

GENERALIZATION OF SOCIAL SKILLS TRAINING ON DISRUPTIVE CLASSROOM
BEHAVIOR

by

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Children who exhibit problematic levels of disruptive behavior frequently also present with social skills deficits and poor social relationships. The degree to which children establish and maintain interpersonal relationships is known to predict critical psychological outcomes in adulthood. Thus, social skills training (SST) is a frequently used treatment approach to teach or improve prosocial skills as appropriate replacement behaviors for inappropriate disruptive classroom behavior. However, many skills learned in SST often do not generalize to non-training settings (e.g., classroom) without actively programming for setting generalization. The goal of this study was to evaluate individual generalization procedures implemented by teachers directly in the classroom. The present study used an alternating treatments design to compare social skills training (SST) alone with three teacher-facilitated behavioral strategies to promote generalization. These included: 1) brief direct instruction of social skills with a visual prompt (i.e., positively-stated social skills rules visibly posted in the classroom), 2) verbal prompts, and 3) contingent reinforcement for the demonstration of social skills. Appropriate reinforcers were chosen from results on a preference assessment and teacher interviews.

Four second-grade male students, referred for excessive disruptive behavior and poor social relationships, participated in this study. Students were pulled from their classrooms twice

weekly to receive SST throughout the study. Students received each generalization component in a rapidly alternating fashion and treatment conditions were counterbalanced among participants. Following the alternating treatments phase, generalization procedures were removed in a withdrawal phase (while SST was ongoing) and the most effective procedure was then re-implemented to verify that behavior change was a function of the treatment condition. Effectiveness of each treatment was determined by visual analysis and standardized mean difference effect sizes using data from direct observations of classroom disruptive behavior (i.e., fidgeting, inappropriate verbalizations, noncompliance, aggression). Pre- and posttest ratings of students' conduct problems and social skills were assessed via teacher ratings. Finally, acceptability of each treatment was evaluated by teachers using the Intervention Rating Profile-15 (IRP-15).

Contingent reinforcement resulted in the largest decrease in disruptive behavior ($d = 3.92$) for all participants. Verbal prompting was somewhat effective ($d = 1.38$), but visual prompting ($d = 0.25$) had limited effectiveness. Additionally, SST alone was ineffective in producing a behavior change that generalized to the classroom ($d = 0.04$). As a result of the entire treatment package, conduct problems on the SESBI-R decreased slightly ($M = 4$) and social skills increased slightly on the SSiS ($M = 3.25$). Teachers rated each procedure (visual prompt, verbal prompts, and contingent reinforcement) as acceptable, with contingent reinforcement most acceptable (88.5 out of possible 90 points). Limitations include limited external validity and some variability in baseline conditions. This study demonstrates the importance of implementing similar reinforcement contingencies in the non-training environment.

GENERALIZATION OF SOCIAL SKILLS TRAINING ON DISRUPTIVE CLASSROOM
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CHAPTER I: INTRODUCTION

Social skills deficits are a common referral concern for students with emotional and behavioral disorders (Gresham, 1998; Walker, Ramsay, & Gresham, 2004). Social skills training (SST) is frequently implemented as an intervention for children engaging in disruptive classroom behavior for this reason (Forness & Knitzer, 1992; Gresham, 2002). Despite this association, literature on SST programs has demonstrated a lack of generalization from training settings to non-training settings such as the classroom (DuPaul & Eckert, 1994; Gresham, 1997; Maag, 2006). This lack of generalization presents the need to consider ways of enhancing the effectiveness of SST in children's natural environment. An accepted strategy for increasing the use of appropriate social skills (and decreasing inappropriate behavior) is the alteration of antecedents or consequences of target behaviors in the natural classroom setting (Elliott & Busse, 1991). The present study involved the use of classroom teachers by having them alter the contingencies surrounding the child's demonstration of social skills by providing prompts and/or reinforcement for social skills directly in the classroom to promote generalization of SST. Therefore, the purpose of this study was to determine the most effective teacher-facilitated generalization procedure for social skills to generalize to the classroom.

Social Skills and Disruptive Behavior

The degree to which children establish and maintain interpersonal relationships with both peers and adults predicts critical psychological outcomes in adulthood (Gresham, 1998b). Research has indicated that just having one successful relationship with an adult is sufficient to provide a buffer for maladaptive outcomes, whereas failure to develop healthy relationships in childhood increases risk for maladaptive outcomes (Kupersmidt, Coie, & Dodge, 1990; Parker & Asher, 1987). Literature since the 1950s has reliably suggested the strong correlation between

difficulty in social relationships and negative outcomes, such as dropping out of school, juvenile delinquency, psychopathology in adulthood, depression, and suicide (Cowen, Pederson, Babigan, Izzo, & Trost, 1973; Kohn & Clausen, 1955; Parker & Asher, 1987; Roff, 1961; Roff, Sells, & Golden, 1972; Stengel, 1971).

Despite the abundance of literature on social relationships and subsequent outcomes, social skills deficits are extremely prevalent. According to Dodge (1989), social incompetence played an implicit role in the diagnosis of 33 childhood disorders listed in the *Diagnostic and Statistical Manual of Mental Disorders*, 3rd edition, revised (DSM-III-R; American Psychiatric Association, 1987) and was explicitly part of the diagnostic criteria for 17 childhood disorders (e.g., depressive disorders, anxiety disorders, disruptive behavior disorders, attention-deficit/hyperactivity disorder, and autism spectrum disorders). The inclusion of social skills deficits in the diagnostic criteria of the DSM-IV and V is likely even higher due to more developmentally appropriate child and adolescent criteria (American Psychiatric Association, 1994; 2013). For instance, Oppositional Defiant Disorder (ODD) encompasses negative and defiant behaviors characterized by disobedience and unwillingness to compromise in social interactions. Additionally, children with Conduct Disorder (CD) display more severe disruptive behaviors with a pattern of aggression towards others involving bullying, fighting, threatening, or intimidating others (Gresham, 1998b). These behaviors result in negative responses and rejection from others. As these children develop, they are likely to either socially isolate themselves, or seek out relationships with peers who act similarly, which inherently limits any positive behavior models (Patterson, Reid, Jones, & Conger, 1975).

Oppositional and antisocial behavior patterns begin early in life and persist over time. Olweus (1979) found that aggressive and antisocial behavior in boys was just as stable as

measures of intelligence over 5 years. Patterson, DeBaryshe, and Ramsey (1989) noted that antisocial behavior begins at ages 2 and 3 and continues throughout the school years. In addition, occurrence of hyperactive, impulsive, and inattentive behaviors of ADHD combined with behaviors associated with Conduct Disorder was highly predictive of chronic offending in adulthood (Lynam, 1996). Lynam called this combination of behaviors the development of a “fledgling psychopath” (Gresham, 1998b).

Impact of disruptive behavior. Social skills deficits are common among students with disruptive behavior disorders (Gresham, 1998; Walker, Ramsay, & Gresham, 2004). Students with disruptive behavior disorders are frequently identified as having emotional and/or behavioral disorders (EBD). Approximately 3–6% of the school-age population is identified as having a serious emotional or behavioral disorder that adversely impacts their daily functioning at home, school, or in the community (Quinn, 2004). According to the Individuals with Disabilities Education Act (IDEA, 1997), students must present with a severe emotional disturbance or behavioral disorder, exhibited over a long period of time that interferes with the students’ educational performance, in order to receive special education services under the category of EBD (Hayling, Cook, Gresham, State, & Kern, 2008; Wagner, 1995).

Students identified as having EBD experience significant difficulties in the development and maintenance of satisfactory relationships, prosocial behavior patterns, and social acceptance by peers and teachers (Gresham, 1998; Kauffman, 2001; Walker, Ramsay, & Gresham, 2004). It has been argued that social skills deficits are the primary reason for EBD referrals (Forness & Knitzer, 1992; Gresham, 2002). Two out of the five standards for eligibility in the current definition of emotional disturbance in IDEA (1999) indicate difficulty in social competence: an

inability to build or maintain satisfactory interpersonal relationships with peers and teachers; and the expression of inappropriate behavior or feelings under normal circumstances.

Since the passage of IDEA, many students with disabilities are being taught in general education classrooms due to mandates for placements in the least restrictive environments (Landrum, Katsiyannis, & Archwamety, 2004). However, the majority of students with EBD are still placed in restrictive settings more frequently than any other category of disorder. The rate of general education placement for students with EBD is only 27%, as compared to 50% among other categories of disabilities (Hayling et al., 2008; Landrum et al., 2004). Research as early as the 1960s indicated that students with EBD performed significantly below their same-age peers (Stennett, 1966; Zax et al., 1968). Four decades later, current research matches these former results in that students with EBD still display exceptionally poor outcomes in both academic and behavioral performance (Bradley et al., 2004). These students obtain lower grades, fail more subjects, and are retained more often at lower rates than any other category of disability (Frank et al. 1995). Research has indicated that students with EBD tend to be the most disconnected from the school environment, as demonstrated by high absenteeism, high dropout rate, and poor social relationships (Wagner 1995). Forty percent of students with EBD attend five or more schools in their academic careers (Wagner and Cameto 2004). Post-school outcomes are just as devastating, with high rates of unemployment, arrests, and low rates of postsecondary education (Bullis & Cheney, 1999; Quinn, 2004; Wagner, 1995).

Hendrickson et al. (1998) evaluated school records of students with EBD and teacher interviews to examine the issues related to educational placements. They found that students in restrictive settings were perceived to be more aggressive and in need of more intensive services, yet there was inconsistency between IEP goals and their curriculum, and no systematic service

delivery. Also, 50% of the teachers interviewed stated that the students could have been accommodated in general education settings. A meta-analysis by Reid, Gonzalez, Nordness, Trout, and Epstein (2004) evaluated the academic status of students identified with EBD across settings. The authors compared academic performance in general education, resource room, self-contained, and special school settings. They found that students with EBD educated in self-contained classrooms and schools performed significantly lower academically than did students with EBD in less restrictive settings.

A survey of classroom teachers in 2003 indicated that 17% reported losing a minimum of four hours of instructional time per week because of disruptive behavior (e.g., inappropriate verbalizations, noncompliance) (Walker, Ramsey, & Gresham, 2003). The impact of disruptive behavior on the classroom environment and the time that it takes away from instruction are likely reasons that students with behavior disorders are most frequently placed in alternative settings (e.g., self-contained classrooms, alternative schools).

Students referred for disruptive behavior are at risk for unfortunate outcomes both during and after formal education. This demonstrates that special education services are not meeting the needs of these students, and presents the need to improve services for this population. SST would assist in promoting the development of healthy social relationships. Instead of defaulting to exclusionary discipline methods, SST can address these deficits by emphasizing both the acquisition and performance of prosocial behaviors, and reducing competing problem behaviors. However, literature on SST has demonstrated mixed results of the generalization of skills to classroom settings (Gresham, 1998b), which implies the importance of integrating students' classroom teachers in SST.

Social Skills Training

Social skills, as defined by Gresham (1998a) are “socially accepted learned behaviors enabling individuals to interact effectively with others and avoid or escape socially unacceptable behaviors exhibited by others.” SST teaches prosocial skills to students with problem behaviors, such as listening, contributing to classroom discussions, and ignoring distractions. The frequency of prosocial behavior is inversely related to the frequency of disruptive behavior. This leads to less class time spent on behavior management and more time for instruction. Thus, when disruptive behavior decreases, academic performance can potentially increase. The primary goal of SST is to teach students the requisite skills to enhance their educational experience and increase the likelihood of establishing satisfying relationships with teachers and peers, and subsequently improving academic performance (McGinnis, 2012).

