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THE EFFECTS OF DIRECT TRAINING AND THE STAR PROBLEM SOLVING MODEL ON TEACHERS’ TREATMENT INTEGRITY AND GENERALIZED USE OF AN INTERVENTION

by

Neelima Gutti Duncan

Abstract of a Dissertation Submitted to the Graduate School of The University of Southern Mississippi in Partial Fulfillment of the Requirements for the Degree of Doctor of Philosophy

December 2012
ABSTRACT

THE EFFECTS OF DIRECT TRAINING AND THE STAR PROBLEM SOLVING MODEL ON TEACHERS’ TREATMENT INTEGRITY AND GENERALIZED USE OF AN INTERVENTION

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December 2012

Direct training procedures have been beneficial in increasing teachers’ knowledge and skills for the use of recommended intervention for target students in their classrooms. However, direct training alone has not been successful in teachers’ consistent and sustained use of the intervention for the target student and the generalized use of the intervention to non-target students, novel settings, and problem behaviors is relatively unknown. The present study examined the effects of direct training and a cognitive based problem solving model (the STAR problem solving model) on teachers’ use of specific, labeled praise (SLP) directed to both target and non-target students. Participants were five general education teachers who referred a student who exhibited mild disruptive behaviors (e.g., off task, inappropriate vocalization) in their classroom. Initially, all teachers displayed low rates of SLP directed to the target and non-target students. Three participants were exposed to direct training with the STAR problem solving model whereas two participants were initially exposed to either direct training or the STAR problem solving model and later exposed to the other training type. Three out of five participants required booster trainings to facilitate intervention use. Results were varied across participants, however, all participants increased their use of SLP directed to target and non-target students from baseline following initial or booster trainings. Results
suggest that explicit in-vivo training or additional performance feedback procedures may be necessary for consistent intervention use. Changes in target students’ disruptive behaviors across phases are also reported. Results are discussed in terms of potential limitations and directions for future research.
The University of Southern Mississippi

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Neelima Gutti Duncan

A Dissertation
Submitted to the Graduate School
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CHAPTER I

INTRODUCTION

Consultation is an indirect service delivery method in which consultants (i.e., school psychologists) influence student behavior change through training and educating consultees (i.e., teachers, parents) to implement interventions in natural settings. School psychologists primarily rely on consultative interactions to promote change in school settings (Noell, Duhon, Gatti, & Connell, 2002). By serving as liaisons between teachers and students, consultants affect student behavior change by altering teacher behaviors through various methods of consultative interactions.

School psychology consultants serve two major roles in the school setting (Zins & Erchul, 2002). Consultants’ primary goal is to alleviate consultees’ concerns regarding the client by affecting change in client behavior (i.e., student). Therefore, consultation should result in remediation of current problems. Prevention of future problem behaviors is a secondary, albeit necessary, goal of consultation (Zins & Erchul, 2002). That is, a consultative interaction should not only lead to an understanding of current problem behavior and current intervention, but also should lead to an increase in consutee’s skills to manage future problem behaviors with little to no assistance from the consultant (Zins & Erchul, 2002). In other words, consultants should leave the consultee with skills that he or she will be able to use for novel situations, persons, or settings. The ability to apply knowledge and skills across settings, situations, and times is referred to as generalization.

Given that consultation is an indirect service model, facilitating student behavior change is often dependent on teacher behavior change. Therefore, in order to ascertain the effects of a recommended intervention, both student and teacher behaviors must be
evaluated. Otherwise, it would be difficult to state whether the student behavior change was due to the proposed intervention or other extraneous variables (Wickstrom, Jones, LaFleur, & Witt, 1998).

An unsuccessful intervention (i.e., no change or negative change in student behavior) can be attributed to one of two reasons. First, the intervention might not be the most effective intervention for the particular student or behavior. A second reason for the failure of an intervention may be due to inadequate implementation of the intervention. The reliable implementation of an intervention is known as treatment integrity (Gresham, 1989; Peterson, Homer, & Wonderlich, 1982; Salend, 1984). Treatment integrity is essential in determining if an intervention is the cause of behavior change (Gresham, Gansle, Noell, Cohen & Rosenblum, 1993) and for the identification of a poor treatment from an effective one. Although the exact level of treatment integrity (e.g., 100%, 85%) necessary for ideal treatment outcomes is unknown (Noell, Gresham, & Gansle, 2002), generally, higher treatment integrity is associated with better treatment outcomes (DiGennaro, Martens, & McIntyre, 2005; Greenwood, Terry, Arreaga-Mayer, & Finniey, 1992; Gresham et al., 1993; Holcombe, Wolery, & Snyder, 1994; Noell, Duhon, et al., 2002; Sterling-Turner, Watson, & Moore, 2002; Witt, Noell, LaFleur, & Mortenson, 1997). Gresham et al. (1993) found, in their meta-analysis of treatment integrity literature, that there is a significant, moderate correlation between treatment integrity and treatment outcomes.

Given the importance of treatment integrity in determining treatment success and failures, as well as the impact high treatment integrity may have on successful treatment outcomes, recent research on consultation has focused on improving consultees’ skills
and knowledge for current cases with the use of methods such as performance feedback (Codding, Feinberg, Dunn & Pace, 2005; Noell, Witt, Lefleur, Mortenson, Ranier, & LeVelle, 2000; Noell, Duhon, et al., 2002; Noell et al., 2005; Witt et al., 1997), and scripts (Ehrhardt, Barnett, Lentz, Stollar, & Reifin, 1996; Hiralall & Martens, 1998).

Performance feedback is generally conducted following intervention training to “promote transfer or maintenance of skills and behaviors” (Mortenson & Witt, 1998, p. 614). It involves the consultant reviewing the intervention essentials with the consultee (Codding et al., 2005; Noell et al., 2005) and can include evaluation of data collected, praising the consultee for correct implementation, providing corrective feedback for steps implemented incorrectly, and addressing consultees’ concerns and questions (Codding et al., 2005). Performance feedback includes several behavioral principles designed to enhance behavioral performance. Specifically, it may serve as a prompt for consultees to implement the intervention accurately (Noell et al. 2000). Feedback may also evoke social contingencies where a consultee may be positively reinforced if he or she displayed high levels of treatment integrity (Noell et al., 2000). Additionally the consultee may also be negatively reinforced when performance feedback is implemented contingent on poor treatment implementation (DiGennaro et al., 2005; Noell et al., 2000).

Researchers have also evaluated the use of scripts to increase consultee treatment integrity. Scripts provide consultees with an outline of intervention steps and can serve as self-monitoring tools for consultees during the course of the intervention. Scripts may also serve as prompts for appropriate implementation and can be used by the consultant during observations for providing feedback to the consultees and to conduct treatment integrity checks (Ehrhardt et al., 1996; Hiralall & Martens, 1998). In addition, scripts can
be used as a learning tool for the consultee (Hiralall & Martens, 1998). Because scripts provide a detailed description of the intervention, consultees can use them for clarification and to gain better understanding of the intervention (Telzrow & Beebe, 2002).

Although the use of performance feedback and scripts has been supported in the literature as a strategy to increase consultee treatment integrity, they generally take place during intervention implementation. In addition, these procedures can be time intensive. Therefore, a school psychologist’s efforts would be better served if initial focus is on teacher training. Ideally, effective teacher training would lead to better treatment implementation. Similarly, research efforts may need to focus on developing better ways to train teachers so that they are able to apply the skills learned to the current problem behaviors as well as future problem behaviors.

Initial training in the use of the intervention is necessary for appropriate implementation. Several training methods have been used to establish initial treatment integrity of the procedures. Therefore, in the following sections, a review of literature relevant to initial training procedures and the impact on treatment integrity and generalization will be presented.

Training Procedures

Direct Training

Generally, training for a specific intervention in a consultative interaction is conducted in one of two ways: indirect or direct (Sterling-Turner, Watson, Wildmon, Watkins, & Little, 2001). Although training methods likely exist on a continuum, indirect training methods involve didactic techniques such as providing consultees with
written and verbal instructions about the procedures involved in the implementation of an
intervention. Direct training, on the other hand, includes additional practice elements in
which consultees may be trained in the intervention via modeling, role playing, rehearsal,
and/or the use of positive and corrective feedback during training. By incorporating direct
training elements, specifically role playing and rehearsal, consultants are able to
objectively determine whether consultees have acquired an understanding of the
intervention procedures. This verification increases the likelihood of accurate treatment
implementation (Sterling-Turner et al., 2001). Furthermore, research has demonstrated
that direct training methods lead to better treatment integrity when compared to indirect
training methods (Moore et al., 2002; Sterling-Turner et al., 2001; Sterling-Turner et al.,
2002).

The teacher training literature is somewhat limited when compared to the parent
(Greene, Kamps, Wyble, & Ellis, 1999; Marcus, Swanson, & Vollmer, 2001; Mueller et
al., 2003; Rickert, Sottolano, Parrish, Riley, Hunt, & Peko, 1988; Rotto & Kratochwill,
1994) and staff training (Shore, Iwata, Vollmer, Lerman, & Zarcone, 1995) literatures in
providing examples of the effectiveness of direct training procedures. Although not
specifically referred to as direct training, many researchers have used the components
(i.e., modeling, role-playing, and feedback) from the direct skills training procedures to
train parents in behavioral interventions. The following is a review of parent and staff
training literature.

Parent Training

Rickert et al. (1988) assessed the efficacy of didactic and direct skills training
methods in training parents in the use of behavioral management procedures. Participants
were seven parents (six mothers) who referred a non-compliant child (2.5 to 10 years of age) for intervention services. Prior to training, a task analysis of instruction-giving skills (seven steps) and time-out skills (14 steps) was conducted (Rickert et al., 1988).

