (i.e., the researcher). This form also facilitates the use of IOA for treatment integrity. Self-report treatment integrity was collected during 100% of lessons with an average integrity score of 96% (range 84-100%). In addition, IOA treatment integrity with a graduate or undergraduate student observer occurred during 20% of lessons, with an average agreement score of 97% (range 92-100%).

Posttest. Following completion of the intervention, teachers rated all students on the PSG and CSS. During the final week of intervention, the teacher of the kindergarten class receiving the CIP was moved to teach another grade, and her class was divided between the remaining kindergarten classes in the school. As such, neither posttest SDOs nor posttest conduct grades

were available for the students in that class. However, the researcher did conduct SDOs for the remaining classes during the two weeks following intervention completion, with IOA taken on 30% of observations, and average agreement during these observations was 95% (range 91%-98). Conduct grades for the students in the kindergarten control classroom were also collected.

Follow-up and recommendations. The researcher gave participating teachers the option to complete an SSIS-RS (Gresham & Elliott, 2008a) for any students scoring a two or lower in either the motivation to learn or prosocial behavior of the posttest PSG. Scores less than or equal to two indicate a possible need for further (i.e., Tier two) intervention supports (Elliott & Gresham, 2007b), and administration of the SSIS-RS will provide a detailed description of a student's social skill deficits and help guide further intervention.

RESULTS

Analyses

PSG and CSS. Intervention effects were assessed using a multivariate analysis of covariance (MANCOVA) and an analysis of covariance (ANCOVA) on PSG scores and CSS scores, respectively. Using covariates allows better comparison between groups by adjusting for any pre-existing academic or social skills differences between groups (Tabachnick & Fidell, 2007).

To conduct the MANCOVA, the researcher entered group as the independent variable and posttest PSG scores for prosocial behavior, motivation to learn, early reading skills, and early math skills as dependent variables. Pretest PSG scores for the same constructs as the dependent variables were entered as covariates. Box's M was significant at $p = .001$, indicating a violation of equality of covariance matrices, but the sufficient number of students in each group prevented this from being a concern.

Using Wilks' criterion, the combined dependent variables were significantly affected by group membership, $F(4, 46) = 5.48$, $p < .01$. These results reflected that the main effect of group accounted for an association of partial $\eta^2 = .32$. Additional univariate tests revealed that, when holding pretest scores constant, the main effect was driven by group differences in scores of prosocial behavior, $F(1, 49) = 6.58$, $p < .05$ and early math skills, $F(1, 49) = 14.59$, $p < .01$. Group differences for motivation to learn ($F(1,49) = .21$, $p > .05$) and early reading skills ($F(1,49) = 2.01$, $p > .05$) were nonsignificant. These results indicate that, after receiving the CIP, students in the treatment group were rated significantly higher than students in the control group on prosocial behavior and early math skills, and that the group membership accounted for 32% of the variance in the combined dependent variables.

An ANCOVA was conducted for overall scores on the CSS, using group as the independent variable, posttest CSS scores as the dependent variable, and pretest CSS scores as the covariate. Results showed a significant difference between groups on ratings on the CSS, F $(1, 52) = 5.89$, $p < .05$. Estimates of effect size indicate that partial $\eta^2 = .10$. This indicates that students receiving the intervention were rated higher on their performance of the Top 10 social skills than students in the control condition, with 10% of the variance in CSS scores being explained by group membership. Table 3 includes the mean scores for the PSG and CSS analyses.

Table 3

Performance Screening Guide (PSG) and Classwide Social Skills (CSS) Scores by Group and Time.

Measure	Subscale	CIP (n = 30) M (SD)		Control (n = 25) M (SD)		F	Partial η^2
		Pretest	Posttest	Pretest	Posttest		
	PSB	2.87 (1.01)	3.63 (.56)	3.28 (.98)	3.32 (1.15)	6.58*	.12
PSG	MTL	3.03 (.93)	3.63 (.62)	3.16 (1.11)	3.60 (1.00)	.21	.00
	ERS	2.93 (.83)	3.50 (.63)	2.88 (1.05)	3.16 (1.11)	2.01	.04
	EMS	3.13 (.82)	3.70 (.54)	2.84 (1.07)	3.04 (1.10)	14.59***	.23
CSS	N/A	36.83 (11.97)	44.27 (6.69)	41.16 (11.61)	42.00 (11.74)	5.89*	.10

Note: * p < .05; *** p < .001

Systematic direct observations. Percent change scores for SDOs from pretest to posttest revealed that the treatment group showed a 4% increase in on task behavior (76% to 80%), a 4% decrease in inattentive behavior (13% to 9%), and no change in disruptive behavior (11%). Students in the control condition showed a 6% increase in on task behavior (75% to 81%), a 7% decrease in inattentive behavior (20% to 13%), and a 1% increase in disruptive behavior (5% to

6%). Figure 1 contains a graphic representation of these SDO results by group. Results for changes in classwide conduct grades for kindergarteners are limited to the control group. For this group, they averaged a pretest conduct grade of 5.03 (equivalent to an "A") and a posttest conduct grade of 5.31 ("A-A+" range).