There are several well-established SST curricula for various age groups and social skills needs. For adolescents, *The EQUIP Program* (Gibbs, Potter, & Goldstein, 1995) includes training in moral judgment, anger management, correction of thinking errors, and prosocial skills for antisocial or behavior disordered adolescents. The *PREPARE Curriculum* (Goldstein, 1999) offers interventions for the reduction of aggression, stress, and prejudice. It is designed for use with middle school and high school students but can be adapted for use with younger students. *Skillstreaming the Elementary School Child* (McGinnis, 2003) addresses the social skill deficits of elementary-age students who display aggressive, immature, and other problem behaviors. This program utilizes modeling, behavioral rehearsal, performance feedback, and generalization training (i.e., homework). The curriculum contains 60 skill lessons and includes five skill groups: Classroom Survival Skills, Friendship-Making Skills, Dealing with Feelings, Alternatives to Aggression, and Dealing with Stress.

Social skills deficits. Social skill deficits can be classified into acquisition and performance deficits based on the presence of interfering problem behaviors. These deficits dictate differential intervention strategies, and whether a competing problem behavior needs to be the focus of interventions (Gresham & Elliott, 1993). When a student has limited knowledge of skills that are required to perform a particular behavior, this is referred to as an acquisition deficit (Bandura, 1977). This is commonly characterized as a “can’t do” problem (Gresham, 2001). Additionally, students may not be performing a skill because of a fluency deficit. Fluency deficits are assumed when a child knows how to perform a skill and is motivated to do so, but needs more practice. Alternatively, performance deficits are evident when students have the knowledge to perform a skill, but fail to perform it consistently (Bandura, 1977). Performance deficits are conceptualized as a “won’t do” problem (i.e., a student knows what to do, but chooses not to). Lastly, children may not be performing social skills due to competing problem behaviors or competing reinforcers (Gresham & Elliott, 1990). Competing problem behaviors essentially interfere with, or “block” either the acquisition or the performance of a particular social skill. Competing problem behaviors may be externalizing factors (e.g., noncompliance, aggression) or internalizing factors (e.g., social withdrawal, anxiety).

Disruptive behavior may result in more immediate and consistent reinforcement than appropriate social behaviors (e.g., requesting politely). Parents and/or teachers may not typically provide attention when a disruptive child is behaving appropriately, but consistently provide attention following an outburst, even if the attention is negative. When a child receives little attention for appropriate behavior, any attention (positive or negative) can be reinforcing. This can easily occur in classrooms because “giving in” is frequently negatively reinforced by the immediate elimination of the aversive child behavior (e.g., yelling). In this way, preexisting

maladaptive behaviors (e.g., disruptive behavior) require less response effort for the student than social skills, and result in more immediate and consistent reinforcement.

Social skills training procedures. SST commonly is taught in a small-group format to provide students with opportunities to practice and perform the skills on their peers. Effective behavioral techniques used to teach social skills typically include direct instruction, modeling, role-playing, performance feedback, and generalization training. Demonstrations of and rationale for specific skills, along with opportunities to practice the skills and receiving feedback are all crucial steps for the acquisition of new skills. A combination of these procedures, with additional manipulation of antecedent and consequences in the natural environment, effectively produce behavior change for students with acquisition deficits or performance deficits of social skills (Gresham, 1998a; Gresham, 1998b; Gresham & Nagle, 2004).

Direct instruction and modeling. Direct instruction procedures provide information on the importance of skills and how to perform them (Spence, 1995). Direct instruction should be followed by modeling, which refers to a procedure in which a student observes an appropriate social behavior. Modeling can be displayed in vivo in a natural setting or through video. The major advantage of modeling is that students learn how to combine and sequence behaviors that encompass a particular social skill (Bandura, 1977; Gresham & Elliott, 1993).

In 1980, Gresham and Nagle compared modeling to the use of direct instruction, behavioral rehearsal (role-play), and performance feedback by exposing 40 students to one of four SST procedures: 1) modeling, 2) direct instruction and behavioral rehearsal with feedback, 3) combined modeling, direct instruction, and behavioral rehearsal with feedback, or 4) attention controls. Results indicated that modeling alone was equally as effective as the other components and the combined treatment in increasing frequency of positive social interactions and increasing

sociometric status of the students. However, the treatments that included behavioral rehearsal with feedback were more effective than modeling for decreasing frequency of negative social interactions (Gresham & Nagle, 1980).

Behavioral rehearsal. Also known as “role-play,” behavioral rehearsal involves the student practicing the appropriate behavior in a structured setting. Complex social skills need to be practiced step-by-step. Fundamental to skill acquisition and improved performance is the inclusion of practice sessions within SST. Practice should additionally occur outside sessions, through homework assignments (Spence, 2003). Through behavioral rehearsal, students become more proficient in using the skill without experiencing negative consequences. Social learning theory suggests that behavioral rehearsal is fundamental to learn prosocial behavior (Bandura, 1977).

Performance feedback. Behavioral rehearsal is most effective if it results in two types of performance feedback. First, positive feedback in the form of praise should be provided to reinforce the use of the skill. Praise and reinforcement for effort is an important part of feedback, and should be provided for successive approximations to the target behaviors (Spence, 2003). Additionally, peers should be encouraged to provide positive feedback. Second, trainers should provide corrective feedback to identify any areas that need improvement. Both types of feedback are most effective when delivered immediately and specific to the behavior. Ward-Horne and Sturmey (2012) evaluated the individual effectiveness of similar components (i.e., written instruction, modeling, rehearsal, and feedback) of a behavioral skills training program with two adults using an alternating treatments design. The results indicated that feedback (both positive and corrective) consistently resulted in the largest behavior change, followed by modeling. In

this study, written instructions and behavioral rehearsal both were consistently ineffective. However, the use of behavioral rehearsal with children may be more appropriate.

SST Literature. A study by Scheider and Byrne (1985) compared the results of each of these procedures in SST, including modeling, behavioral rehearsal, operant procedures, and social-cognitive methods (problem-solving) in a meta-analytic investigation. No single procedure was found to be consistently effective, but some were more effective than others. Operant procedures were generally more effective than social learning procedures such as modeling, behavioral rehearsal, and feedback in increasing socially interactive behaviors by comparing mean effect sizes across all studies. However, these may be insufficient for students with skill deficits who will need to develop fluency of skill presentation. These procedures alone do not provide instruction on appropriate behaviors that can serve as replacements for inappropriate behaviors (Sheridan & Elliott, 1991). An additional finding from the meta-analysis was that modeling, behavioral rehearsal, and feedback were more effective than social-cognitive methods. Thus, the most effective SST curricula use a combination of the abovementioned procedures (Sheridan & Elliott, 1991).

In 1981, F. M. Gresham conducted a review of SST literature on children with intellectual and behavioral disabilities. Seventy studies were reviewed, and divided into four categories: manipulation of antecedents (e.g., peer initiations, cooperative tasks or games), manipulation of consequences (e.g., contingent social reinforcement, token reinforcement, group contingencies, DRO), modeling, and coaching techniques (e.g., behavioral rehearsal, performance feedback). This review concluded that there was strong evidence for the effectiveness of each of these SST procedures. Modeling appeared effective for training social skills, and almost 44% of the 17 studies reviews demonstrated generalization effects. Operant

procedures were also effective, although a limitation noted with consequence-based interventions was the amount of time involved in reinforcing target behaviors.

A later meta-analysis of SST with antisocial and aggressive youths showed a moderate effect size of .62 (Ang & Hughes, 2001). Thirty-eight studies utilizing social problem solving, perspective taking, moral reasoning, self-control, and positive behavioral skill training were included. Group composition was found to mediate the effectiveness of the intervention, with groups consisting of only antisocial youth produced smaller effects than groups with both prosocial and antisocial peers. The prosocial peers in these groups helped by modeling appropriate behavior.

Gresham, Cook, and Crews (2004) reviewed six SST meta-analyses with children who had or were at risk for emotional and behavioral disorders (EBD). SST was broadly defined as any behavioral, cognitive, or social intervention that intended to train specific social skills and/or remediate social skill deficits. Their results showed that SST was an effective intervention for students with EBD, with a 64% improvement rate relative to controls. External validity analyses indicated that SST was effective for a wide variety of problems, such as aggression, externalizing behaviors, internalizing behaviors, as well as antisocial behaviors. However, a weakness in the literature involved interpreting outcomes. This was due to SST procedures, such as role-play, that did not generalize and showed no relationship to children's behavior in real-world settings (Gresham, Cook, Crews, 2004).

Generalization Training

Generalization across settings refers to the occurrence of a behavior in settings other than those in which SST occurs. Behavior generalizes across settings when the settings share common properties (Gresham & Elliott, 1993). The more closely the training setting parallels a child's

natural environment, the more likely it is that behavior will generalize. This can occur by having an adult that the child interacts with daily implement the SST, or by implementing the same contingencies across environments.

Many traditional SST programs do not actively program for generalization outside of the training setting. Recent SST programs (McGinnis, 2003) promote generalization through homework assignments. These assignments encourage students to practice the skills and document the setting in which they used the skill, how they used the skill, and its effectiveness. SST has demonstrated effectiveness in increasing prosocial behavior in one place for a limited amount of time, but it has been more difficult to increase the occurrence of prosocial behavior in multiple settings over an extended period of time (DuPaul & Eckert, 1994; Elliott & Gresham, 1991). In fact, it appears that the more closely generalization has been assessed in traditional SST, the smaller the generalization effect was (Gresham, 1981; Maag, 2006). It may be that generalization across settings does not consistently occur unless some direct intervention or contingency plan has been programmed in the non-treatment setting.

Antecedent-based procedures. Operant procedures that manipulate antecedent and consequent events surrounding the target behavior have been shown to be effective in promoting generalization of social skills (Elliott & Busse, 1991). Antecedent control procedures, such as teacher prompting, help to set the occasion for appropriate behaviors. This method is beneficial as it does not require much time by teachers to monitor behavior or implement reinforcement contingencies. Antecedent-based procedures assume the appropriate skill is in the student's behavioral repertoire, therefore the use of antecedent-based procedures without direct instruction and adequate practice may not be effective if a student has an acquisition deficit (Gresham & Elliott, 1993). The addition of these techniques in the non-training environment may promote

generalization of SST by providing opportunities to respond and functioning as a discriminative stimulus (Gresham & Elliott, 1993).

Consequence-based procedures. In addition to antecedent strategies, consequence-based procedures can be used to increase appropriate behavior and decrease inappropriate behavior (Bandura, 1978; Elliott & Gresham, 1991). Contingent social reinforcement is a common consequence-based strategy for increasing appropriate behavior that involves differential reinforcement of an alternative behavior (DRA) while withholding reinforcement for the inappropriate behavior (Elliott & Gresham, 1991; Gresham & Elliot, 1993). Social reinforcement in the classroom may involve a teacher publicly or privately praising appropriate replacement behaviors. Reinforcement-based strategies assume that the child is able to perform a behavior, but does not perform it because of a lack of reinforcement to increase the frequency of a behavior and to enhance the performance of a social skill (Gresham & Elliott, 1993). This procedure requires active teacher involvement because teachers have to consistently monitor students in order to reinforce the appropriate behavior.

In addition to DRA, differential reinforcement of other behavior (DRO) is a consequence-based strategy that involves providing reinforcement for any behavior except the target behavior (Elliott & Gresham, 1991). For example, if the target behavior was verbal aggression, teachers would provide reinforcement after a specified amount of time elapsed in which the student did not display aggressive behavior. This would effectively reinforce all other behaviors and extinguish verbal aggression. Pinkston et al. (1973) used a DRO procedure to decrease aggressive behavior with social reinforcement contingent upon the absence of aggression. These procedures were effective in decreasing the frequency of negative social interactions and increasing the frequency of positive interactions. Additionally, effects were

maintained at a one-month follow up. Rather than replacing traditional SST, operant procedures are best used as generalization strategies that teachers or parents implement in the child's natural environment, while appropriate social behaviors are taught in SST (Elliott & Busse, 1991).

Review of SST Generalization. Gresham's review of 70 SST studies (1981) found that only 6% of these studies assessed or demonstrated generalization. The evidence for generalization of the effects to non-training environments was, as stated by Gresham, "severely deficient." In summary, only a small number of the reviewed studies actively trained for generalization of behavior, and subsequently produced a change in behavior in other settings.