The six-session group-training program consisted of didactic training for the first three sessions and competency-based training for the second three sessions (Rickert et al., 1988). Sessions were held once a week and were approximately two hours in length. Following didactic training, where parents were provided with a rationale and description of the task analysis, competency-based training procedures were implemented. During these sessions, trainers modeled each step of the task analyses and parents were given the opportunity to practice each step while role playing with another parent. Performance feedback (i.e., corrective and positive) was provided at each step of the intervention. If a parent failed to complete or incorrectly completed an element of the task analysis, corrective feedback was provided, and the parent was required to restart the trial. Parents practiced the skills until they implemented the procedures with 90% accuracy for two consecutive trials (Rickert et al., 1988).

Next, parents participated in several video-taped probes to demonstrate their instruction giving skills (eight probes) and time-out skills (nine probes) with a confederate acting as the non-compliant child (Rickert et al., 1988). In addition to the confederate probes, parents were video-taped with their child on three different occasions to assess the generalization of instruction giving skills. Parents’ use of time-out with the child was not assessed. The parent-child probes were conducted prior to training, following didactic training, and following competency-based training. Parents were provided with six one-step commands for the instruction-giving probes and were given
specific scenarios for the time-out probes. Two follow-up probes with a confederate and with the child were also conducted with five of the seven participants at 6 weeks and with four of the seven participants at 12 weeks following training (Rickert et al., 1988). In addition to the video-taped probes, parents were also asked to provide two requests to which their child would not demonstrate compliance (Rickert et al., 1988). Parents were then asked to record, daily, whether their child complied with the two instructions the first time given.

A multiple baseline-design across skills was used to assess parent acquisition of skills. During baseline, an average of 45.2% of the steps in the instruction giving task analysis was correctly implemented across parents. Following didactic training, parents increased their average of correct steps implemented to 57.9% (range, 31.2%-81.3%) but did not achieve mastery (i.e., 90%). Following competency-based training, the average correct implementation of steps further increased to 87.4% (range, 56.5%-100%) across parents, with all but one achieving mastery (Rickert et al., 1988). Similar results were demonstrated for the time-out task analysis. During baseline, parents correctly implemented an average of 35.7% of steps. Following didactic training, an average of 59.7% (range, 21.4%-81.8%) of the steps were implemented with accuracy with none of the parents reaching mastery. However, following the competency-based training, five of the seven parents reached mastery levels with an average of 90.3% (range, 64.3%-100%) of steps completed correctly across parents. At six week follow-up, slight decreases in accurate implementation were demonstrated with an average of 88.7% (range, 71.8%-100%) across parents for instruction giving, and 78.3% (range, 64.3%-85.7%) for time-out. At 12 week follow-up, parents accurately implemented an average of 89.9% (range,
64.3%-100%) of the steps for instruction giving and 83.2% (range, 64.3%-100%) of the steps for time-out (Rickert et al., 1988).

Probes with the referred child indicated similar results to probes with the confederate. That is, correct implementation of steps for instruction giving increased from baseline \((M = 40.8\%; \text{range}, 8\%-70.6\%)\) to didactic training \((M = 57.8\%; \text{range}, 23.3\%-100\%)\) and further increased following competency-based training \((M = 80.9\%; \text{range}, 69.2\%-95.8\%)\). During follow-up, results maintained or slightly increased to levels observed following competency-based training. Average percent of child compliance to the pre-determined requests across parents also increased from baseline to didactic training and further increased following competency-based training. These results were maintained at six week follow-up. Parental attitudes scales also improved with the progression of the training sessions. Parent ratings of satisfaction were high, but differences were not found between the two training procedures (Rickert et al., 1988).

Results indicated that competency-based training was necessary in order for parents to reach mastery level (i.e., 90% or above) of each skill set (i.e., instruction giving and time-out). These results were also maintained at follow-up sessions. Although Rickert et al. (1988) demonstrated the efficacy of the competency-based training in teaching parents skills for behavior management, a few limitations of the study should be addressed. Although unavoidable, because didactic training was conducted prior to the competency-based training, there may have been some carry-over or practice effects that impacted the observed results during the competency-based training. Child behavior was only assessed through parent report and parents reported increased compliance. Direct observations of child behavior may have been more beneficial in evaluating the
effectiveness of the intervention (Rickert et al., 1988). Although intervention effects were evident, the length of time training took should also be considered. Training was time-consuming and may not be effective in school settings. Additionally, generalization of these skills to the home setting was not assessed and therefore, the training’s effectiveness for novel settings and situations cannot be determined.

Rotto and Kratochwill (1994) extended the research on parent training by incorporating the problem solving process of behavioral consultation into the competency-based model described by Rickert et al. (1988). Participants were six parents who referred four children (ages ranging from six to nine years) exhibiting non-compliant behaviors for over 40% of observed intervals at home. Parent participants were grouped into three dyads. Dyad 1 included Parent 1 (mother of Child 1) and Parent 2 (mother of Child 2), Dyad 2 included Parent 3 and 4 (mother and father of Child 3), and Dyad 3 include Parent 5 and 6 (mother and father of Child 4). Consultation and training occurred in the clinical setting whereas direct observations were conducted in the home during times in which parents reported the occurrence of the most problem behaviors. To keep data consistent, only mothers participated during the observation sessions (Rotto & Kratochwill, 1994).

Consultation was conducted using the problem identification, problem analysis, treatment implementation, and treatment evaluation stages of consultation outlined by Kratochwill and Bergan (1990). All participants were trained in the same treatment program, which included the use of differential attention (DA), instruction giving (IG), and Time-Out (TO). A task analysis was conducted to determine steps for each skill area. Training for DA included instructing parents to ignore minor problem behaviors and
attend to appropriate behaviors. During IG, parents were taught how to deliver instructions, and during TO parents were taught skills to implement time-out procedures. Parents were taught these procedures using the competency-based parent training model, described in Ricket et al. (1988). Mastery criterion was set to 90% of steps completed accurately for two consecutive trials. Once parents reached the criterion for DA, the competency-based training was applied for IG and TO, respectively (Rotto & Kratochwill, 1994).

A multiple baseline design across participants was used to determine the effects of parent training on consultees’ skill acquisition and implementation (Rotto & Kratochwill, 1994). All parents improved their skills from baseline to the treatment phases and maintained these skills at follow-up. An increase to 65.2% in the mean percentage of steps implemented across parents was observed from baseline to post training in all skill areas (i.e., DA, IG, and TO). These results maintained during follow-up and suggest that training parents using the competency-based procedures is effective in producing changes in parent behavior. However, the authors addressed a few limitations of the study. First, all the skills were presented in the same order across all participants. Therefore, the results may have been a product of order effects or carry over effects. The presentation of the skills in a different order may have yielded different results. Additionally, there was variability across subjects with regard to training time. Each parent participated in training until he or she reached criterion, resulting in some parents receiving more training time than others (Rotto & Kratochwill, 1994). Therefore, parents who received more training time may have greater treatment integrity than parents who received less training time. The authors did not specify the amount of time spent in training for each
participant, making it difficult to determine the differential effects of training time. In addition, parents’ use of intervention in other setting (i.e., home) was not assessed and therefore generalizability of the intervention post-training is unknown.

Whereas previous parent training studies (Rickert et al., 1988; Rotto & Kratochwill, 1994) were conducted in a clinic based setting, Greene et al. (1999) extended the literature by conducting all training and treatment sessions in the home setting. Parent use of behavioral strategies was assessed following training in the intervention using direct skills parent training procedures. Four mothers who referred their children for exhibiting challenging behaviors participated in the study. Child participants’ ages ranged between five to seven years. Child behaviors monitored during data collection were inappropriate child behavior (i.e., noncompliance, aggression, destruction, grabbing, and negative verbal remarks), child compliance to parent instruction (coded as compliance to task within five seconds of delivery), and on-task behavior (coded as engagement in appropriate task without exhibiting inappropriate behaviors). Parent behaviors monitored were child and parent interaction (positive, negative, or neutral) and parent praise (Greene et al., 1999). Parent praise statements were described as any verbal statements that may have served to positively reinforce the child’s behavior. On-task behavior and parent-child interactions were coded using a 10 s interval recording procedure, whereas all other target behaviors were coded as frequency counts. All data were collected in 10-minute sessions and three to five sessions were conducted per home visit (Greene et al., 1999).

Parent training sessions began following baseline data collection (Greene et al., 1999). Training consisted of three phases. During the first phase, parents received written
protocols for all of the recommended behavior management techniques (i.e., setting up reinforcement schedule, time-out, providing appropriate praise, instruction giving, and selecting appropriate consequences). The consultant then modeled the techniques and parents engaged in role-play activities to practice the skills. Corrective feedback and praise were provided to the parents at the completion of each step. Parents were instructed to practice the techniques daily (Greene et al., 1999). Both the parent and the child were involved during the second phase of the training. The established house rules, reinforcement schedule procedure, and time-out procedures were described to the child. The therapist again modeled the techniques to the parent and the child, role-played the techniques with the child, and then allowed parents to engage in role-play sessions with their child. Each parent-child dyad was then asked to sign a contract establishing that the parent and the child will follow the reinforcement schedule. The next phase was the treatment phase in which parents were provided with all materials necessary for treatment implementation. Prior to each observation session, an overview of the intervention was provided. Following the observation, the therapist provided the parent with corrective feedback. (Greene et al., 1999).