Following completion of posttest PSGs, there were six students in the control condition (24%) that were rated at a two or one on either prosocial behavior or motivation to learn, while only two students (7%) in the CIP condition were rated at a two or one in those behaviors. Administration of the SSIS-RS was offered and recommended to the teachers for these students to further assess their social skills and motivation deficits.
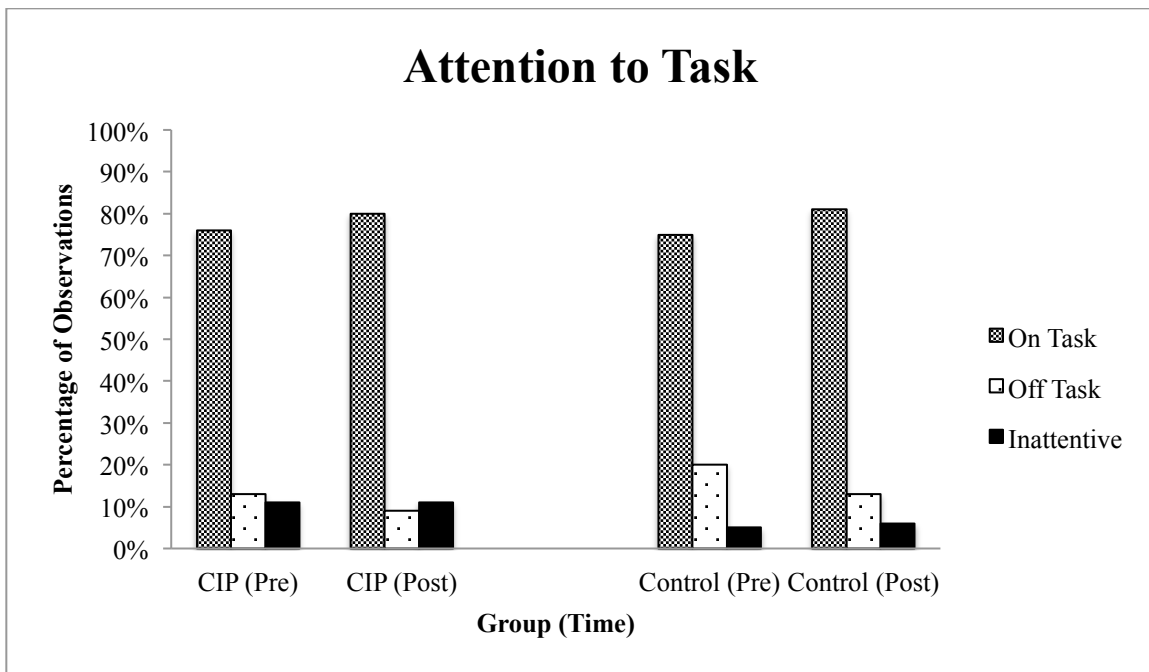

Figure 1. Systematic Direct Observations by Group and Time.

DISCUSSION

The purpose of the current study was to determine the effectiveness of a manualized, universal social skills intervention for young students. Results from the primary outcome measures (i.e., PSG and CSS scores) indicated that the CIP was effective at improving preschool and kindergarten students' prosocial behaviors, including those explicitly taught in the CIP. These results supported the hypothesis that predicted that the students receiving the intervention would make greater improvements in social skills. However, it was also predicted that students in the CIP condition would have greater improvement on overall ratings of classroom behavior, and, while they did make improvements in this area, they were not greater than those seen in the control condition.

The strongest effects were found for prosocial behavior scores, early math skills, and the use of the Top 10 social skills. The effects for prosocial behavior and the Top 10 social skills were predicted, as they were the explicit targets of the intervention. When the effect sizes for prosocial behavior and CSS scores were converted to Cohen's d (Cohen, 1988), they were $d = .74$ and $d = .67$, respectively. These effect sizes indicate moderate effects, similar to those found in previous research and use of the CIP.

While some improvement was expected for academic skills, the improvement was not predicted to differ by group, and the strong effects for early math skills were an unexpected result. When effect sizes were converted to Cohen's d, an effect size of $d = 1.09$ resulted, indicating a large effect. This finding was inconsistent with previous results from the implementation of the CIP, and could be attributed to collateral effects of the intervention, though this is less likely as improvements for early reading skills were nonsignificant across groups. A more likely explanation is that, during the intervention, students in the CIP condition,

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especially the preschool class, made significant gains in math skills due to classroom instruction in this area that may have been different than the preschool classroom instruction at the control school. As predicted, ratings for early reading skills improved for both groups, but did not differ significantly.