DuPaul and Eckert (1994) examined seven empirical studies that assessed the maintenance and generalization of the effects of commercially available social skills training programs. Procedures used to contribute to generalization in SST were reviewed. The most frequently used (yet most ineffective) procedure in the literature is known as the "train and hope" modality. This method provides no active strategies to promote the use of behaviors outside the training environment. DuPaul and Eckert found that training programs that altered consequences in the natural environment led to the most significant effects in generalization and maintenance (DuPaul & Eckert, 1994; Lewis & Sugai, 1993). Teachers of students in SST were trained to ignore the students' unwanted behavior, while positively reinforcing prosocial behavior. The combination of SST and alteration of consequences in the natural environment was most effective. The results of the review also suggested that using multiple techniques to promote generalization had the most significant gains from treatment (DuPaul & Eckert, 1994).

A more recent review of reviews suggested that SST resulted in only modest behavior changes, again with the lack of generalization as the major problem (Maag, 2006). This review synthesized the results of 13 narrative, meta analytic, and quantitative reviews and found that

researchers continue to leave out intervention components that are likely to enhance efficacy and generalization. In summary, most reviews support the moderate effectiveness of SST, and particularly for those using procedures based on operant conditioning. However, treatment effects are often short-term and may not generalize to other settings or behaviors unless specific generalization strategies are used.

Maag (2006) suggested the following helpful components to increase generalization. The first strategy is to select socially valid behaviors or skills that will enhance the quality of students' lives, so that they recognize the significance of using the skills in everyday life. It was also recommended that interventions be designed in consideration of functional assessment findings. Lastly, students should be taught appropriate replacement behaviors that serve the same function as their problem behaviors in order to promote generalization. If a replacement behavior results in immediate and salient reinforcement in the natural environment, the frequency of the behavior will increase in that environment (Gresham & Elliott, 1991).

From a meta-analytic perspective, SST is effective but still has limitations, particularly in the area of generalization (Gresham, 1981; Maag, 2006). There are a number of reasons social skills may fail to generalize (DuPaul & Eckert, 1994; Maag, 2006). In selected interventions, students are often removed from their classroom into a setting with unfamiliar stimuli. This has led to success in getting behavior to occur in that particular setting, but leads to problems for broadening the skills back to the classroom.

Teachers as Generalization Facilitators

Teachers and other significant adults can be trained to enhance the effects of SST by prompting the use of target behaviors, providing feedback and praising appropriate skills (Han, Catron, Weiss, & Marciel, 2005). This can promote the use of skills outside of training sessions

by reducing the risk that attempts to use the skill are ignored. Frequently, students are pulled from their classroom to attend SST by a school counselor or school psychologist, and that is the extent to which their teacher is informed of the treatment. Many teachers are not informed of the specific skills being taught, and have no way of attempting to incorporate those skills in their class (Gresham, 1998; Lewis & Sugai, 1993). Training teachers to provide direct instruction, prompts, and reinforcement for social skills would increase the effectiveness of SST by directly training for generalization. Multiple studies have documented that the most intense generalization strategies provided directly in the classroom are the most effective (DuPaul & Eckert, 1994; Gresham & Elliott, 1993; Sheridan & Elliott, 1991).

Colton and Sheridan (1998) demonstrated the use of SST delivered in the context of conjoint behavioral consultation (CBC) with teachers and parents to improve cooperative play behaviors of 3 boys with ADHD. Using a multiple-baseline across participants design, treatment components of the SST included coaching and role-play, self-monitoring, home-school notes, and positive reinforcement. Parents' and teachers' treatment acceptability, treatment integrity, a social comparison procedure, and subjective evaluations from rating scales were used to assess social validity. Data from direct observations revealed increases in positive cooperative interactions with peers, and pre- and post-intervention ratings on the Social Skills Rating System (Gresham & Elliott, 1990) revealed positive changes. Treatment acceptability, treatment integrity, and social validity measures also showed positive results. Teachers reported that the procedures were acceptable (on a 6-point Likert scale: total mean item score = 4.93). For social validity, social comparison observations revealed that all children increased their positive interactions to a point that approached those of typical comparison peers in the classroom. Subjective evaluations from SSRS data revealed that teachers' ratings increased from the "below

average” range to “average” range post-treatment. A limitation of this study was its inability to distinguish effects of the two intervention components: CBC and SST.

Behavior patterns develop through reinforcing contingencies, or consequences that maintain or increase the probability of a behavior. The teacher has control over contingencies that affect student behavior, and therefore has the potential to change a behavior by eliminating reinforcement for inappropriate behaviors or providing reinforcement for appropriate behaviors.

Teacher acceptability. The majority of social skills interventions and other behavior interventions exclusively measure treatment effectiveness. Intervention effectiveness is undoubtedly important, but there are a number of factors that contribute to effectiveness in applied settings (Witt & Elliott, 1982). Often, interventions are successful when implemented by researchers, but when teachers and school personnel are left as the sole implementers, treatment integrity diminishes. This could result from the level of difficulty, resources required, or teachers’ perception of the intervention. Treatment acceptability refers to perceptions of “whether a treatment is appropriate for a given problem, whether it is fair, reasonable, or intrusive, and whether the treatment is consistent with conventional notions of what a treatment should be” (Kazdin, 1980).

Witt and Elliott (1985) summarized the results of behavioral intervention acceptability research and made several conclusions: (a) There was significant variability in acceptability ratings, (b) the severity of the behavior affects treatment acceptability, positive behavioral interventions (e.g., positive reinforcement, token economies) are perceived as more acceptable than reductive interventions, and (e) more demanding interventions received lower acceptability ratings (Harris, Preller, & Graham, 1999).

Witt and Elliott (1985) identified positive correlations between the four features of treatment acceptability, treatment use, treatment integrity, and treatment effectiveness. According to these authors, treatment acceptability is the most imperative issue in treatment selection and use. Highly acceptable treatments are more likely to be implemented compared to less acceptable treatments. The use and effectiveness of treatments are determined by the integrity with which they are implemented (Gresham & Lopez, 1996; Gresham, Cook, Crews, 2004). Teachers have limited time and resources to implement intensive social skills interventions and often are unable to sacrifice their instructional time to use towards direct instruction of social skills. When teachers are asked to implement a time consuming intervention, they are less likely to carry out the intervention with integrity. As a result, reinforcement will be inconsistent, and behavior change will be delayed (Gross & Wojnilower, 1984).

Purpose

There have been no studies to date experimentally comparing generalization procedures for SST in the classroom. Therefore, the present study investigated the effectiveness and acceptability of individual teacher-implemented behavioral procedures for 2nd grade students referred to SST for disruptive behavior. The authors used an alternating treatments design to compare SST alone to three generalization procedures (visual prompts, verbal prompts, and contingent reinforcement for demonstration of social skills). The purpose of this study was to determine the treatment condition that results in the most significant behavior change in the classroom, and is rated acceptably by teachers. Specific research questions include:

(a) Which treatment phase will result in the largest decrease in disruptive classroom behavior?

(b) Will the overall treatment package produce clinically significant changes in teacher ratings on the SESBI-R and SSiS?

(c) Which treatment phase will teachers rate as most acceptable on the IRP-15?

CHAPTER II: METHOD

Participants and Setting

Participants. Four male students in 2nd grade referred by their teachers for disruptive behavior were considered for participation in the study. To recruit participants, the primary investigator contacted the principal of a local elementary school in the southeastern United States to provide information on the program. Students were enrolled if they met the clinically significant criteria (*T* score of 60 or higher) on the Sutter-Eyberg Student Behavior Inventory-Revised (SESBI-R) rating scale, a measure of teacher perception of oppositional behavior in the classroom (Eyberg, Sutter, & Pincus, 1999) and the Social Skills Improvement System (SSiS; Gresham & Elliott, 2008) to confirm a deficit in social skills. Individuals with developmental and intellectual disabilities were excluded from the study.

Each student was referred by his classroom teacher for excessive disruptive behavior and difficulties with social skills. Three participants (Eric, Kyle, Kenny) were African American and the fourth (Stan) was Caucasian (ages 7 and 8). Eric and Kenny were receiving special education services under the category of serious emotional disability at the time of treatment. Stan had recently moved from another school district where he previously received services for speech or language impairment, but did not qualify for services in this district. Consent was granted from the students' parents and teachers who implemented interventions in the classroom.

Setting. SST took place in either the school psychologist's office or conference room at a southeastern elementary school. Graduate research assistants were present during sessions. The rooms represented an analogue setting with one large table and chairs for each student. Data collection took place in this room during sessions in addition to the students' regular classrooms.

Materials

The *Skillstreaming the Elementary School Child* curriculum (McGinnis, 2012) was used to conduct SST. Skillstreaming was chosen for its use of evidence-based procedures including modeling, role-playing, performance feedback, and generalization training described previously. This version of the program is appropriate for students in grades 2 through 5. Skillstreaming has been effectively used to systematically teach social skills to students with various problem behaviors including aggression, withdrawal, and disruptive behavior. This program aims to teach prosocial skills not only so they are learned, but also so they are performed in a variety of settings and for a lasting period of time (McGinnis, 2012).

Rating scales. Teachers completed two behavior rating scales throughout the duration of this study: Sutter-Eyberg Student Behavior Inventory (SESBI-R; Eyberg, Sutter, & Pincus, 1999), and Social Skills Improvement System (SSiS; Gresham & Elliott, 2008). Teacher ratings from the SSiS were used to provide a comprehensive sample of each child's social skills, whereas the SESBI-R provided information on externalizing behavior problems. Upon conclusion of each treatment phase, teachers also completed the Intervention Rating Profile (IRP-15; Martens, Witt, Elliott, & Darveaux, 1985) as a measure of general acceptability of each treatment component.

Social Skills Improvement System. The teacher form of the Social Skills Improvement System (SSiS) was administered to provide a representation of social skills at school (Gresham & Elliott, 2008). This measure is appropriate for children ages 3 through 18 and takes approximately 10 to 25 minutes to complete. The SSiS includes three scales: Social Skills, Competing Problem Behaviors, and Academic Competence. The Social Skills subscales include communication, cooperation, assertion, responsibility, empathy, engagement, and self-control. Competing Problem Behaviors include the following subscales: externalizing, bullying,

hyperactivity/inattention, internalizing, and autism spectrum. Academic Competence measures reading achievement, math achievement, and motivation to learn, according to teacher report (Gresham & Elliott, 2008).

The SSiS rating scale was normed with a sample of 4,700 students (3 to 18-year-olds), representative of the 2006 U.S. Census data for age, gender, ethnicity, geographic region, and educational diagnosis (Gresham & Elliott, 2008). Coefficient alphas for the Social Skills Scale ranged from .83 to .97 on the Teacher form and .72 to .95 on the Student form. Coefficient alphas for the Problem Behaviors Scale ranged from .75 to .96 for the Teacher form, from .76 to .95 for the Parent form, and from .79 to .95 for the Student form. Internal consistency of the Academic Competence Scale ranged from .93 to .97 across age groups. The test-retest reliability of the SSIS Rating Scales was also adequate, with intervals from 2 to 89 days. For the Teacher form, median adjusted correlations were .83 across 43-day intervals and the Student form demonstrated median adjusted correlations of .79 across 66-day intervals. For inter-rater reliability, correlations for the standard scores between two independent teacher raters ranged from .61 to .68 (Gresham & Elliott, 2008).