A multiple baseline design was used to assess the effects of direct skills training on parents’ use of the intervention and on child behavior (Greene et al., 1999). During baseline, all parents’ use of praise was low and stable at near zero levels. Following training, all parents increased their use of praise, but data were variable across sessions. Frequency of all child participants’ inappropriate behaviors was variable and high during baseline. Following training, inappropriate behaviors decreased immediately and remained stable throughout the phase. Child compliance slightly increased for all
participants. Variability in compliance observed during baseline continued during the
treatment phase for all participants. On-task behavior increased for two of the four child
participants. The other two participants displayed high levels of on-task behavior during
baseline, and therefore ceiling effects were observed during the treatment phase. Only
slight differences from baseline to the treatment phase were observed for parent-child
interactions. Children’s appropriate interactions with their parents increased only slightly
with means ranging from 22-35% during baseline to 27-36% following training (Greene
et al., 1999).

Results indicated that parents increased their use of praise following training
using behavioral skills techniques (i.e., modeling, role-play, and feedback; Greene et al.,
1999). Although results supported the use of praise, parents’ use of other techniques
taught during the trainings were not directly observed or reported. Because the treatment
package had multiple components, the effects of training on parents’ use of the additional
techniques would have been beneficial. Additionally, the high levels of variability in
child behavior during baseline and treatment phases may suggest that the use of the
intervention package was inconsistent. Also, parents’ use of the intervention during the
times in which the consultant was not present is unknown. Therefore, generalization and
maintenance of the intervention over time is difficult to ascertain.

Marcus et al. (2001) evaluated the effects of a parent training package on parent
treatment integrity for recommended behavioral protocols. Participants were four
children who were diagnosed with developmental and speech delays (i.e., Joe, Joel,
Tabbatha, and Roger) and their mothers. Parent trainings were conducted once or twice a
week for seven weeks, with each meeting lasting approximately one hour. Treatment
sessions were approximately 5-10 minutes in length, with multiple sessions per meeting (Marcus et al., 2001). Treatment protocols were developed based on parent interviews, direct observations and functional analysis results. One or a combination of the following two procedures were recommended for all participants: (a) differential negative reinforcement (DNR) and (b) differential reinforcement of alternative behavior (DRA) with noncontingent reinforcement (NCR). During all procedures parent behaviors were evaluated for the percentage of the correct use of antecedents, responses to inappropriate child behaviors, and responses to appropriate child behaviors. Child target behaviors included aggression for Roger and Tabbatha and tantrums for Joe and Joel (Marcus et al., 2001).

Following baseline, parent training was conducted and included intervention overview, role play, modeling, immediate feedback, and delayed feedback (Marcus et al., 2001). During role play, the therapist initially engaged in all the treatment components with the parent acting as the child. The therapist then assumed the role of the child while the parent performed all the treatment components. Immediate corrective feedback and prompting were provided during the session. The role play session ended when the parent was able to perform the protocol correctly for a 5-minutes session without any prompting or feedback from the therapist. Modeling included the therapist modeling and describing each treatment component with the child in the natural setting while the parent observed (Marcus et al., 2001). The parents then conducted the sessions with the child, and the therapist provided immediate positive or corrective feedback. Immediate feedback sessions ended when the parent was able to implement the treatment without any corrective feedback or prompting from the therapist for a 5-minutes session. During the
delayed feedback component of the training package, parents received corrective and positive feedback at the end of the 5-minutes session. Delayed feedback continued until parents implemented the intervention without the need for corrective feedback at the end of the session. Parents did not receive any feedback or prompting following the training sessions. However, booster sessions were conducted at parent request, if parent’s responses fell below 80%, or if child target behaviors were increasing. Follow-up observations were conducted at one month for Joel, Joe, and Tabatha, and at two and 10 months for Roger (Marcus et al., 2001).

During baseline, Joel’s mother displayed high levels of treatment integrity with correct antecedents (Marcus et al., 2001). However, treatment integrity was low for correct responses to inappropriate behavior ($M = 51.1\%$) and correct responses to appropriate behavior ($M = 44.4\%$). Following training, integrity of correct antecedents remained at high levels and increased and remained stable for correct responses to inappropriate behavior ($M = 97.1\%$) and correct responses to appropriate behaviors ($M = 97\%$). Joel’s mother maintained high levels of treatment integrity at one-month follow-up.

Joe’s mother’s integrity was low and stable during baseline for all target behaviors and immediately increased following training (Marcus et al., 2001). An average of 81% of the antecedent procedures were used correctly following training and correct responses to inappropriate behaviors ($M = 93.5\%$) and correct responses to appropriate behaviors ($M = 94.7\%$) also increased. Data were variable throughout the phase; and Joe’s mother requested a booster session. She maintained levels of treatment integrity around 100% for all target behaviors during a one-month follow-up.
Tabbatha’s mother displayed low levels of target behaviors during baseline for the DNR procedure. Following the training, Tabbatha’s mother increased her correct responses to appropriate behavior \((M = 67.4\%)\) and inappropriate behavior \((M = 69.3\%)\). Although overall increases were evident, her integrity was variable throughout the phase; and she required a booster training session. During the one-month follow-up; however, she implemented the intervention with 100% integrity (Marcus et al., 2001). For the DRA with NCR procedures, Tabbatha’s mother’s integrity was low and variable. Following training, treatment integrity for correct antecedents \((M = 84.6\%)\) increased but remained variable. However, integrity for correct responses to inappropriate behavior \((M = 98.9\%)\), and correct responses to appropriate behavior \((M = 92.7\%)\) increased and remained stable (Marcus et al., 2001). At the one-month follow-up, Tabbatha’s mother implemented the intervention with 100% treatment integrity.

Roger’s mother’s use of the intervention was low and variable during baseline for all three target behaviors. However, her use of the intervention immediately increased following training and remained high and stable throughout the phase. She provided correct responses to appropriate behavior an average of 97.5% of the time per session and provided correct responses to inappropriate behavior an average of 96.1% of the time per session. Results were maintained during the two-month and 10-month follow-ups. All child participants’ inappropriate behaviors (i.e., tantrums and aggression) decreased, and appropriate behaviors (i.e., compliance and communication) increased following parent training (Marcus et al., 2001).

Results of the Marcus et al. (2001) study indicated that training using direct skills methods (i.e., rehearsal, modeling, and feedback) was effective in producing behavioral
change in parents. However, there are a few limitations that must be addressed. As most
direct training studies, the independent effects of each component of the treatment
package are unknown. Therefore, it is difficult to state which component of the treatment
package was essential for behavior change. Additionally, two parents needed booster
trainings following initial training in order to increase their integrity. However, the
authors did not specify the reasons for booster training for some parents but not for other
parents.

Mueller et al. (2003) assessed the effectiveness of a multi-component training
package to increase parents’ treatment integrity of behavioral feeding protocols. A
follow-up study examining the differential effects of the components of the training
package was also conducted. In study one, participants were three parents of two children
who were referred for severe feeding problems. The first two participants were the
mother and father of the first child, and the third participant was the father of the second
child. Parents were trained in one or two of three feeding treatment procedures (i.e.,
differential reinforcement [DRA], noncontingent reinforcement [NCR], or nonremoval of
the spoon or Nuk brush [NRS]) based on the child’s presenting problem. Parents 1 and 2
were trained in the DRA and NRS procedures, whereas parent 3 was trained in the NCR
and the NRS procedures. Prior to baseline sessions, parents were provided with written
instructions on the implementation of the protocol. Parents had an opportunity to ask
questions about the protocol after reading the procedures.

During baseline sessions, parents implemented the feeding procedures without
feedback from the trainer and without access to the protocol (Mueller et al., 2003).
Following baseline, parents participated in a 2 hour session in which they were trained in
the use of the intervention. Parents were initially provided with verbal instructions of each step (i.e., verbal instruction). Next, two therapists demonstrated the implementation of the protocol with one acting as the therapist and the other as the child (i.e., modeling). Finally, the parent role-played the feeding protocol with the therapist acting as the child (i.e., rehearsal). Each component and situation was role-played for both the modeling and rehearsal components. Corrective feedback was provided during rehearsal when a parent implemented a step incorrectly. Post-session feedback was provided to parent 3 only; the therapist provided the parent with corrective feedback for incorrect implementation following a treatment session. A one-month follow-up session was included for parent 2 (Mueller et al., 2003).

Results of the training were evaluated in terms of percentage of treatment integrity of prompts and consequences parents correctly provided their child. Results indicated that following the written instructions phase parents implemented the interventions with low integrity. Parent 1 and 2’s treatment integrity varied between 0% and 60%, whereas parent 3’s integrity was at 0% throughout the phase. Immediate increases in treatment integrity were observed following the multi-component training for all three participants. Mean percent of treatment integrity increased to 93.9% with a slight decreasing trend for participant 1 and 88.8% with a slight increasing trend for participant 2. Parent 3’s treatment integrity, however, was variable throughout the phase. In order to increase parent 3’s treatment integrity, a postsession feedback phase was introduced. During this phase, parent 3 increased his mean percentage of treatment integrity to 93.4% and maintained a stable trend. During the one-month follow-up, parent 2 maintained treatment procedures at levels of integrity observed during the multi-component phase.
Children’s appropriate target behaviors remained high and stable across phases, despite changes in parent treatment integrity. Although results suggested that the multi-component package of parent training was effective in increasing correct implementation of the protocol, the differential effects of each component cannot be determined (Mueller et al., 2003).