The results of the supplementary outcome measures (i.e., SDOs and conduct grades) were less conclusive and did not fully support the findings from primary measures. Percent changes for on task, off task, and inattentive behaviors showed improvement across time for all groups in all areas except that the control condition showed a 1% increase in disruptive behavior. However, it should be noted that these changes could be attributed to extraneous variables, such as sampling and maturation.

Changes in student behavior as indicated by conduct grades can only be addressed for the kindergarteners in the control group, as preschool classes in this district did not practice a comparable conduct system and the kindergarten class in the CIP group was dissolved immediately following intervention. The kindergarten control class saw a slight increase in their average conduct grade, though without another group for comparison these results are difficult to interpret.

Limitations

There were a number of limitations in this study. This intervention package was developed to be implemented in 30 sessions; however, due to multiple scheduling conflicts beyond school and researcher control, only 24 sessions were available. As such, some lessons had to be combined in order to present all 10 units. The researcher organized lesson combinations such that any and all new material from lessons to be combined was presented, and the only material that was skipped was a review of previously presented material. While this

truncation of material did not seem to affect the outcome of the study, it does limit the validity of the results.

Another limitation of this study was its supplementary outcome measures. The use of SDOs and conduct grades did not seem to be useful in reflecting the change detected by the primary outcome measures. This could be due to many factors. First, while SDOs may be indicative of change at a selected or intensive level of intervention, they may not be as helpful for entire classes or large groups in which each child is observed for such a limited amount of time. Also, the outcomes of SDOs are sensitive to environmental variables, such as substitute teachers, the activity going on during the observation, and others. Furthermore, any interpretations about conduct grades in this study must be prefaced with the acknowledgement of large amounts of missing data. Due to the dissolution of the CIP kindergarten class, it was not possible to collect posttest conduct grades for these children.

Implications and Future Directions

Despite these limitations, the intervention was still effective at improving students' prosocial behaviors. As such, future research may benefit from a replication of this study with a) improved implementation methods such that all 30 lessons are presented as intended and b) implementation by classroom teachers. Also, further research should investigate the differential effects of students receiving the intervention and are reinforced throughout the school day for practicing the skills vs. students who only practice the skills during the allotted intervention time, similar to the current study.

The results of this study bolster previous findings on the importance and relative success of early social skill development and practice, and support the use of the Classwide Intervention Program as a method of explicitly training preschoolers and kindergarteners in the Top 10 Social

Skills. The modest effects despite the truncation of implemented lessons suggest that the CIP is a robust intervention in young students.

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APPENDIX:
INSTITUTIONAL REVIEW BOARD APPROVAL

ACTION ON PROTOCOL APPROVAL REQUEST

Institutional Review Board
Dr. Robert Mathews, Chair
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LSU

TO: Frank Gresham
Psychology

FROM: Robert C. Mathews
Chair, Institutional Review Board

DATE: February 22, 2012
RE: **IRB# 3240**

TITLE: Evaluating the Effectiveness of a Classwide Social Skills Intervention with Preschoolers and Kindergartners

New Protocol/Modification/Continuation: _New Protocol_

Review type: Full ___ Expedited _X_   Review date: _2/23/2012_

Risk Factor: Minimal _X_ Uncertain _____ Greater Than Minimal_____

Approved_____X_____ Disapproved_____

Approval Date:_2/23/2012_ Approval Expiration Date: _2/22/2013_

Re-review frequency: (annual unless otherwise stated)

Number of subjects approved: _80_

Protocol Matches Scope of Work in Grant proposal: (if applicable)_____

By: Robert C. Mathews, Chairman _____

PRINCIPAL INVESTIGATOR: PLEASE READ THE FOLLOWING –
Continuing approval is CONDITIONAL on:

1. Adherence to the approved protocol, familiarity with, and adherence to the ethical standards of the Belmont Report, and LSU's Assurance of Compliance with DHHS regulations for the protection of human subjects*
2. Prior approval of a change in protocol, including revision of the consent documents or an increase in the number of subjects over that approved.
3. Obtaining renewed approval (or submittal of a termination report), prior to the approval expiration date, upon request by the IRB office (irrespective of when the project actually begins); notification of project termination.
4. Retention of documentation of informed consent and study records for at least 3 years after the study ends.
5. Continuing attention to the physical and psychological well-being and informed consent of the individual participants, including notification of new information that might affect consent.
6. A prompt report to the IRB of any adverse event affecting a participant potentially arising from the study.
7. Notification of the IRB of a serious compliance failure.
8. SPECIAL NOTE:
*All investigators and support staff have access to copies of the Belmont Report, LSU's Assurance with DHHS, DHHS (45 CFR 46) and FDA regulations governing use of human subjects, and other relevant documents in print in this office or on our World Wide Web site at http://www.lsu.edu/irb

VITA

Haley E. York is a native of Sublette, Kansas. She received her bachelor's degree in psychology from Texas Tech University in 2009 and entered the school psychology doctoral program at Louisiana State University in 2010. Haley is currently conducting her graduate work under the supervision of Dr. Frank M. Gresham.