Sutter-Eyberg Student Behavior Inventory – Revised. The SESBI-R is a teacher-report measure of conduct problems for children ages 2-16 (Eyberg & Pincus, 1999). Administration time is approximately five minutes. This scale includes two subscales: *Intensity*, which measures frequency of problem behaviors at school on a 7-point Likert scale (1 = never, 7 = always), and *Problem (Yes/No)* that assesses the degree to which the teacher finds the behavior problematic. *T* scores greater than or equal to 60 are considered clinically significant. This assessment was normed with a sample of 1,526 parents at five outpatient pediatric clinics in northwest United States (Eyberg, Sutter, & Pincus, 1999). Internal consistency reliability (Cronbach's alpha) was

.98 for the Intensity scale and .96 for the Problem Scale. Test-retest reliability was .87 for the Intensity scale and .93 for the Problem scale, and inter-rater reliability for the Intensity scale was .85 to .86, and .84 to .87 for the Problem scale (Burns & Owen, 1990). Predictive validity correlations between SESBI-R scores and both the number of school suspensions and the number of referrals to the school principal for conduct problems were .26 to .39 one year later and .21 to .36 two years later, respectively (Funderburk & Eyberg, 1989).

Intervention Rating Profile – 15. Teachers' acceptability of interventions was assessed using the total score on the Intervention Rating Profile for Teachers (IRP-15; Witt, Martens, & Elliott, 1984). This was completed by each teacher once for each treatment condition. The IRP-15 consists of 15 statements that address various aspects of intervention acceptability (e.g., "I would suggest the use of this intervention to other teachers"). Teachers were instructed to respond to the statements by indicating their level of agreement or disagreement with each item on a 6-point Likert-type scale. Higher scores are associated with more acceptable interventions. A principal components factor analysis of the IRP-15 yielded one primary factor with item loadings rating from .82 to .95. Overall reliability of the IRP-15 using Cronbach's alpha was .98 (Martens, Witt, Elliott, & Darveaux, 1985).

Dependent Variables

Systematic direct observation. Informal observations were conducted during SST session to assess treatment integrity. Trained graduate students also conducted direct observations in the classroom. These were scheduled ahead of time with teachers to ensure an appropriate time of day so that students had opportunities to display target behaviors. Observers used a 10-second partial-interval recording form to measure the frequency of disruptive and appropriate behaviors displayed by students (Appendix A).

Two trained graduate students conducted all classroom observations coding for specific student and teacher behaviors. Disruptive behavior was the primary dependent variable, broadly defined as the class of behaviors that interferes with instruction or classroom activities. Disruptive behavior was further coded into four behaviors. *Noncompliance* was defined as failure to initiate a response within 5 seconds after a teacher demand. *Inappropriate verbalizations* included any vocalization (i.e., talking to peers, teacher, or oneself, or making any noise from mouth) without permission from the teacher. *Aggression* was defined as any negative social interactions with peers or teacher (e.g., arguing, name calling, yelling), or any physical contact without permission (e.g., poking, pushing, hitting). *Fidgeting* was defined as any movement that was peripheral or nonessential to ongoing focal tasks or events, including manipulation of one's own body parts (e.g., finger tapping, skin picking, out of seat) or another object (e.g., playing with pencil or other items on desk).

The primary dependent variable was the percentage of intervals in which disruptive behavior occurred. Each disruptive variable was not mutually exclusive, so that if a student was walking around without permission and talking to a peer, this would be coded as both fidgeting and inappropriate verbalization. However, this would not be counted as more than one occurrence of disruptive behavior if it occurred in the same interval, because the DV was the percentage of intervals in which disruptive behavior occurred at any time during that interval. This was calculated by dividing the number of 10-second intervals in each 10-minute observation session, and multiplying the number obtained by 100%.

Direct observations were also used to assess teachers' treatment integrity during alternating treatment phases. Graduate students used the same 10-second partial-interval recording procedure to monitor the frequency of teachers' use of prompting and contingent

reinforcement. Observations occurred multiple times per week over 10-minute periods, and a minimum of 3 data points was collected in each phase.

Procedures

The following sections outline the specific procedures that were used prior to, during, and after the study was conducted.

Pre-treatment. Participants were referred by their regular classroom teacher. Parents consent documents were sent home with students to be signed by a parent/guardian. These forms explained the procedures, time frame, and potential risks and benefits associated with participation. Student participants were informed of the procedures and assent was granted prior to the study as well.

Observer training. Graduate students assisting with the study were trained by the primary investigator and tested on their knowledge prior to the beginning of SST sessions. They attended two training sessions on procedures for conducting direct observations. These sessions consisted of direct instruction on target behaviors and procedures, and practice using videotapes of students displaying similar behaviors. Interobserver agreement (IOA) was required to be at least 90% before conducting the observations. Throughout the study, IOA was randomly calculated 50% of observation sessions. If IOA fell below 90%, retraining was to occur until the criterion was met.

Graduate assistants were also trained to conduct SST and teacher training sessions. Research assistants were required to make a 90% or above on a fill-in-the-blank written test to participate in the study. Both students scored 100%. Throughout the study, treatment integrity checklists were completed by the leader during each SST session. An independent observer

checked for treatment integrity 33% of sessions. If the trainer were to fall below the criterion at any point during the study, retraining would occur until they met criterion.

Preference assessment. Students completed preference assessments to determine a hierarchy of preferred rewards for the use of social skills (Fisher et al., 1992). This included a variety of open-ended questions such as, “What is your favorite food or drink?” and questions in choice format such as, “Which would you rather work for: things to eat, like candy or chocolate, or play computer games?” (Fisher et al., 1992; Northup, George, Jones, Broussard, & Vollmer, 1996). Items were coded as teacher attention (e.g., praise), peer attention (e.g., sitting next to friend), escape from academic tasks (e.g., computer time, homework pass), or tangible (e.g., candy, points on classroom behavior management system). Informal interviews with teachers were used to corroborate results from these assessments, and all rewards were pre-approved by teachers. Three participants endorsed teacher attention as the most preferred stimulus, and one participant’s results were mixed with teacher attention, escape (computer time), and tangible (classroom token economy).

Baseline. The participants were observed three to five times in the classroom in 10-minute intervals to determine a baseline level of disruptive behavior. Observations were scheduled during a period of classroom activity that involved interaction between the participant and peers or teacher. During baseline, teachers completed the SESBI-R and SSiS rating scales for each student.

Social skills training. The primary investigator led eight one-hour sessions of SST, once or twice per week. SST continued throughout the study while data was collected. The Skillstreaming curriculum used the following procedures to actively teach social skills: modeling, role-playing, performance feedback, and generalization training. Each session covered

one new skill at a time using each of these procedures. The topics were covered in the following order: listening, following instructions, asking a question, contributing to discussions, ignoring distractions, avoiding trouble, and accepting consequences. The following sections describe the typical structure of each meeting.

Direct instruction and modeling. At the start of each session, the new skill was introduced and defined to the students by leading a discussion on it and then checking for understanding. Skills were chosen based on relevance to the students' needs. The instructor modeled the skill and provided at least 2 relevant and developmentally appropriate examples. At the end of a modeling vignette, the instructor asked questions such as "Did I follow the first step?" and "How do you know I did this?" Students were then prompted to elicit specific situations in which the skill would be used.

Behavioral rehearsal. After modeling, all students participated in role-playing each skill. Each role-player would attempt to choose a second actor who most reminded him of someone involved in the real-life situation.

Feedback. Immediately after each student role-played the new skill, the other students and group leader all provided feedback on how well the behavioral steps were followed. Corrective feedback was to be stated in a positive manner, along with social reinforcers such as praise and encouragement.

Generalization. Finally, the children were assigned skill homework to practice the behaviors in their own home and school settings. Homework was checked at the beginning of the following meeting, and students were prompted to comment on how they did and ask any questions. To make sure that each student had mastered the skill from the previous week, the

instructor asked questions reviewing the steps of each skill and appropriate times to use it and provided positive reinforcement.

Alternating Treatments. Throughout the study, teachers implemented a specific behavioral intervention to promote generalization of SST to the classroom. Teacher-implemented treatment conditions were as follows: 1) none (SST only), 2) brief direct instruction and a visual cue with social skills posted (visual prompt), 3) specific verbal prompts to create opportunities to use social skills (verbal prompt), and 4) reinforcement for the use of social skills (contingent reinforcement).

Teacher training. During the first two weeks of SST sessions, teachers were not directly involved with the intervention. Teachers attended brief training sessions that occurred in their classrooms. Teachers attended one training session to learn the appropriate social skills that their students were learning. In this session, the primary investigator provided direct instruction and a handout with examples on the social skills that were to be taught. Each session lasted approximately 30 minutes. Each session included research-based strategies for teacher behavior change, such as explicit instruction, role-play with feedback, error correction, answering questions, and follow up. Each session began with direct instruction using definitions, rationale, and examples of each skill. After teachers receive training, they were provided with performance feedback on each skill and follow-up consultation.

Treatment integrity was assessed 100% of observation sessions during each treatment condition. Teachers were to implement the specified behavioral strategy at least 5 times during the 10-minute session.

Direct instruction and visual prompting. In the first training session, teachers were instructed to visually post the target social skills (e.g., listening, contributing to discussions,

following directions, accepting consequences) on a visible place in their classroom, and provide direct instruction on them with the students (brief 5-minute discussion during class) once. The social skills stayed posted during this treatment phase.

Verbal prompting. Teachers were provided specific prompts to create more opportunities for participants to demonstrate the social skills that have been taught. Teachers could pose questions and prompt students to display the skills, such as engaging in dialogue with their teacher or peers. This did not require teachers to allocate any instructional time to teaching social skills or monitoring students' behavior. Teachers were also instructed not to provide any additional reinforcement for social skills that they would not normally provide to students.

Teacher-delivered prompts are specific cues that provide students with information about the behavior desired in specific situations, especially where problematic behaviors usually occur. These are typically instructional comments that offer cues or hints for the student to produce a behavior. A teacher may prompt students to raise their hands by raising his or her hand and saying, "Remember how to get my attention appropriately during a lesson" (an indirect verbal statement). Another example of a verbal prompt would be "Do you remember the first step for asking a question?" If the student says "no," then a secondary prompt may be necessary explaining the first step: "The first step is to decide what you need to ask." Verbal prompts must be presented before the appropriate behavior is displayed (rather than after), and teachers were to specify the desired social skill. Teachers were to deliver verbal prompts when there was an opportunity for the student to display one of the behaviors taught in Skillstreaming, rather than following inappropriate behavior, to ensure that prompting did not serve as reinforcement for inappropriate behavior.

Contingent reinforcement. The third alternating condition was the use of specific reinforcement strategies following the demonstration of social skills. Reinforcers were chosen from each student's preference assessment, and consisted of simple, quick rewards. These may include tangible reinforcers, positive attention, or access to escape or avoidance of tasks. Tangible reinforcers may include items such as stickers, points, or candy. Reinforcers that provide access to escape from academic tasks included homework passes or computer time. Positive attention consists of specific feedback from the teacher such as "You paid great attention" or "You did a great job completing that assignment". Teachers were taught how to consistently use the selected reinforcers.

Post-treatment. Treatment acceptability was assessed by the IRP-15 immediately after the third phase in which they implemented the strategy. Posttest data on student behavior was collected from teachers through the SESBI-R and SSiS within a week after the last SST session.

Design

An alternating treatments design was used to demonstrate the most effective generalization component. Conditions included (A) baseline, (B) SST alone, (C) direct instruction/visual cue, (D) specific prompting, (E) contingent reinforcement, (F) withdrawal, and (G) verification phase. Conditions C, D, and E were implemented in a counterbalanced fashion among participants to diminish order effects. The order of conditions was chosen by a random number generator with the numbers 1 through 3 to represent each condition. A minimum of 3 data points per treatment condition was collected. Following the alternation of treatment, a brief withdrawal phase was implemented (F) where the classroom teacher was instructed to remove all prompting and reinforcement that was provided as a part of the present study. Lastly, a

verification phase was implemented with the treatment that was most effective during the alternating treatment phase in order to confirm treatment effects.

Data analysis. Results are reported separately for each participant. Two methods were used to evaluate treatment effects. First, visual inspection of changes in level, trend, and variability of behavior was used to analyze the data. Scores are graphically displayed to aid visual interpretation of changes between treatment conditions. This permitted magnitude of changes in performance to be assessed over repeated measures and examine change in performance from baseline to intervention phases.