Study 2 was conducted to evaluate the effectiveness of fewer components of the training package used in Study 1. Participants were 6 parents of three children enrolled in a program for severe feeding problems. All parents were trained in DRA and NRS procedures. Prior to baseline sessions, all participants were provided with written protocols of the treatment procedures. Following baseline, parents 4 and 5 were trained using verbal instructions and modeling methods described in Study 1. Parents 6 and 7 were trained in the intervention use via verbal instructions and rehearsal. Parents 8 and 9 were trained in intervention use via verbal instructions alone, with 2 sessions of verbal instruction training. Follow-up sessions, ranging from 6 days to three months following training, were conducted with four of the six parents (Mueller et al., 2003). Parents 6 and 9 were not assessed for their use of the intervention during follow-up.

Treatment integrity was assessed in the same manner as in Study 1. All parents displayed low levels of treatment integrity following written instructions (range, 0% - 50%, across parents). Treatment integrity, although slightly variable, immediately increased and was high following verbal instructions and modeling for parent 4 and 5 (Mueller et al., 2003). During the follow-up sessions, parent 4’s treatment integrity dropped but went back to higher levels for the next follow-up session. Parent 5’s treatment integrity remained high during the follow-up sessions (Mueller et al., 2003).
Parents 6 and 7 displayed immediate increases in treatment integrity following verbal instructions and rehearsal and remained stable at levels around 100% for the duration of the phase. At one, two, and three month follow-ups parent 7 continued to maintain high levels of integrity. Parents 8 and 9 increased their treatment integrity following verbal instructions alone, however were implementing the intervention with an average of 51% and 40%, respectively. Following the second verbal instructions training, both parents further increased their treatment integrity levels to around 100% and maintained at these levels throughout the session. Follow-up sessions indicated maintenance of treatment procedures for parent 8 at one, two, and two and a half months. Children’s appropriate target behaviors remained high and stable across phases despite changes in parent treatment integrity.

Results indicated that modeling and rehearsal when combined with verbal instructions produced increases in treatment integrity (Mueller et al., 2003). However, one session of didactic training alone (i.e., verbal and written instructions) was less effective in increasing parent treatment integrity. When a second verbal instructions session was included, increases in treatment integrity were observed, suggesting that two sessions of verbal instructions (i.e., didactic training) may be sufficient to produce desired changes in parent behavior. Nevertheless, results suggested a need for more than just verbal instructions and repetition was necessary for training parents in feeding protocols. One major limitation of this study should be addressed. Because all sessions were conducted in an out-patient clinical setting, the extent to which parents generalized these skills to the home setting is unknown (Mueller et al., 2003).
Training parents (Greene et al., 1999; Marcus et al., 2001; Mueller et al., 2003; Rickert et al., 1988; Rotto & Kratochwill, 1994) and staff (Shore et al., 1995) via direct training methods has been effective in increasing parents’ use of intervention procedures. However, all the parent training studies were conducted across several sessions and in some cases, across several weeks or months. The effectiveness of direct skills training with parent populations may be due to the long training periods. In addition, although maintenance of skills has been examined, most parent training literature has failed to examine the generalization effects of training on parents’ use of interventions to other children (e.g., siblings), settings, and situations. Most parent trainings have been conducted in the clinical setting, and skills were also assessed in the clinical setting (Marcus et al., 2001, Rickert et al., 1988, Rotto & Kratochwill, 1994). In some cases, parent reports were used to assess the use of the intervention in the home setting (Rickert et al., 1988). Direct observations in the home would have provided more reliable generalization data. Parent trainings that were conducted in the home also lacked generalization data because parents’ use of the intervention was only assessed in the home setting (Greene et al., 1999).

Providing extensive trainings, as described in the parent training literature to teachers may prove to be challenging. Teachers may not be able participate in lengthy or multiple training sessions due to time constraints and the number of students they work with on a daily basis. Therefore, it may be necessary to modify training sessions to specifically target this population of service providers. The following is a literature review of teacher training.
Teacher Training

Similar to the parent and staff training literature, direct training has also been effective within the teacher training literature. Several studies have demonstrated the effectiveness of direct training methods such as modeling, rehearsal and performance feedback as well as shown the ineffectiveness of didactic training alone for producing behavior change in teachers’ use of various interventions (Moore et al., 2002; Sterling-Turner et al., 2002).

Sterling-Turner et al. (2002) compared the effects of indirect training versus direct training procedures on teachers’ treatment integrity in a natural setting. Initially, four teachers who referred a student exhibiting problem behaviors participated in the study. However, a fifth consultee (i.e., consultee A1) took the place of consultee A and was introduced to the study following Consultee A’s departure. The consultant (i.e., primary experimenter) completed the problem identification and problem analysis interviews with the consultees to identify target behaviors and develop treatment plans. Baseline data were then collected for each target student’s behaviors. Individualized, multi-component treatment plans were developed for each student through consultation with the teacher; and verbal instructions on the implementation of the treatment plan were provided. In addition, an opportunity to ask questions (indirect training) was provided for each consultee following baseline data collection. Data were then collected for each teacher’s treatment integrity and student problem behaviors. During the next phase, consultees were trained in the same treatment plan using direct training methods. First, verbal instructions were provided, followed by the consultant modeling the treatment procedures while the consultee played the role of the student. Teachers then had an opportunity to
practice the procedures with the consultant, who provided corrective feedback and verbal praise for incorrect and correct implementation of steps, respectively (Sterling-Turner et al., 2002). Data were once again collected for teacher’s integrity and student problem behaviors.

A multiple baseline design across consultees was used to assess the effects of training methods on teacher’s treatment integrity and treatment effectiveness. Teacher behavior change was evaluated using treatment integrity data. The percentage of treatment steps implemented accurately was defined as treatment integrity. Treatment effectiveness, on the other hand, was evaluated by assessing student behavior change (percentage of intervals in which problem behaviors occurred). In general, results indicated that all four teachers’ treatment integrity was higher following direct training than it was following didactic training. Specifically, only one of four consultees implemented the treatment protocol with more than 50% integrity following didactic training. After consultees were trained using direct training procedures immediate increases in treatment integrity were observed. Additionally, greater student behavior change was observed when treatment integrity was higher (Sterling-Turner et al., 2002).

Although Sterling-Turner et al. (2002) provided evidence for the effectiveness of direct training procedures in the school setting, there are a few limitations that must be addressed. A major limitation of the study was the possible sequencing effects. Practice effects from the initial exposure to didactic training may have carried over to the direct training phase. However, the carryover effects were controlled by Consultee A1 who substituted for teacher A and was introduced to the treatment package using direct training procedures, only, with no prior didactic training. Consultee A1 implemented the
intervention package with 100% integrity. The length of training for each training type was not controlled and, therefore, slightly limits the scope of the results. That is, direct training sessions were longer in length than the didactic training sessions. Therefore, the length of training could have contributed to higher treatment integrity in the direct training condition. The lack of baseline data for the percentage of treatment steps the consultees may have already been using in the classroom is another limitation to the study. Additionally, the extent to which teachers continued to use the intervention or generalized skills learned to other students and situations is unknown.

Direct training procedures were also used to train teachers to implement functional analysis sessions in the classroom setting (Moore et al., 2002). Three teacher-student dyads participated in the study. Participating teachers referred students for inappropriate behavior during instruction. Sessions were conducted in the teachers’ classrooms during their planning periods. Initially, didactic training (i.e., written and verbal instructions) for two functional analysis conditions (attention and demand) was conducted. Following training, teachers were given a day to review the written protocols for each condition. The experimenter assessed teachers’ knowledge of the functional analysis procedures by asking specific questions about the procedures. All teachers answered 100% of questions correctly. The teachers were then asked to simulate the functional analysis conditions with a graduate student exhibiting the same behaviors as the referred student. Performance feedback was not provided to the teachers during this phase. Direct training with rehearsal, modeling, and performance feedback was incorporated in the next phase. Teachers were provided with the data from phase I and were provided praise for correct implementation. Additionally, the experimenter also
reviewed steps that were skipped or implemented incorrectly. Following review of phase I data, teachers had an opportunity to practice both conditions after watching the experimenters model one of the two conditions. Feedback was provided for teachers’ performance during the practice sessions. Following the practice sessions, the teachers, again, simulated the functional analysis conditions with a graduate student acting as the referred student. The final phase was conducted in the classroom during regular instruction time. Each teacher conducted the two functional analysis conditions with the referred student with no additional assistance from the experimenter. Performance feedback, however, was provided after each condition. Teachers’ responses during the conditions were coded for all three phases and percentage of correct teacher responses was calculated. The results indicated that teachers’ implementation of functional analysis procedures were low following didactic training (i.e., Phase I) but increased to 95% and higher when trained using direct training methods (i.e., rehearsal, modeling, and performance feedback). Additionally, the teachers continued to implement the procedures with high integrity (above 80%) during the in-class functional analysis (Moore et al., 2002).

Although Moore et al. (2002) demonstrated that teachers required direct training to accurately implement functional analysis procedures, there were several limitations that need to be addressed. First, experimental control of the in-class functional analysis session may have been lower than the simulated sessions due to variables that are natural to the classroom such as the behaviors displayed by the target student. The simulated analysis was scripted, whereas the student behavior during the in-class analysis varied (Moore et al., 2002). Additionally, practice effects and exposure to the procedures during
phase I could have been a contributing factor for increases in treatment integrity in phase II. Although Moore et al. demonstrated that skills learned by teachers during the training sessions generalized to classroom settings, it is still difficult to state whether teachers would generalize these skills to other settings or students.

In general, direct training methods yield greater treatment integrity of intervention procedures when compared to indirect training methods. The parent and teacher training literatures support the use of direct training methods. Specifically, within the school consultation literature Sterling-Turner et al. (2002) and Moore et al. (2002) each showed the superiority of direct training methods in naturalistic settings. However, these two studies were both limited by possible sequencing effects. Further, the extent to which teachers used these skills in the absence of the observer or for students presenting with similar challenging behavior at a later time is unknown. Additionally, there may need to be more antecedent strategies in place in order for consultation to result in higher levels of treatment integrity and generalization. Specifically, incorporating antecedent techniques involving cognitive strategies into consultative interactions may increase consultees’ use of interventions following training.

_Cognitive Behavioral Training/Modification_

Cognitive behavioral strategies in training have been widely used to enhance performance in learning novel skills (Alexander & Murphy, 1999). During training, consultants are teaching consultees new skills and strategies to use in their respective settings. Learning new skills involves cognitive strategies such as remembering the skill and organizing the skill into a context that is readily available (Alexander & Murphy, 1999). Additionally, consultees may also be required to self-monitor and self-regulate the
use of their newly acquired skills. Other cognitive strategies involved in acquisition of new skills are planning, problem solving, goal setting, and regulating. Alexander and Murphy indicated that individuals who are aware of their performance and are able to self-monitor or self-regulate their behavior are more likely to change their behaviors than those who do not engage in these cognitive strategies. There are several cognitive training strategies that have been successful in increasing desired behaviors, such as self-instructional training, cognitive modeling, and self-monitoring (Abikoff, 1991).

*Self-Instructional Training*

Interventions that combine cognitive strategies with behavioral techniques have been especially successful in modifying behaviors and cognitions in children, adolescents, and adults (Ronen, 1998). Because cognitions are covert behaviors and cannot overtly be observed by an independent observer, the individual has to monitor his or her own behavior in order to assess change. Therefore, cognitive behavioral interventions rely on self-monitoring and self-regulation techniques (Miltenberger, 2004). Although cognitions are covert and therefore non-observable, cognitive behaviors can be defined in ways similar to overt observable behaviors by teaching the individual to reflect on his or her self-statements (Miltenberger, 2004). Self-statements are thoughts or images that are triggered when an individual encounters a specific situation. Defining the self-statements and the situations in which they occur are beneficial for client and consultee behavior change. The self-statement can be modified in order to increase a desired behavior or decrease an undesirable behavior (Miltenberger, 2004). The process of modifying self-statements is known as self-instructional training (SIT). Self-statement modification is often implemented with other behavioral strategies such as modeling,
rehearsal, and role playing and has been used as a component in problem solving skills training and social skills training (Dush, Hirt, & Schroeder, 1989).

Johnston, Whitman, and Johnson (1980) examined the use of SIT in enhancing addition and subtraction skills in three students with cognitive disabilities. All students were taught a set of self-statements to use while solving addition problems. Training sessions lasted 20 to 30 minutes and began with the trainer modeling the self-instruction procedures. The students were then asked to practice the self-instruction procedure out loud while the trainer provided each step aloud. Then students were asked to practice the steps out loud again with limited help from the trainer (i.e., trainer only provided prompts when necessary). Another practice session was conducted during which the students performed the procedure aloud without any prompts from the trainer. Finally, students practiced the procedure using self-talk (i.e., covert behavior). All students improved their performance in addition problems following the training. However, these skills did not generalize to subtraction problems.

Roberts, Nelson, and Olson (1987) further examined the use of SIT in enhancing academic skills. Participants were 6 first- and 6 second-grade students who were referred for having difficulty in addition and subtraction problems. The students were separated into four groups, and each student in each group was randomly assigned to one of four experimental conditions. The conditions were SIT plus reinforcement for using self-instruction, SIT plus reinforcement for accuracy, SIT plus reinforcement for self-instruction use and accuracy, and reinforcement for accuracy. Data were collected for number of problems answered correctly and for the number of problems during which the participant engaged in self-instruction. All participants in the self-instruction conditions
were given a prepared list of self-instructions to follow during training. Training began with an introduction to self-instruction followed by the trainer modeling the self-instruction strategies. The participant then had an opportunity to solve a similar problem and practice the self-instruction procedures. Praise was provided for correct implementation of the self-instruction procedures. Training continued until the participant was able to accurately state all the self-instructions. Participants were then informed of a token-based reinforcement procedure (Roberts et al., 1987).

Treatment sessions began with the trainer modeling the self-instruction strategy, and participants were reminded of the criteria to earn points for reward (Roberts et al., 1987). Participants were then given a math work sheet with 20 problems and asked to complete the entire sheet. Reward points were given if participants met their criteria. Participants were able to exchange their reward points for preferred items. Participants in conditions where the use of self-instruction was rewarded increased their math accuracy following training. Similar results were found in the other self-instruction conditions. Results for the control group (i.e., no self-instruction training with reward for accuracy) varied across participants. One participant improved her skills immediately during the treatment condition, whereas the other two gradually progressed in accuracy. In general, the use of self-instruction with a reward component yielded greater improvement in accuracy than the reward condition alone. No differences were found, however, between the three self-instruction conditions. That is, participants improved their skills whether they were reinforced for the use of self-instructions or for accuracy (Roberts et al., 1987). There are a few limitations that must be addressed about this study. Participants were not assessed for performance versus skill deficits. Improvement in all participants’ accuracy...
across conditions, may suggest that students had a performance deficits and, therefore, reinforcement was sufficient to improve skills. Results may have differed if all participants had skill deficits. Additionally, the multi-component training makes it difficult to assess the individual effects of self-instruction alone. Finally, generalization of skills to other subject areas or settings was not assessed and, therefore, the generalizability of the self-instructional procedure is unknown.

_Cognitive Modeling_

As stated earlier, one of the components of direct training procedures is modeling. Research in learning theory suggests that modeling has been successful in promoting acquisition of skills (Zins, 1993). Several types of modeling have been discussed in the consultation literature including instructional, exemplary, and cognitive modeling (Revels & Gutkin, 1983). Instructional modeling occurs when either written or verbal instructions for the implementation of a specific procedure are given (Revels & Gutkin, 1983). Exemplary modeling involves the provision of examples of correct implementation. Cognitive modeling occurs when the model’s covert thought processes are made more overt by verbally relaying each step as the model engages in the target behavior (Revels & Gutkin, 1983).

Cognitive modeling stems from social learning theory and is described as a process in which the consultants make a covert behavior (i.e., thoughts) overtly observable by verbalizing the steps while modeling the behavior (Zins, 1993). Cognitive modeling has been used effectively in social skills trainings (Sheridan & Walker, 1999). Modeling in social skills training usually incorporates three steps. First, the rationale for the appropriate social behavior is presented which is followed by a verbal description of a
step-by-step sequence on how to engage in the specifics of social behavior. The trainer, a peer, or a videotape then models the steps. Finally, participants are required to model the step of the social skill through role-playing (Sheridan & Walker, 1999). The process involves guided practice in which, individuals visualize a social situation (i.e., covert behavior), and respond through verbal or motor actions (i.e., overt behavior) (Sheridan & Walker, 1999). Active verbalizations while modeling behaviors tend to produce greater success than individuals who do not verbalize the behaviors out loud. Talking out loud allows the individual to go through the problem solving steps to arrive at a problem solution (Kendall & Braswell, 1993).

O’Connor (1969), for example, used symbolic modeling to increase social interaction with children who were socially withdrawn. Teachers were asked to nominate children in their classroom who were the most socially withdrawn. Forty-five students were randomly chosen from the list of nominations and assigned to one of two conditions: modeling or control. In addition, 26 students who were not considered to be socially withdrawn served as an additional baseline. Social interaction was coded using a 15-second interval recording system and was defined as any behavior directed toward another child that resulted in another child responding to the target child. Other social behaviors such as proximity and verbal interaction were also coded but not included in the assessment of social withdrawal. Children in the modeling condition saw a 23 minutes film with 11 scenes in which children were interacting with each other in the school setting. The scenes were accompanied by a verbal description of the social behaviors. The control film included a musical soundtrack and did not depict any examples of social interactions. Immediately following the training conditions, students
were observed in their classroom for social interactions. The modeling group increased their mean frequency of social interactions from less than two to approximately 11 social interactions post-training. The modeling groups’ average frequency of interaction exceeded that of the non-withdrawn group’s average frequency of interactions (i.e., nine social interactions) post-film. The results suggested that symbolic modeling was effective in increasing social interactions in socially withdrawn children (O’Connor, 1969). However, one major limitation of the study must be addressed. Maintenance and generalization data were not collected; therefore the long-term and generalized effects of the symbolic modeling are unknown.

Although cognitive modeling has been used successfully in training adults and children, little research has been conducted in the realm of consultation. Because the consultants in school settings generally provide consultative services by using the problem solving process, cognitive modeling has been speculated to be used successfully in school-based consultation (Cleven & Gutkin, 1988; Zins, 1993). That is, the consultant can serve as a model for the use of the problem solving strategies by verbalizing the steps during consultative interactions. Cognitive modeling strategies have been reported to be effective for improving aspects of the problem solving model in teachers during consultation (Cleven & Gutkin, 1988; Revels & Gutkin, 1983). The generalizability of teachers’ use of the problem solving model for future problem behaviors following exposure to cognitive modeling has also been speculated to have some utility however with limited research (Zins, 1993). The potential utility of cognitive modeling within consultation will be discussed in the following paragraphs.
Revels and Gutkin (1983) aimed to examine the differential effects of three types of modeling (i.e., instructional, exemplary, and cognitive) on consultees’ acquisition of skills pertaining to brainstorming of treatment procedures. Additionally, the status of the model (i.e., peer status or high status) was also manipulated. Participants were 136 female, undergraduate, educational psychology students who were randomly assigned to one of eight conditions. Two groups (one to high status and one to peer status) were assigned to each modeling condition. All participants were provided with written material of the treatment procedures for a particular case. The written materials were specific to each modeling condition (Revels & Gutkin, 1983).