Effect sizes were calculated using the Busk & Serlin (1992) standardized mean difference (SMD) approach that makes no distributional assumptions. This method employs data from the mean performance during baseline and mean performance during each intervention (Olive and Smith, 2005). SMD was calculated by subtracting the treatment mean from the baseline mean, and dividing that by the standard deviation of the baseline mean. Twelve effect sizes were computed to compare to each other (Table 2). Pre- and post-intervention differences between rating scales were measured as well to determine the extent to which treatment generalized according to teacher-completed rating scales (Tables 3 and 4). Finally, treatment acceptability was evaluated by comparing the sums of item responses on the IRP-15 to determine the most accepted level of teacher involvement.

Interobserver agreement and treatment integrity. After observer training, average IOA was 96% across three consecutive training trials before data collection began. During the study, IOA was assessed for approximately 50% of observations in each condition. IOA was calculated by dividing the number of agreements by the number of agreements plus disagreements and multiplying that number by 100. Mean IOA during the study was 93%. To

ensure independent observation, observers did not sit next to each other and filled out separate forms. To ensure the integrity of data entry, the two individuals independently calculated observation data and then switched, and the percentage of agreement was calculated by comparing answers on observation forms. Mean agreement was 92.5% (range, 90% to 95%) for Eric, 98% (range, 96% to 100%) for Stan, 90% (range, 87% to 96%) for Kyle, and 93.5% for Kenny (range, 87% to 100%). IOA across phases is displayed in Table 1.

Table 1

Interobserver agreement across participants and phases

Name	Baseline	SST Only	Visual Prompting	Verbal Prompting	Contingent Reinforcement
Kenny			87	100	
Kyle	88	87	96	90	
Stan	96				100
Eric		90			95
Mean:	92	88.5	91.5	95	97.5

Treatment integrity checklists were completed at the conclusion of each SST session by the leader and by an independent observer 33% of sessions (IOA = 100%). Thirty items assessed whether or not the leader completed each step involved in teaching the social skills and whether or not the participants completed each step in learning the skills. These data were also used to ensure that each skill had been mastered by the participants. On average, 28.5 out of the 30 skill steps and activities (95%) were completed each session. Treatment integrity for each SST session is provided in Table 2.

Table 2

Treatment integrity of SST

Session	Leader	Observer
1	97	
2	93	
3	100	100
4	93	
5	93	93
6	97	97
7	97	
8	90	

Note. Numbers are percentages.

CHAPTER III: RESULTS

Disruptive Behavior across Treatments

During baseline, the level of disruptive behavior for each student was relatively high ($M = 56.17\%$, $SD = 10.51$). Table 3 shows the average percentage of intervals in which the students engaged in disruptive behavior during the initial baseline phase. Visual analysis of the data indicated that the contingent reinforcement phase was associated with the largest decrease in disruptive behavior. Effect sizes of contingent reinforcement for each participant range from 2.75 to 5.72 ($M = 3.92$) relative to baseline, and are provided in Table 4.

Table 3

Mean percentage of behaviors at baseline

Student Name	Total Disruptive	IV	FG	NC	AG
Kenny	66.67	9	54.5	2.25	0
Kyle	56.75	28.2	21.4	8.8	0
Stan	41.24	12.6	25.8	2.8	2
Eric	60	10.75	40	3.75	14
Mean:	56.17	15.14	35.43	4.4	4

Note. IV = inappropriate verbalization, NC = noncompliance, FG = fidgeting, AG = aggression

Table 4

SMD effect sizes relative to baseline

Student Name	SST alone	Visual Prompt	Verbal Prompt	Reinforcement
Kenny	-0.22	0.30	4.21	5.72
Kyle	-0.88	0.30	0.65	2.75
Stan	0.04	-0.54	-1.09	3.87
Eric	1.23	0.94	1.74	3.42
Mean:	0.04	0.25	1.38	3.92

Note. Negative effect sizes indicate an increase in disruptive behavior from baseline.

The most frequently displayed disruptive behavior was fidgeting ($M = 35.43$ in baseline), with the exception of Kyle who engaged in inappropriate verbalizations most frequently. Only two students displayed any aggressive behavior during baseline sessions. During the alternating treatments phase, the level of disruptive behavior was roughly equivalent for SST alone and

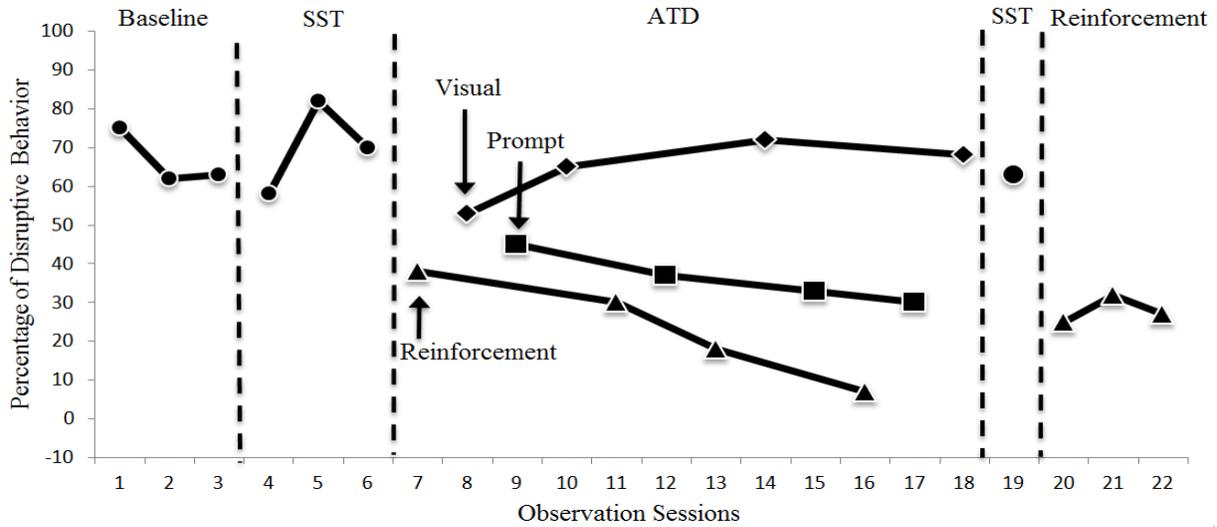
visual prompting phases ($d = 0.04$ and 0.25 , respectively) on average across participants. There was a consistent increasing trend after the second data point among participants in the verbal prompting condition ($d = 1.38$). With contingent reinforcement, there was an immediate decrease in level of disruptive behavior ($d = 3.92$) with no increasing or decreasing trend.

Kenny. Across all baseline sessions, Kenny engaged in disruptive behavior an average of 66.67% of observation sessions. Further coding of disruptive behavior into four categories revealed that Kenny exhibited fidgety behavior (FG) most frequently ($M = 59.5\%$). All other types of disruptive behavior during baseline occurred at a lower frequency (IV = 6%, NC = 1%, AG = 0%).

As demonstrated in Figure 1, both the SST alone and visual prompting conditions were associated with frequencies similar to baseline. Interestingly, Kenny's percentage of disruptive behavior increased slightly ($M = 68.25\%$) during the SST Alone condition and inappropriate verbalizations increased (FG = 48%, IV = 18%, NC = 1%, AG = 0%). Level of disruptive behavior visibly decreased in both verbal prompting and contingent reinforcement conditions ($M = 36.25\%$ and 25.29% , respectively). A decreasing trend for disruptive behavior in the verbal prompting condition is evident after the second data point. Verbal prompting resulted in a particularly large decrease of fidgeting ($M = 18\%$) with a slight decrease in inappropriate verbalizations ($M = 16\%$). Both conditions resulted in clearly differentiated rates of behavior from the other conditions, with contingent reinforcement associated with the greatest reduction in disruptive behavior ($d = 5.72$). Kenny displayed noncompliant or aggressive behavior less than 1% of intervals. Fidgeting and inappropriate verbalizations decreased to 15% and 10%, respectively. Kenny's disruptive behavior immediately increased to baseline levels (63%) when his classroom teacher withdrew all SST generalization strategies. Upon reimplementation of

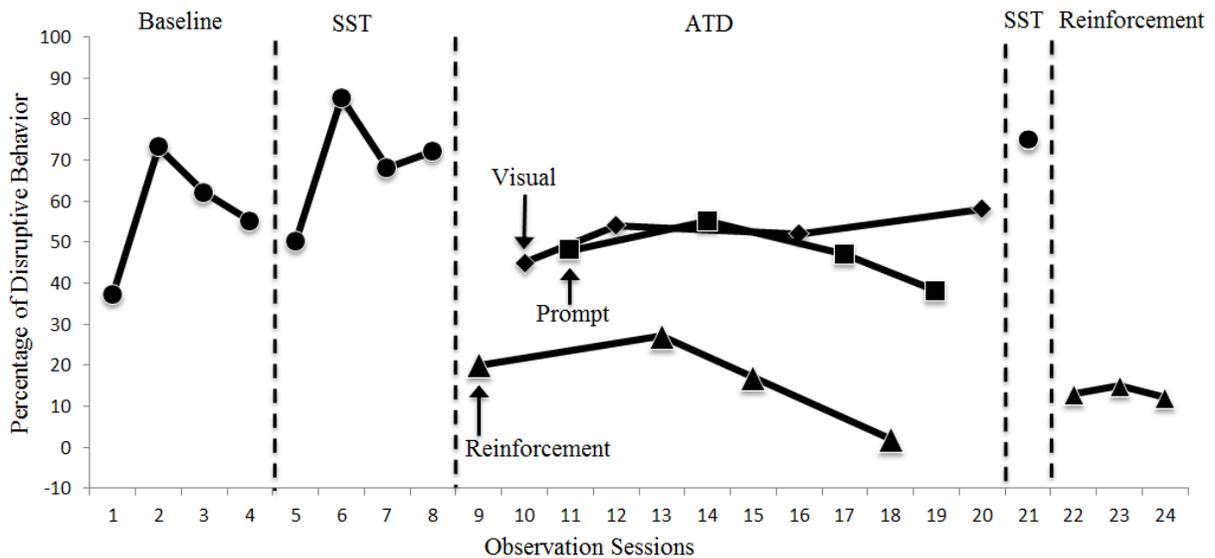
contingent reinforcement, disruptive behavior decreased to 28%. Effect sizes for each condition are reported in Table 4.

Figure 1. Kenny



Kyle. Kyle displayed similar results to Kenny. During the baseline phase, Kyle exhibited an average of 56.75% of disruptive behavior (FG = 18%, IV = 27%, NC = 9%, AG = 0%). This participant exhibited slightly higher levels of disruptive behavior during the SST alone condition ($M = 70\%$), but behavior in both conditions demonstrated considerable variability (range 37% to 73% and 50% to 85%, respectively). Visual prompting and verbal prompting conditions resulted in only slightly lower levels of disruptive behavior ($M = 52.25\%$ and 47%, respectively) but relatively stable. The contingent reinforcement condition resulted in the only markedly lower level of disruptive behavior ($M = 15.14\%$). Inappropriate verbalizations fell from 27% to 5% and noncompliance fell from 9% to below 1% (FG = 11%, AG = 0%). Upon withdrawal of teacher-implemented treatment, disruptive behavior exceeded baseline levels at 75%. The reimplementing of the most effective treatment resulted in an immediate decrease ($M = 13\%$), verifying the effects of teacher-implemented contingent reinforcement. Figure 2 displays the percentages of Kyle’s disruptive behavior across phases.

Figure 2. Kyle

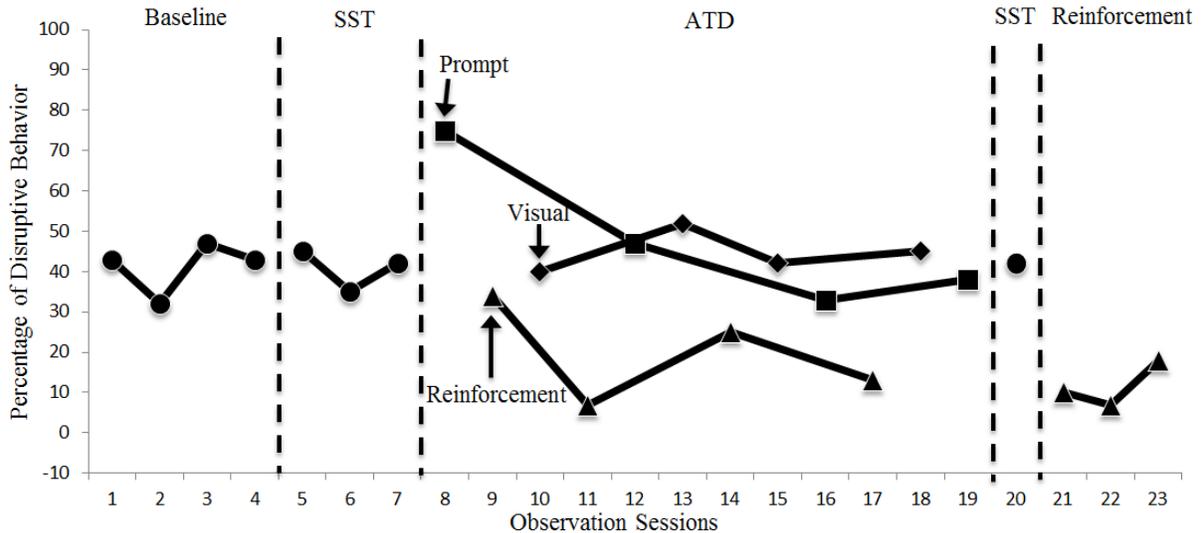


Stan. Figure 3 presents Stan's results. Baseline, SST only, visual, and verbal prompting conditions are undifferentiated, whereas reinforcement shows visibly lower levels of disruptive behavior. Across both baseline and SST alone phases, Stan exhibited an average of 41% disruptive behavior during observation sessions. During visual and verbal prompting conditions, Stan exhibited slightly higher average levels of disruptive behavior ($M = 44.75\%$ and 48.15% , respectively). However, Stan's classroom teacher reported that prior to session 8 (verbal prompting), Stan received a discipline referral for inappropriate vocalizations in the hallway. Stan exhibited the highest rates of disruptive behavior during this session, specifically, his highest rates of noncompliance, aggression, and inappropriate verbalizations. Excluding this session, data suggested that the use of verbal prompting did not result in a significant change in behavior. Upon withdrawal of teacher-implemented treatment, disruptive behavior returned to baseline levels at 42%. The reimplementation of contingent reinforcement resulted in an immediate decrease ($M = 12\%$) in disruptive behavior.

During baseline, Stan most frequently engaged in fidgeting, followed by inappropriate verbalizations (FG = 26%, IV = 11.5%, NC = 3.5%, AG = <1%). Contingent reinforcement

resulted in decreases in each type of disruptive behavior (FG = 10.5%, IV = 5%, NC = <1%, AG = 0%). Figure 3 shows some variability with contingent reinforcement, but minimal overlap with other conditions, resulting in the largest decrease in disruptive behavior ($d = 3.87$).

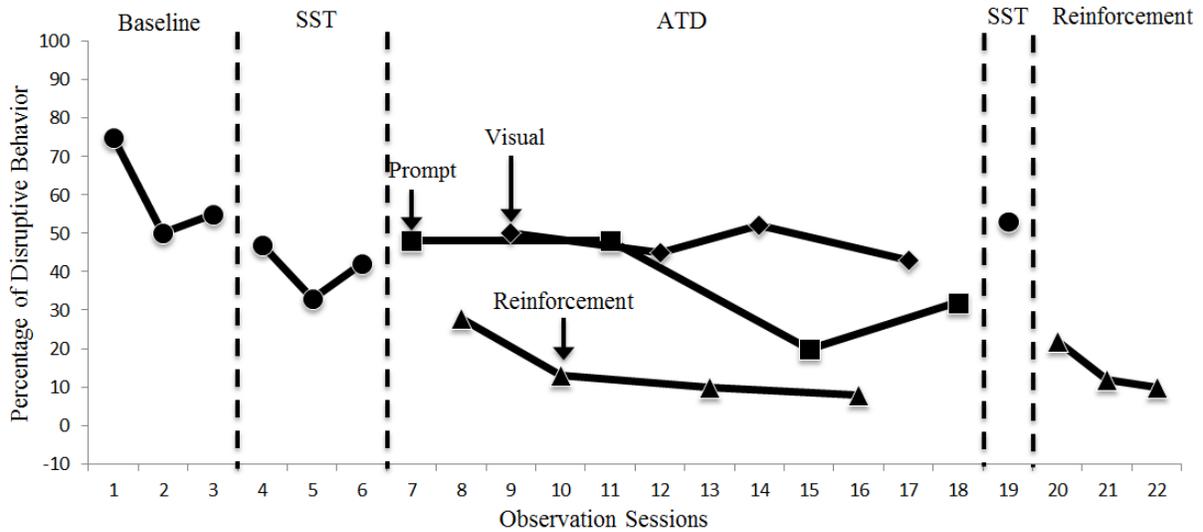
Figure 3. Stan



Eric. Eric engaged in disruptive behavior for an average of 60% of observation sessions during baseline (FG = 43%, IV = 11%, NC = 4%, AG = 3%), which decreased to 43.75% in SST only. As demonstrated in Figure 4, both the visual and verbal prompting conditions ($M = 47.5%$ and 37%, respectively) were associated with disruptive behavior rates similar to SST only. Disruptive behavior decreased most significantly in the contingent reinforcement condition ($M = 14.71%$, $d = 3.42$, FG = 8%, IV = 6%, NC = <1%, AG = 0%). Effect sizes for each condition are reported in Table 4. Eric exhibited aggressive behavior during 14 observation sessions during baseline, which was completely eliminated in the reinforcement condition. Eric's behavior during baseline showed some variability, but upon withdrawal of generalization procedures, disruptive behavior returned to 53%. Reimplementation of contingent reinforcement resulted in an immediate decrease ($M = 14.7$). Disruptive behavior in contingent reinforcement was

relatively stable overall with a slight decreasing trend both during the alternating treatments phase and verification phase.

Figure 4. Eric



Pre-Post Measures

The entire treatment package resulted in a slight improvement in social skills and conduct problems according to rating scales. Participants’ average pretest score on the SSiS Social Skills scale was 79, which falls in the below average range compared to same-age peers. The average posttest score increased to 82.25, ranging from 0 to 6 points ($M = 3.25$). Tables 5 and 6 display all participants’ pre- and post-scores on the SSiS and SESBI-R, respectively.

Table 5

Pre- and posttest scores on SSiS

Student Name	Pretest Score	Posttest Score	Difference
Kenny	*84	*84	0
Kyle	*72	*78	6
Stan	*82	87	5
Eric	*78	*80	2
Mean:	*79	*82.25	3.25

* = “Below average” range

** = “Well below average” range

Pretest score on the SESBI-R all fell in the clinically significant range compared to same-age peers ($M = 69$). Three out of four participants' scores on this measure of conduct problems decreased, ranging from 4 to 14 points ($M = 4$), indicating the treatment resulted in a slight decrease in behavior problems. However, ratings for one participant, Stan, indicated that his conduct problems increased by 7 points on the SESBI-R.

Table 6

Pre- and posttest scores on SESBI-R

Student Name	Pretest Score	Posttest Score	Difference
Kenny	*64	59	5
Kyle	*67	*63	4
Stan	*68	*75	-7
Eric	*77	*63	14
Mean:	*69	*65	4

Note. Negative effect sizes indicate an increase in conduct problems from pretest.

* = "Clinically significant" range

Treatment Acceptability

Teachers rated all treatment conditions as acceptable on the IRP-15. Acceptability ratings for visual prompting ($M = 67.5$) and verbal prompting ($M = 77$) were lowest. Contingent reinforcement was rated highest ($M = 88.5$). The maximum score that a teacher could rate an intervention was 90, and scores higher than 52.5 indicated acceptable ratings (Martens, Witt, Elliott, & Darveaux, 1985). Results from each teacher are presented in Table 7.

Table 7

Teacher acceptability ratings on the IRB-15

Teacher Student	Teacher 1 Kenny & Kyle	Teacher 2 Stan & Eric	Mean
Visual Prompting	59	76	67.5
Verbal Prompting	70	88	77
Contingent Reinforcement	88	89	88.5

Note. Scores > 52.5 indicate acceptable

CHAPTER IV: DISCUSSION

Several reviews have recommended the inclusion of generalization training in SST (DuPaul & Eckert, 1994; Gresham, 1981; Gresham, Cook, & Crews, 2004; Maag, 2006), but no studies to date have independently evaluated the use of behavioral procedures in the non-training environment for generalization. The purpose of this study was to identify the most effective generalization procedure for reducing disruptive behavior in the classroom. The alternating treatments design with withdrawal and verification phase indicated that both verbal prompting and contingent reinforcement resulted in reduced disruptive behavior, but contingent reinforcement had the largest and most consistent effect. These results also suggest the limited effectiveness of visual prompting in the form of posting classroom rules while students were receiving SST. This study also evaluated the entire SST program with teacher-implemented generalization procedures via two rating scales measuring prosocial skills and conduct problems, which demonstrated slight improvement overall. Finally, teachers evaluated the acceptability of each procedure on the IRP-15 (Witt, Martens, & Elliott, 1984), rating contingent reinforcement as most acceptable.

Research Question 1: Which treatment phase will result in the largest decrease in disruptive behavior?

Disruptive behavior during baseline occurred over 50% of intervals for Kyle, Kenny, and Eric. The present study indicated that contingent reinforcement was the most effective treatment for each participant. All four participants' levels of disruptive behavior increased to baseline levels when alternating treatments were withdrawn, and subsequently returned to low levels in the verification phase for contingent reinforcement.

Verbal prompting was somewhat effective for three participants, Kenny, Kyle, and Eric, but effects were delayed and smaller. All four students' high rates of disruptive behavior during SST alone and visual prompting indicate that both strategies are of limited effectiveness for transferring behavior across settings even in combination. Following removal of all teacher-implemented generalization procedures (although SST was still being implemented), disruptive behavior immediately returned to baseline levels. Because contingent reinforcement was the most effective for each participant during the alternating treatments phase, this was re-implemented for each student in the verification phase. The immediate decrease in disruptive behavior verifies that contingent reinforcement in the form of teacher attention produced the behavior change of the students in this study. This study extended upon findings that SST does not generalize across settings unless similar reinforcing contingencies are implemented in non-training settings (DuPaul & Eckert, 1994; Scheider & Byrne, 1985).

Overall, contingent reinforcement reduced each type of disruptive behavior. Aggressive behavior had a low base rate and was completely eliminated in the reinforcement phase, and inappropriate verbalizations and noncompliance were almost completely eliminated. These three behaviors are arguably the most disruptive to the classroom environment, although fidgeting was reduced as well. These findings consistently demonstrate that contingent reinforcement can be effectively used to promote the generalization of SST outside of the training context. This finding was expected due to previous research on operant procedures (DuPaul & Eckert, 1994) although it was also expected that SST alone would have at least a small effect on behavior due to discriminative stimulus effects of the presence of the social skills trainer in the classroom, who was the primary observer.

Research Question 2: Will the treatment package produce clinically significant changes in teacher ratings on the SESBI-R and SSiS?

Three out of the four participants demonstrated improvements on both rating scales after treatment in terms of a reduction in conduct problems and improvements in social skills. However, most participants' scores remained in the clinically significant or below average ranges. The SSiS and SESBI-R both have demonstrated the ability to measure intervention effectiveness (Eyberg & Ross, 1978), but typically over a period of more than two months. These measures may not be sensitive in detecting intervention effects over shorter time periods (Gresham, Cook, & Crews, 2004; Kazdin, 1992). The time from pre- to posttest in the present study was only 6 weeks. Direct observations demonstrated a significant amount of behavior change, which should not be overlooked by only utilizing results from rating scales measures.