In the instructional modeling condition, participants were instructed that brainstorming requires one to formulate a list of as many solutions (treatments) as possible. In the exemplary modeling condition, the participants received a list of solutions that served as examples of the brainstorming process. In the cognitive modeling conditions, participants were provided with written passages that highlighted the thought process used for formulating solutions. Additionally, a list of example solutions was provided for the participants. A control condition in which participants received a written passage about the general importance of the problem solving model was also included. Participants in all four conditions were also given information about the model (i.e., stating whether the model was an undergraduate (peer status) or a consultant who had her Ph.D. in education (high status). Following this exposure, the written materials were removed, and a new case example was provided. Participants were asked to brainstorm ideas using the information they were given for the previous case (Revels & Gutkin, 1983). The number of responses that were relevant, concrete, and discrete indicated the
fluency of responses. Two independent raters scored each set of responses on the preceding criteria. Results indicated that all three modeling procedures were equivalent for improving participants’ problem solving skills (i.e., brainstorming). Additionally, participants who were assigned to the high status model, regardless of the modeling condition, produced more responses than participants in all low status model conditions (Revels & Gutkin, 1983). Although results of Revels and Gutkin indicated that the modeling conditions were superior to the control condition in aiding participants to produce possible solutions to a specific case, the analogue conditions limit the generalizability of the study. That is, the extent to which similar results would be obtained in a school setting with actual teachers is unknown.

Cleven and Gutkin (1988) found that consultees’ skills in defining problem behaviors improved following cognitive modeling of problem solving techniques. One hundred and ninety five undergraduate, female, education majors participated in the study. Participants were randomly assigned to one of three conditions: consultation with cognitive modeling, consultation without cognitive modeling, or control condition. Participants in all the conditions watched videos of two case studies each followed by a video of a consultee-consultant interaction discussing the problem behavior. The case study videos were the same for all conditions and were three minutes in length. Content of the case videos were of students exhibiting a problem behavior in the classroom (problem behaviors were different in each video). The consultee-consultant interaction videos, however, were different for each condition. Participants in the consultation with cognitive modeling condition viewed two 13 minutes videos of the consultants guiding the consultee through a three-process element of defining problem behaviors. During the
three-process element procedure, the consultants helped consultees to (a) prioritize components of the students’ problem behaviors, (b) develop a behavioral definition for the high-priority problem behavior, and (c) develop a goal for the reduction of the high-priority problem behavior. Additionally, in consultation with cognitive modeling condition, consultants on the video also incorporated overt references (e.g., to the problem solving process). A description of the overt references was not included in the study. In the consultation without cognitive modeling condition, participants viewed two 10 minutes videos of the consultant helping the consultee through the three-process element described above. However, additional references to the problem solving model were not provided during this condition. Participants in the control condition watched two 10 minutes videos of the consultant describing the services he or she would be able to provide for the consultees (Cleven & Gutkin, 1988).

Following the two sets of training videos, consultees watched another three minutes video of a student exhibiting novel problem behaviors in the classroom. The participants were then asked to write a description of the problem behavior (Problem Definition Description) as well as to write about the steps used to identify and describe the problem behavior (Process Questionnaires). Six independent raters scored these responses. Problem Definition Description was rated on a 1-3 point Likert-type scale for “behavioralness” (1 = low behavioralness – 3 = high behavioralness) of the definition of the problem behavior and goal description (1 = no goal statement – 3 = goal statement written in behavioral terms). The Process Questionnaire was scored on a 0 to 3 scale and one point was awarded for referencing each step of the three-process element. Interrater
reliability was assessed for agreement and was 92% or above for the three dependent variables (Cleven & Gutkin, 1988).

Statistical analysis using a one-way ANOVA indicated significant differences for Behavioralness scale, Goal scale, and Process scale. Post-hoc Tukey’s tests indicated that participants in the consultation with cognitive modeling wrote better definitions of the problem behavior (i.e., Behavioralness scale) than participants in the consultation without cognitive model and control conditions. No differences were found between the consultation without cognitive modeling and control conditions. On the Goal scale, participants in both consultations with and without cognitive modeling wrote clearer goal statements than participants in the control group. No differences were found between the two consultation conditions. Participants in the consultation with cognitive modeling condition produced significantly higher quality process statements than participants in the consultation without cognitive modeling condition who, in turn, wrote significantly better quality process statements than the control group. Therefore, participants’ responses in the consultation with cognitive modeling condition were superior to the other two conditions for all three dependent variables suggesting that cognitive modeling is a viable method for training consultees in the problem solving process (Cleven & Gutkin, 1988).

Despite supporting evidence for the use of cognitive modeling in consultative interactions, a few limitations of the Cleven and Gutkin (1988) study must be addressed. Like Revels and Gutkin (1983), this study was conducted in an analogue setting and, therefore, generalizability of cognitive modeling to naturalistic settings is unknown. Additionally, the authors only focused on training one component (i.e., identification and definition of the problem behavior) of the problem solving process. Therefore, the extent
to which cognitive modeling benefits consultants in training consultees on other components of the problem solving process is questionable.

Although the preceding cognitive modeling studies within the consultation literature were analogue in nature, improvements in problem solving skills were observed (Cleven & Gutkin, 1988; Revels & Gutkin, 1983). Several implications of the cognitive modeling procedures can be drawn from these studies. Gutkin (1993) suggested that cognitive modeling is easily incorporated into the consultative interactions by simply verbalizing each step of the problem solving process. This would provide the consultee with a cognitive model that he or she could imitate for future problem behaviors (Gutkin, 1993). Training consultees in the problem solving process using cognitive modeling could also reduce the amount of time consultants spend on each consultative interaction. Additionally, cognitive modeling can serve as a training procedure for generalization of skills to other situations, settings, and students. Cognitive modeling is generally used to train a problem solving model, and it has been indicated that training consultees in the problem solving model may be an effective way to promote generalization of skills (Zins, 1993).

Effectiveness of a cognitive model may be dependent on a few factors. Using the cognitive model during several consultative interactions with one consultee (essentially training with multiple exemplars) would increase the likelihood of learning the problem solving process (Gutkin, 1993). Additionally, the cognitive model must also be potent as well as easy to grasp and remember (Gutkin, 1993). Therefore, Gutkin (1993) suggested that using salient cues such as illustrations and analogies may be useful in helping consultees to retain information gathered during consultative interactions.
In summary, cognitive behavioral training techniques such as cognitive modeling and self-instructional training have been reported to be effective for producing changes in behavior. Such cognitive-behavioral interventions aim to aid the client or consultee to recognize their thoughts, relate the thoughts to their actions, and provide strategies to change their thought processes and, in turn, change their behaviors. Therefore, clients or consultees are taught to engage in self-evaluation, goal setting, and problem solving. Several training methods combine the use of behavioral and cognitive strategies to obtain optimal results. One such training method that uses modeling and self-instruction training along with other behavioral techniques is the STAR parenting program. Fox and Fox (1992) first designed the STAR parenting program as a comprehensive psychoeducational program for parents whose children display challenging behaviors (Nicholson, Anderson, Fox, & Brenner, 2002). The program uses a combination of cognitive-behavioral, developmental, and social-learning techniques to train parents to use appropriate parenting strategies. One component of this comprehensive program employs the use of the mnemonic STAR. The STAR acronym could be considered a cognitively mediated strategy that serves as a heuristic for behavioral problem solving for parents. STAR acronym stands for Stop, Think, Ask, and Respond. Parents are taught to recall this acronym when they encounter a child who is displaying challenging behaviors. Parents are first asked to Stop themselves from reacting immediately to a challenging behavior and to Think about their feelings as a means by which to regain emotional control. Next, parents are trained to Ask themselves whether their expectations are too demanding for their children (i.e., developmentally inappropriate). Last, parents are asked to Respond appropriately to the challenging behavior using developmentally suitable
consequences (Nicholson et al., 2002). During the *Respond* phase of the training, parents are taught various developmentally appropriate, cognitive, and behavioral strategies such as positive reinforcement, redirection, ignoring, and time-out, among others (Nicholson et al., 2002).

The STAR parenting program has been successful in increasing parents’ self-reported use of positive parenting strategies along with decreasing parents’ self-reported use of verbal and corporal punishment, as well as in reducing parent reports of child problem behaviors (Brenner, Nicholson, & Fox, 1999; Fox, Fox, & Anderson, 1991; Nicholson et al., 2002; Nicholson, Brenner, & Fox, 1999). Because the STAR parenting program is a comprehensive parent training program that includes both cognitively and behaviorally mediated strategies, the independent effects of the cognitive strategies alone on parent behavior change are unknown.

Although Fox and Fox’s (1992) program was designed for parents, the STAR mnemonic may have applicability for professionals working with children. Although not an experimental study, Platz (1996) used the STAR program to train 29 child care professionals including teachers, directors of childhood centers, and support staff. Participants received didactic training during four sessions, each lasting two and a half hours. In addition, materials such as tapes and books on the program were also provided. At the end of the program, participants were asked to evaluate the effectiveness of the program. Participants rated the program on its usefulness in understanding parenting concepts, the utility of the STAR in professional settings, and were asked to provide an overall grade for the program. Overall, the participants rated the program as highly favorable for its utility in professional settings as well as for its effectiveness in teaching
childrearing concepts (Platz, 1996). Additionally, the majority of participants (i.e., 24) gave an “A” rating (excellent) while the remaining participants gave a “B” rating (i.e., good) for the training. Although Platz (1996) was not an experimental study, it demonstrated that the STAR parenting program may also be useful in training child care professionals to implement behavioral management strategies in the classroom setting. Again, the independent use of the STAR mnemonic as a cognitive strategy in school settings is unknown. Therefore, further evidence is necessary to make conclusive statements of its effectiveness for training teachers on intervention use in schools or childhood centers. Additionally, modification to the STAR mnemonic may be necessary for use in the school setting.