The relatively small improvement measured by rating scales could be due to the close proximity of pre- and post- administrations, reflecting the students' behavior over *more* than the prior month in which the treatment package was implemented. Students' scores may have increased more if the most effective treatment had continued. Additionally, the use of pre- and posttest scores on these rating scales may not be appropriate for this particular design, in which the intention was to produce variable behavior over the course of the study through the implementation of different treatment components including the withdrawal phase implemented one week before the posttest administration.

Research Question 3: Which treatment will teachers rate as most acceptable?

Both teachers rated each treatment phase as highly acceptable, with reinforcement rated highest ($M = 88.5$). This contradicts the notion that the most acceptable procedure would be the least intensive (Gross & Wojnlower, 1984; Witt & Martens, 1983), since visual prompting

required less than 5 minutes of teachers' time upon the initial period of direct instruction and no additional time when the poster was present. However, contingent reinforcement required consistent monitoring and response effort from teachers. Instead, the most acceptable procedure in this study was the procedure that was most effective, whereas the least acceptable was the least intensive and least effective. Teachers endorsed that all treatment strategies were appropriate for the problem behaviors and acceptable on the IRB-15.

Treatment acceptability measures were included in this study because highly acceptable treatments may be more likely to be implemented with integrity, and the effectiveness of a treatment is affected by the integrity with which it is implemented (Gresham & Lopez, 1996; Gresham, Cook, & Crews, 2004; Witt & Elliott, 1985). The majority of SST research does not include acceptability measures, making this an area in which little is known (Gresham, Cook, & Crews, 2004). The results of this study are consistent with research on acceptability in that positive or reinforcement-based strategies are generally viewed positively, but this study differs from previous acceptability research indicating that treatments that are complex or time-consuming are less acceptable than simpler or shorter treatments (Gross & Wojnilower, 1984). In this study, the treatment that required the most training and was most time-consuming to implement was rated most highly, and the simplest and least time-consuming was rated lowest. Treatment acceptability was most correlated with the effectiveness of the intervention. This however is consistent with findings from Witt and Elliott (1985) demonstrating a reciprocal relationship between treatment effectiveness and treatment acceptability.

A strength of this study was the strong internal validity of the design to evaluate effectiveness of several commonly used behavioral procedures. This alternating treatments design included a withdrawal and verification phase for the most effective treatment condition.

This was the first study to document the effectiveness of individual components to promote the generalization of SST to the classroom.

This study extended SST reinforcement contingencies to the classroom in order to facilitate generalization beyond the training environment. The results of this study are consistent with previous evaluations of the generalization of SST to the non-training environment without actively programming for generalization (DuPaul & Eckert, 1994). There have been no studies to date attempting to determine the most effective SST generalization procedures by independently manipulating and evaluating different procedures. Therefore, the present study extends previous research reviews by rapidly alternating and evaluating these methods. The results are consistent with SST reviews demonstrating that consequent-based strategies implemented outside of the training environment are effective generalization procedures (DuPaul & Eckert, 1994; Lewis & Sugai, 1993). Beyond the analysis of operant procedures in reducing disruptive behavior in the classroom, this study has important clinical implications for SST. As Gresham and Elliott (1993) discussed, contingencies need to be in place in the non-training environment for behavior to generalize past the training environment. Thus, one approach to SST would be for the social skills “trainer” (e.g., school psychologist) to consult with each of the student’s teachers throughout the SST. As Gresham and Elliott (1993) recommended, a primary reason would be to identify whether or not competing problem behaviors are present so that SST can be planned accordingly. Skill deficits and target replacement skills may be identified collaboratively so that the teacher has an in-depth understanding of what skills will be taught.

Further, there was a high degree of correspondence between the most effective technique (contingent reinforcement) and the teachers’ acceptability ratings, consistent with findings by Elliott and Busse (1992). This could reflect the fact that the reduction in disruptive behavior

associated with contingent reinforcement was negatively reinforcing to the teachers, resulting in the high acceptability. Despite contingent reinforcement requiring more response effort than visual and verbal prompting, teachers still rated this strategy most acceptable.

Limitations and future directions

One potential reason for the decreasing trend in verbal prompting (yet minimal overlap with contingent reinforcement) could be carryover effects from the contingent reinforcement phases, suggesting anticipation of reinforcement. Another possibility could be the cumulative review of skills during SST, reflecting a learning curve. The potential effects of multiple treatment interference may be less relevant when analyzing the differences observed in each condition. A second potential confounding effect is the increased amount of praise during prompting phases when the participants engaged in more prosocial behavior than teachers were accustomed to. During the alternating treatments phase, verbal prompting and positive reinforcement were provided at some point during each trial in each phase. For example, even though teachers were instructed to only provide the typical amount of attention/reinforcements to students in the prompting phases, the goal of these phases were to increase opportunities to display social skills, resulting in more attention overall than during baseline. The increase in verbal prompting could serve as neutral attention, thus noncontingent reinforcement, which may be one mechanism that was responsible for the improved behavior.

These results have limited external validity due to the restricted age range and all male sample. It would be beneficial to replicate this study with a mixed gender population or older age group. Some use of praise as contingent reinforcement may not be appropriate, and even aversive, to adolescents and older children (Reinke, Stormont, Clare, Latimore, & Herman, 2013), and peer attention would be a more salient maintaining variable. Several participants

demonstrated decreasing trends in disruptive behavior with verbal prompting and contingent reinforcement. Due to the end of the school year nearing, data collection could not be extended to continue interventions or monitor maintenance over time.

Future research targeting social skills or disruptive behavior should include a functional behavior assessment. SST alone may be more effective with children presenting with social skills acquisition deficits. The only functional assessment included in this study was a preference assessment and informal interview with teachers. Due to the design of the study and the low frequency of teacher-child interaction during baseline, conditional probabilities of antecedents and consequences could not accurately be calculated. Three of four participants' disruptive behavior in this study appeared to be maintained by attention according to preference assessments and informal teacher interviews. Stan scored the lowest in academic competency on the SSiS and was performing low in class. His results were most inconsistent in the contingent reinforcement phase (and overall) and could have additionally been maintained by escape from academic tasks (Reinke, Stormont, Clare, Latimore, & Herman, 2013).

Conclusion

This is the first study to the author's knowledge that experimentally manipulated generalization strategies for SST. Training teachers to implement several behavioral strategies with social skills provided consistent reinforcement contingencies across settings. All generalization procedures resulted in greater effects than SST alone and all were rated as highly acceptable. However, contingent reinforcement was the most effective treatment in reducing disruptive behavior as well as most acceptable to teachers.

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APPENDIX A: PARTIAL-INTERVAL OBSERVATION FORM

Name of student:

Observer:

Date:

Name of teacher:

Time:

Treatment phase:

Setting:

Behavior	1.1	1.2	1.3	1.4	1.5	1.6
Ant.	VP NVP					
Targets	Pro: FD CD Dis: IV NC AG FG					
Conseq.	E/A PA Attn Tan					
Behavior	2.1	2.2	2.3	2.4	2.5	2.6
	VP NVP					
	Pro: FD CD Dis: IV NC AG FG					
	E/A PA Attn Tan					
Behavior	3.1	3.2	3.3	3.4	3.5	3.6
	VP NVP					
	Pro: FD CD Dis: IV NC AG FG					
	E/A PA Attn Tan					
Behavior	4.1	4.2	4.3	4.4	4.5	4.6
	VP NVP					
	Pro: FD CD Dis: IV NC AG FG					
	E/A PA Attn Tan					
Behavior	5.1	5.2	5.3	5.4	5.5	5.6
	VP NVP					
	Pro: FD CD Dis: IV NC AG FG					
	E/A PA Attn Tan					

Notes:

Behavior	6.1	6.2	6.3	6.4	6.5	6.6
	VP NVP					
	Pro: FD CD Dis: IV NC AG FG					
	E/A PA Attn Tan					
Behavior	7.1	7.2	7.3	7.4	7.5	7.6
	VP NVP					
	Pro: FD CD Dis: IV NC AG FG					
	E/A PA Attn Tan					
Behavior	8.1	8.2	8.3	8.4	8.5	8.6
	VP NVP					
	Pro: FD CD Dis: IV NC AG FG					
	E/A PA Attn Tan					
Behavior	9.1	9.2	9.3	9.4	9.5	9.6
	VP NVP					
	Pro: FD CD Dis: IV NC AG FG					
	E/A PA Attn Tan					
Behavior	10.1	10.2	10.3	10.4	10.5	10.6
	VP NVP					
	Pro: FD CD Dis: IV NC AG FG					
	E/A PA Attn Tan					

Notes:

Directions: Circle **ALL** behavior codes that the student displays during each 10-second interval.

Setting codes:

ISW = Independent seatwork

TDWC = Teacher directed whole class instruction

SG = Small group instruction

Antecedents: Circle **ALL** behavior codes that the teacher demonstrates during a 10-second interval.

Prompts: Cue from teacher that occurs *before* target student displays target behavior

Verbal: Instruction to complete educational work or demonstrate a social skill.

Examples: “Get to work”, “Turn your books to page. . .”

Behavioral instruction. Ex: “Sit down”, “Be quiet”, “Go to your desk”, “Stop talking”, “Look at me”

Nonverbal: Demonstrating a prompt using body language, gestures, etc. (raising hand) Ex. Teacher hands out a worksheet.

Total Prompts = _____%, Verbal = _____%, Nonverbal = _____%

PRO: includes *prosocial* behaviors that helps student to improve, initiate, or maintain positive social relationships with teachers and promote academic success:

FD = Following directions = keeping eye contact with teacher during instruction, or following instructions within 5 seconds of a teacher command

CD = Contributing to discussion = responding when called on by teacher with a response relevant to class topic

DIS: includes *disruptive* behaviors that interfere with instruction or classroom activities:

NC = Noncompliance = not responding within 5 seconds after a teacher demand

IV = Inappropriate verbalizations = talking to peers or oneself or making any noise without permission from the teacher

AG = Aggression = any negative social interactions with peers or teacher (arguing, name calling)

FG = Fidgeting = any movement that is peripheral or nonessential to ongoing focal tasks or events, including manipulation of one’s own body parts (e.g., finger tapping, skin picking, out of seat) or another object (e.g., playing with pencil or other items on desk)

Total Pro = _____%, FD = _____%, CD = _____%

Total Dis = _____%, NC = _____%, IV = _____%, AG = _____%, FG = _____%

Consequences:

Total reinforcement = _____%, Attn = _____%, Tan = _____%, E/A = _____%

E: Escape – student is allowed to refrain from working on or completing the assignment; teacher takes the assignment away; teacher does not make the student comply (follow through or complete) with a command.

Attention: teacher *and/or* peer attention

Positive Attention- smiles, praise statements, proximity following appropriate behavior, physical touch for appropriate behavior.

Ex: Pat on the shoulder; “Good Job”

Negative Attention – frowns, reprimands, redirections, interruptions, proximity following problem behavior, physical touch for problem behavior

Ex: “Stop it!” “How many times have I told you to . . .”; Tap on shoulder for talking without permission.

Tangible: access to tangible item or activity

APPENDIX B: TEACHER TRAINING PROTOCOL

Each session will begin with direct instruction using definitions, rationale, and examples of each skill. Then activities will be presented that allow opportunities to use the skills. For example, for prompting, teachers will be required to write down specific prompts that they may use to cue an appropriate behavior. They will then share them verbally with the other teachers. This type of activity will be used for praise statements and other skills they are taught. After teachers receive training, they will be provided with performance feedback on each skill.