Only one study, to date, has used the STAR mnemonic in a school setting. Gutti (2009) used a modified version of the STAR to train teachers to praise appropriate student behavior. Participants were three general education teachers who referred students who exhibited mild disruptive behaviors (e.g., off task, inappropriate vocalizations) in their classrooms. All target students’ problem behaviors were hypothesized to be maintained by teacher attention. The primary dependent variable for teachers’ behavior was rate of specific, labeled praise (SLP). SLP was defined as a praise statement directed to one or more students that included the name of a specific student or the group as well as the specific task completed by the student(s). Teachers who displayed SLP at rates less than .20 per minute during baseline were considered for participation in the study. Data for teachers’ use of general praise and negative statements were also collected. Data were collected for the number of praise and negative statements
the teacher directed to the target student as well as the nontarget students in the classroom. Data also were collected for the target behaviors of the target students.

A non-concurrent multiple baseline design was used to assess effects of the training on three female teachers’ use of SLP and the effects of the intervention on the target student’s behavior. Following baseline data, all teachers were individually trained in the use of SLP using direct training methods. At the completion of the training, teachers were given a set goal of the number of times she should provide SLP to the target student. Teachers were instructed to use praise statements for the appropriate target behaviors listed during training and to ignore any minor inappropriate behaviors. Teachers received a feedback note each day observations were conducted, indicating whether or not the teacher met her goal for the day. Following the goal setting and the feedback note phase, teachers were provided with a generalization prompt. The consultant asked the teacher if she had considered using praise as an intervention for any other student in her classroom. The consultant also informed the teacher that a feedback note would no longer be provided.

In the final intervention phase (generalization training), teachers were provided with additional training for generalizing the intervention to other students in their classrooms. The training incorporated several methods of promoting generalization described by Stokes and Osnes (1989). Teachers were also trained using the STAR acronym in the use of SLP as one component of the generalization training package. The STAR acronym served as a cognitive strategy in which teachers were trained to use the problem solving process to determine how to respond to a student who was displaying mild disruptive behaviors in the classroom. The STAR acronym, like in the STAR
parenting training program, stood for Stop, Think, Ask, and Respond. Teachers were asked to Stop when they observe misbehavior in the classroom and Think about the behavior in terms of the extent to which the behavior was hindering the learning process in the classroom. They were then taught to Ask themselves whether the target student or another student in the classroom were exhibiting any appropriate behaviors. Then teachers were taught to Respond to appropriate behaviors using specific, labeled praise or by ignoring inappropriate behavior. In addition to the generalization training, teachers were given a daily set goal for number of SLP directed to any student in his or her classroom. A daily feedback note was also provided indicating whether or not the teacher met her goal. A follow-up phase was also included in which the feedback note was withdrawn, and data were collected once a week for a month following the generalization training with goal setting and feedback note phase. Procedural integrity data were also collected at various points during the study and averaged 100% for all three training sessions.

Initially, all teachers displayed low rates of SLP directed to the target and nontarget students. Directly training teachers in the use of SLP with goal setting and a daily feedback note increased teachers’ use of SLP directed toward the target students, however not to criterion. SLP directed to nontarget students also increased, but to a lesser extent. When a generalization prompt was provided, a decrease in the use of SLP directed to target and non-target students was observed for all three teachers. Following generalization training, using the STAR problem solving model and goal setting and a feedback note, SLP directed to target student was lower for all three teachers. However, all teachers increased their rates of SLP directed to non-target students. In fact, teachers
were able to meet or exceed their set goal for a majority of sessions following
generalization training. This was not observed following direct training during the goal
setting and feedback note phase. Several reasons for this discrepancy were discussed.
Practice effects from the goal setting and feedback note may have carried over into the
generalization training phase. Another reason for increased use of SLP following
generalization training may have been a result of the training procedures used (i.e., STAR
problem solving model). Several reasons for this may exist.

The STAR problem solving model, in addition to serving as a heuristic, may also
function as a discriminative stimulus ($S^D$) for the occurrence of desirable behaviors. In
addition, the mnemonic STAR is an antecedent procedure in which a client or consultees
engage in self-instruction by reciting the specific rules of the intervention. The STAR
mnemonic also provides a means to increase the frequency of self-instruction and rule
recitation which could increase engagement in desirable behavior (Miltenberger, 2004).
Cognitions can serve as establishing operations (EO), in that the preconceived cognitions
that a consultee has about a particular student can influence the way he or she reacts to
the student’s behaviors (Miltenberger, 2004). If the teacher already possesses positive
cognitions about a student, when that student engages in an appropriate behavior, the
student’s behavior may reinforce the teacher’s behaviors. However, if the teacher has a
negative attitude about the student, that student’s appropriate behavior will not be as
reinforcing for the teacher’s behaviors. Therefore, the STAR problem solving model
encourages the teachers to look for appropriate behaviors so that these behaviors become
more reinforcing to the teacher and, in turn, increase the teachers’ use of the intervention
strategies.
Training in the STAR model may have served as a cognitive model for the problem solving process and, therefore, resulted in greater treatment integrity. The effects of the STAR problem solving model, alone, however cannot be determined as it was one component of a multi-component training package. Overall, there is limited research demonstrating the utility of the STAR problem solving model as a cognitive modeling strategy for training consultees. Cognitive modeling literature suggests that modeling can be used to promote generalization; however, the utility of the STAR problem solving model in aiding consultees to generalize interventions is unknown. Because generalization is an important aspect of consultation, assessment of training strategies in promoting generalization is essential for guiding consultation.

Generalization

Generalization is evident when behavior that has been trained in one condition occurs in a non-trained condition (Stokes & Baer, 1977). With the exception of Guttii (2009), most studies reviewed did not assess generalization of trained skills with parents, teachers, clients, and staff members. This is especially evident in the school consultation literature. Consultation should lead the consultees to develop skills for future use, with little or no help from the consultant (Zins & Erchul, 2002). Therefore, training in consultation should serve to remediate current behavior and prevent future problem behaviors. Because training is a major component in a consultative interaction, assessment of generalization is important for evaluation of the effectiveness of training as a remedial and preventative strategy. Training for generalization is often overlooked as a target of the consultation interaction, and consultants rely on the train and hope method for promoting generalization.
Stokes and Osnes (1989) described several techniques that can be used to promote generalization in applied settings. Generalization programming techniques were separated into three categories: (a) exploit current functional contingencies, (b) train diversely, and (c) incorporate functional mediators. Perhaps using a combination of cognitive methods (e.g., STAR problem solving model) and behavioral methods (e.g., direct training) for training teachers in the use of novel skills will incorporate some of the generalization techniques highlighted by Stokes and Osnes (1989). In turn, it may help promote teachers to generalize these skills to other students, behaviors, and settings.

Training consultees in a specific intervention (i.e., specific, labeled praise) that will potentially reduce student disruptive behaviors in the classroom, in general, is taking advantage of naturally occurring contingencies. Specifically, teachers’ use of the intervention will consequently reduce student disruptive behavior (i.e., contact natural consequences), which, in turn, will increase the likelihood that the consultee will use the intervention again. Training also helps in modifying maladaptive consequences, which suggests that maladaptive behaviors are followed by maladaptive consequences. If teachers are trained to praise appropriate behavior and ignore minor problems behaviors, students’ appropriate behavior may increase and therefore teacher’s maladaptive behaviors (e.g., calling attention to inappropriate behavior, yelling) will likely decrease. Consultees are also provided with handouts of the intervention and the problem solving model during training; therefore, training also incorporates common salient physical stimuli that trigger the consultee to use the intervention and the problem solving model.

Direct training specifically incorporates some generalization techniques that were highlighted by Stokes and Osnes (1989) under the Train Diversely category. Training
should include a variety of conditions that not only involve the direct target but also the indirect target. Direct training uses *sufficient response and stimulus exemplars*, in that several role-play and modeling situations are incorporated. Therefore, the more practice the consultees get during training, the more likely the skills will be generalized to situations outside of training (Miltenberger, 2004).

The STAR problem solving model encompasses some generalization techniques in the *incorporate functional mediators* category. Introducing stimuli that link a training condition to a non-trained condition facilitates generalization in this category. The STAR problem solving model requires consultees to engage in a *salient self-mediated verbal and covert stimulus*. Consultees are expected to use the problem solving method in order to make a decision about the appropriate response to the problem behavior by going through the problem solving steps. Therefore, consultees are engaging in self-instructional training.

The incorporation of all the preceding generalization techniques may increase the likelihood of consultees who were trained using the STAR problem solving model and direct training methods to generalize the intervention to other students in the classroom. Therefore, consultees may not require additional follow-up training to program for generalization.