Visual Cue/Direct Instruction

Poster board with the list of social skills

- Follow all teacher instructions the first time they are given.
- Raise your hand when you wish to speak.
- Use kind and respectful language to everyone.
- Stay in your seat unless you have permission to get out.
- Participate in class discussions (responding appropriately to a teacher-delivered question or contributing an appropriate statement or question to class discussion”

Explicitly teach social skills/rules, giving 5 or 10 minutes discussing them, the rationale for each skill/rule, and the importance of them. Provide specific examples and invite students to offer their own examples

Specific Prompts

Verbal prompts: rule reminders, descriptions of the desired behavior

Nonverbal prompts: gestures or demonstrations of the appropriate behavior,

Interact with the students to make opportunities for prosocial behavior

- Greet students by smiling or waving
- Move within 3 feet of the student, obtain eye contact and make the request/prompt.
 - “Bob, please raise your hand.”
- Make it specific
 - “Bob, do you remember the first step in asking a question?”
- Secondary prompts if student doesn't comply within 10 seconds: “Bob, you *need* to ...”

Reinforcement

Teachers will need to visually scan for behaviors,

- Provide behavior-specific praise and feedback for students as individuals or groups for displaying the behaviors
 - Communicate approval of the desired target behavior
- Contingent: Make praise immediate upon observing the desired behavior
- Be overly enthusiastic
- Praise effort not ability

- “You did really well on..., you must have worked really hard on those!”

Public example:

“I appreciate how Bob is following directions”

“I’m really impressed with the way you’re working as a team!”

Private example:

“ Bob, I’ve been noticing how kind you’ve been to Bill today and showing him how to do things. You’ve been a big help.”

Nonexample: “Good job!”

Other non-social reinforcers:

- Choose between slips of paper that say:
 - “homework pass”,
 - “draw from the candy drawer,”
 - “10 extra minutes of computer time,”
 - “5 minutes extra recess,”
 - “line up first for lunch”

APPENDIX C: GRADUATE STUDENT TRAINING PROTOCOL

Requirements to pass training:

- At least 90% IOA on video observations
- 100% on quiz covering Skillstreaming procedures and topics, and target behaviors

Training objectives:

1. Go over summary of study procedures and research questions
2. Describe graduate assistant responsibilities (conducting observations in classroom and in SST, analyzing data)
3. Operationally define target behaviors:
 - I. **Prosocial** behaviors that helps student to improve, initiate, or maintain positive social relationships with teachers and promote academic success:
 - a. **FD** = Following directions = keeping eye contact with teacher during instruction, or following instructions within 5 seconds of a teacher command
 - b. **CD** = Contributing to discussion = responding when called on by teacher with a response relevant to class topic
 - II. **Disruptive** behaviors that interfere with instruction or classroom activities:
 - a. **NC** = Noncompliance = not responding within 5 seconds after a teacher demand
 - b. **IV** = Inappropriate verbalizations = talking to peers or oneself or making any noise without permission from the teacher
 - c. **AG** = Aggression = any negative social interactions with peers or teacher (arguing, name calling are examples of verbal; touching another student without permission (hitting, poking, etc.) are examples of physical aggression)
 - d. **FG** = Fidgeting = any movement that is peripheral or nonessential to ongoing focal tasks or events, including manipulation of one's own body parts (e.g., finger tapping, skin picking, out of seat) or another object (e.g., playing with pencil or other items on desk)
4. Explain partial-interval observations – circle the behavior code if the student displays the behavior at any point during a 10-second interval
5. Explain setting codes – small group, large group, one-to-one – important to document to identify antecedent/settings that may trigger behaviors
6. Practice with video of students displaying off-task behaviors.
 - I. Have them calculate the percentage of intervals where students displayed target behaviors.
 - II. Compare everyone's scores for off-task behaviors. If below 90% IOA, do another video observation only with off-task behaviors until 90% agreement is reached.

- III. Once 90% IOA is reached, add a video where they have to observe on-task behaviors in addition to off-task behaviors
7. Teacher observations: Define target behaviors to observe with teachers:
 - I. Verbal prompting
 - II. Nonverbal prompting
 - III. Response of student
 - IV. Praise
 - V. Other immediate reinforcement
 8. Skillstreaming sessions (see leader checklist)
 - I. Defining the skill
 - II. Modeling the skill
 - III. Role-play
 - IV. Performance feedback
 - V. Assigning skill homework

Quiz:

1. Operationally define “following directions”:
2. Operationally define “contributing to discussions”:
3. Operationally define “noncompliant behaviors”:
4. Operationally define “inappropriate verbalizations”:
5. Operationally define “aggressive behaviors” (includes verbal and physical):
6. Define a verbal prompt and give specific examples:
7. Define a nonverbal prompt and give examples:
8. What is the purpose of this study?
9. What is the order of activities in Skillstreaming sessions?
10. What are the steps involved in role-play?

APPENDIX D: PARENT CONSENT FORM

Creekside Elementary School

431 Forlines Rd.
Winterville, NC 28590
(252) 353-5253
Fax (252) 353-8107



Carla Frinsko
Principal

Cornelia Cox
Assistant Principal

Date: April 2013

Dear Parent:

My name is Emmi Scott, and I am a graduate student in the School Psychology program at East Carolina University. I am planning a small social skills training group to take place at Creekside Elementary School for selected students to increase their prosocial behavior and reduce disruptive behavior in the classroom.

___ has been chosen by his teacher to participate in this social skills training program. I really believe this program will be helpful for ____. Social skills training sessions will occur once or twice a week and target the identified areas of concern to help with your child's behavioral needs that may be affecting his academics. The scheduling of the sessions will be during the activity period of his school day, so it will not interfere with academics. As this study is for educational research purposes only, the results of any activities **will not** affect your child's grade. There are no foreseeable risks to participating in this study. I am requesting permission from you to use your child's data (from teacher rating scales and classroom observations) in my research study.

If you consent, I, Emmi Scott will provide the social skills training sessions. Your child's right to privacy and confidentiality will be protected, and no information will be shared outside the bounds of supervision.

I hope that you agree for ___ to participate. If you do or do not, please return this form with your signature and have him return it to his teacher, ____. I will be happy to answer any questions you have about this program.

Thank you for your consideration of this opportunity!

Yes, I give permission for my child _____ to participate in this program.

Parent/Guardian signature: _____ Date: _____.

No, I do not give permission for my child _____ to participate in this program.

Parent/Guardian signature: _____ Date: _____.

If you have any questions or concerns, please call:

Your child's classroom teacher: ___

School Psychology student: Emmi Scott at 252-945-6789

Your child's school psychologist: Virginia Gaynor at 252-830-3543

APPENDIX E: TEACHER CONSENT FORM

<p>Carla Frinsko Principal</p>	<p>Creekside Elementary School 431 Forlines Rd. Winterville, NC 28590 (252) 353-5253 Fax (252) 353-8107</p>	 <p>Cornelia Cox Assistant Principal</p>
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April, 2013

Dear

My name is Emmi Scott, and I am a graduate student in the School Psychology program at East Carolina University. As a requirement for my Master's thesis, I have developed a research study involving 3-5 students who are referred to be in a social skills training program to be implemented 4-6 weeks. Because it is a common complaint that the skills learned in social skills training programs do not always transfer to the classroom, I am asking for your involvement throughout the study to prompt the specific skills that will be taught, and reinforce them in your classroom at Creekside Elementary School. I will provide a very brief training session to you and the other teachers involved to introduce you to the specific social skills being taught, and go over specific strategies you will use to help to increase your students' prosocial behavior and reduce disruptive behavior throughout the study. If you consent, observations will occur in your classroom to monitor progress once or twice a week, for about 10 minutes at a time. Throughout the study, I will also ask you to rate your perspective on the effectiveness and overall acceptability of the intervention strategies.

Please sign the bottom of this form if you agree to participate in this research study.

Sincerely,

Emmi Scott
 Doctoral student, Health Psychology
 School Psychology concentration
 East Carolina University
 252-945-6789
scotte07@students.ecu.edu

Teacher's Signature and Date:

I am aware, and I give consent to participate in the research study that Emmi Scott will conduct at Creekside Elementary School.

Signature_____
Date

APPENDIX F: CHILD ASSENT FORM

Orally read assent:

My name is Emmi Scott and I study ways to make people’s lives better. These studies are called research. This research is trying to find out ways to get you to enjoy school, friends, and not get in trouble with teachers. Your parent(s) needs to give permission for you to be in this research. You do not have to be in this research if you don’t want to, even if your parent(s) has already given permission. You may stop being in the study at any time. If you decide to stop, no one will be angry or upset with you.

The reason for doing this research is to look at ways to make students’ lives better at school, so they will not get in trouble as much, enjoy school more.

We are asking you to take part in this research because your teacher has told me that you are a great student, but get in trouble sometimes for being disruptive in class. If you decide to be in this research, you will be one of about 5 people taking part in it.

This study will take place at Creekside Elementary School and will last about a month. Each week I will come pull you and the other students from a class to do counseling sessions. You will not have to make up the work that you miss in class from being in this group. We will go over social skills and do fun activities with them. I will ask you to practice the skills outside of the sessions in your classroom and at home, and then come back the next week and tell me how it went.

No one, parents, teachers, or friends will be told about anything that goes on in the groups, unless there is a need to tell them because you or someone you know is in danger for any reason.

Sometimes good things happen to people who take part in research. These are called “benefits.” The benefits to you of being in this study may be less time getting in trouble with your teachers and enjoying class activities more. There are no risks associated with this study.

If you have questions about the research, you should ask the people listed on the first page of this form. If you have other questions about your rights while you are in this research study you may call the Institutional Review Board at 252-744-2914.

If you decide to take part in this research, you should sign your name below. It means that you agree to take part in this research study.

Sign your name here if you want to be in the study

Date

Print your name here if you want to be in the study

APPENDIX G: SCHOOL DISTRICT APPROVAL LETTER

4/10/2013 2:48 PM

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PROCEDURE 9.101-P
Page 4

REQUEST TO CONDUCT RESEARCH STUDY OR SPECIAL PROJECT

I agree to furnish Pitt County Schools a copy of the results of this research study or special project.

Emmie Scott
Signature of Person Making Request

2/25/13
Date

606 Shamrock Way
Greenville, NC, 27834

Carla St. Michel
Principal

Address

[Signature]
Signature of Supervising Professor

(252) 943-6789
scotte07@students.ecu.edu
Telephone Number/E-Mail Address

East Carolina University
University/College/Organization
(252) 328-3282 Kozmewsky@ecu.edu
Telephone Number/E-Mail Address

(For Office Use Only)

Project Approved pending principal approval

Project Disapproved _____

Referred to _____

[Signature]
Signature of Superintendent/Designee

APPENDIX H: IRB APPROVAL LETTER



EAST CAROLINA UNIVERSITY
 University & Medical Center Institutional Review Board Office
 4N-70 Brody Medical Sciences Building- Mail Stop 682
 600 Moyer Boulevard - Greenville, NC 27834
 Office 252-744-2914 • Fax 252-744-2284 • www.ecu.edu/irb

Notification of Initial Approval: Expedited

From: Social/Behavioral IRB
 To: [Emma-Catherine Scott](#)
 CC: [Jennifer Kazmerski](#)
 Date: 4/22/2013
 Re: [UMCIRB 13-000166](#)
 Teachers as Generalization Facilitators of Social Skills Training on Disruptive Behavior

I am pleased to inform you that your Expedited Application was approved. Approval of the study and any consent form(s) is for the period of 4/15/2013 to 4/14/2014. The research study is eligible for review under expedited category #7. The Chairperson (or designee) deemed this study no more than minimal risk.

Changes to this approved research may not be initiated without UMCIRB review except when necessary to eliminate an apparent immediate hazard to the participant. All unanticipated problems involving risks to participants and others must be promptly reported to the UMCIRB. The investigator must submit a continuing review/closure application to the UMCIRB prior to the date of study expiration. The Investigator must adhere to all reporting requirements for this study.

The approval includes the following items:

Name	Description
Child Assent Script History	Consent Forms
Full thesis proposal History	Study Protocol or Grant Application
Parent consent form History	Consent Forms
Short version proposal History	Study Protocol or Grant Application
Teacher consent form History	Consent Forms

The Chairperson (or designee) does not have a potential for conflict of interest on this study.