**Purpose of the Present Investigation**

Consultation in school-based settings serves two purposes: remedial and preventative (Zins, 1993). When a consultant is solicited for services regarding a current problem behavior in the classroom, the consultant aims to assist the consultee by mitigating the student’s problem behavior(s). Therefore, the consultant is remediating the
current problem behaviors through a consultative interaction (Zins, 1993). Any consultative interaction should also serve as a preventative model for future problem behaviors by providing the consultees with skills that he or she will be able to use with little or no assistance from the consultant. Although prevention is a major goal of consultation, little research has been conducted on consultation’s preventative value (Zins, 1993). Additionally, there is a lack of research that focuses on strategies to promote generalization of consultees’ skills to other situations, times, and persons. Consultants have often relied on the train and hope method for generalization of skills, in which consultees are trained with the assumption that they will be able to generalize skills from one consultative interaction to another (Noell & Witt, 1996). There is a lack of empirical research on generalization programming and the generalized use of skills in the consultation literature; therefore, the extent to which teachers do or do not generalize skills is unknown.

The focus of consultation literature, to date, has been primarily on ways to increase teachers’ skills for current problem behaviors through direct training (Moore et al., 2002; Sterling-Turner et al., 2001; Sterling-Turner et al., 2002), performance feedback (Codding et al., 2005; Jones, Wickstrom, & Friman, 1997; Mortenson & Witt, 1998; Noell, Witt, Gilbertson, Ranier, & Freeland, 1997; Noell et al., 2000; Noell, Duhon et al., 2002; Noell et al., 2005; Witt et al., 1997), and goal setting (Martens, Hiralall, & Bradley, 1997). Training consultees using direct training procedures has resulted in greater treatment integrity than indirect training procedures (Moore et al., 2002; Sterling-Turner et al., 2001; Sterling-Turner et al., 2002). However, the effects of direct training on consultees’ generalization of skills has not been systematically assessed. Although
Gutti (2009) measured generalization of SLP to non-target students following direct training for target students, the extent to which the direct training procedures impacted consultees’ use of SLP directed toward the non-target students is unknown due to competing variables such as the daily feedback note.

Another type of training procedure that has produced favorable results is the use of cognitive strategies such as cognitive modeling (Cleven & Gutkin, 1988; Revels & Gutkin, 1983) and self-instructional training. Cognitive modeling has been effectively used for training socially withdrawn individuals to increase their social interactions. By overtly stating and modeling the social skills or problem solving steps, the consultee is able to gain novel skills (O’Connor, 1969). Although cognitive modeling studies within the consultation literature are somewhat dated and many rely on analogue data collection methods, the effectiveness of the process in training consultees in the problem solving model is evident. Zins (1993) indicated that cognitive modeling can facilitate the training process to help build consultees’ skills. Self-instructional training is similar to cognitive modeling, in that, covert behaviors are repeatedly stated out loud in order to gain novel skills. Self-instructional training has been used with students with academic problems with great success (Johnston et al., 1980; Roberts et al., 1987). The STAR problem solving model used by Gutti (2009) incorporates cognitive techniques such as cognitive models and self-instructional training into one problem solving training package. Therefore, training consultees on intervention use via direct training and the STAR problem solving model may produce high levels of treatment integrity and generalization of skills. Similar to direct training in Gutti’s study, it is difficult to ascertain the effects of the STAR problem solving model alone on teachers’ use of SLP directed toward the
target student and the non-target students. Therefore, effects of the training models on teachers’ behavior change have not been examined.

The current study was designed to assess consultees’ treatment integrity in the use of SLP directed to target students following two types of training methods: direct training and the STAR problem solving model. Additionally, the extent to which consultees generalized the intervention to non-target students in the classroom was assessed following training. The effects of direct training and the STAR problem solving model, alone, on teachers use of SLP directed to target and non-target students were also evaluated.

Research Questions

1. Does direct training with the STAR problem solving model increase teachers’ use of specific, labeled praise statements directed to a target student?

2. Does training teachers’ in the use of SLP for a target student via direct training with the STAR problem solving model aid teachers to generalize the use of SLP directed to non-target students?

3. Does direct training alone increase teachers’ use of SLP directed to the target student?

4. Does training teachers in the use of SLP for a target student using direct training methods alone aid teachers to generalize the use of SLP directed to the non-target student?

5. Does training in the STAR problem solving alone increase teachers’ use of SLP directed to target students?
6. Does training teachers’ in the use of SLP for a target student using the STAR problem solving model alone aid teachers to generalize the use of SLP directed to non-target students?
CHAPTER II

METHOD

Participants and Setting

All procedures were approved by The University of Southern Mississippi Institutional Review Board (Appendix A). The primary participants were five general education teachers (i.e., consultees) employed in an elementary school in a southeastern state. Consultees referred a student in their classroom who exhibited mild problem behaviors (e.g., non-compliance to teacher’s requests, talking out of turn, off-task behaviors). The consultee and referred students’ participation in the study was dependent on an initial teacher interview and evaluation of the problem behavior (see Dependent Measures and Data Collection for additional details). Only students between Kindergarten and third grade were recruited for the study. Students who engaged in behaviors such as aggression or destruction of property were not included in the study (see Procedures for additional details on student participant inclusion criteria). Additionally, only students whose behaviors were hypothesized to be maintained by teacher attention were included in the study. All students who were recruited qualified for the study. Informed consent was obtained from consultees and the referred students’ parents for participation in the study (Appendix B and C). All observations were conducted in the consultees’ individual classrooms during the time when problem behaviors were reported to occur most frequently. All other procedures, such as interviews and trainings, were conducted in the consultees’ individual classrooms during a time when students were not present (e.g., planning period).
Consultee A, Ms. Berry, was a Caucasian female. She was a third grade teacher with 19 years of experience teaching elementary and primary school aged students. She had a master’s degree in education and had been at the current school for 12 years. Ms. Berry reported no previous consultative services and/or training with behavioral interventions with regard to a specific student in her classroom. Ms. Berry referred Howie, an eighth-year-old African American male. Ms. Berry was concerned with Howie’s off-task behavior and inappropriate vocalizations during all instructional tasks. Observations were conducted during math class. During this class period, students were expected to engage in a variety of tasks including, but not limited to, completing math worksheets/tests, engaging in group work, and attending to the teacher during instruction.

Consultee B, Ms. Andre, was an African American female, third grade teacher with 14 years of experience teaching elementary and primary school aged students. She had her master’s degree in education and had been employed at the current school for 10 years. Ms. Andre reported she had some consultative experience with behavioral interventions in previous years but did not have any experience with receiving behavioral consultative services for a specific student in her classroom. Ms. Andre referred Mario, an eight-year-old African American male for engagement in disruptive behaviors. Specifically, Ms. Andre stated that Mario was often off-task, out of seat, and engaged in inappropriate vocalizations during instructional tasks. Observations were conducted during math class, in which students were expected to engage in a variety of tasks including, but not limited to, completing math worksheets/tests, engaging in group work, and attending to the teacher during instruction.
Consultee C, Mr. Raymond, was a Caucasian male who taught second grade. He had six years of experience teaching in an elementary school. He had a master’s degree in education and had been at the same school for six years. According to Mr. Raymond, he did not have any consultative services and/or training with behavioral interventions with regard to a specific student in his classroom. Mr. Raymond referred Simon, an eight-year-old African American male. Mr. Raymond stated that Simon’s off-task behavior, playing with objects, and inappropriate vocalizations during instructional tasks were disruptive to the classroom. Observations were conducted during math class. During this class period, students were expected to engage in a variety of tasks including, but not limited to, completing math worksheets/tests, engaging in group work, and attending to the teacher during instruction.

Consultee D, Ms. Peters, was a Caucasian female with eight years of experience in a primary school setting. She had a master’s degree in education and had been at the current school district for eight years. Ms. Peters indicated that she did not have any consultative services and/or training with behavioral interventions with regard to a specific student in her classroom. Ms. Peters referred Bobby an eight-year old African American male and was concerned that his fidgeting and inappropriate vocalizations during instructional tasks were disruptive to other students. Observations were conducted during the time in which Bobby was receiving small group instruction (i.e., group of six students) for pre-reading skills such as letter identification and phonics with Ms. Peters. During this time, students were expected to engage in a variety of tasks including, but not limited to, completing worksheets/tests related to pre-reading skills, attending to the teacher during instruction, and working in pairs.
Consultee E, Ms. Post, was an African American female. She was a third grade master’s level teacher with four years of experience teaching primary school aged students. She had been at the current school district for four years. According to Ms. Post, she had previously received consultative services and training with behavioral interventions with regard to a specific student in her classroom. Ms. Post referred Jack, a seven-year-old African American male. Ms. Post was concerned with Jack’s out-of-seat behavior, inappropriate vocalizations, and playing with objects during instructional tasks. Observations were conducted during the time when Jack was engaged in Language Arts tasks. During this time, students were expected to engage in a variety of tasks including, but not limited to, completing worksheets/tests, and attending to the teacher during instruction.

Materials

*Functional Assessment Informant Record for Teachers (FAIR-T)*

The FAIR-T is a semi-structured teacher interview used to generate hypotheses regarding antecedent and consequent conditions maintaining problem behaviors that students exhibit in the classroom (Edwards, 2002). The FAIR-T consists of four sections in which the problem behavior is defined and antecedent and consequent events for behaviors are assessed. The format includes a checklist and a follow-up interview (Appendix D). The FAIR-T can be used to generate hypotheses for behavioral function (Doggett, Edwards, Moore, Tingstrom, & Wilczynski, 2001; Doggett, Mueller, & Moore, 2002; Moore, Doggett, Edwards, & Olmi, 1999) as well as aid in intervention development (Doggett et al., 2001). Resultant data have been shown to match behavioral function assessed through experimental analysis (Doggett et al., 2001; Doggett et al.,
2002; Moore et al., 1999). The FAIR-T was used as a semi-structure interview with teachers during the consultation process.

**Functional Assessment Informant Record for Teachers (FAIR-T) Scoring Checklist**

The FAIR-T Scoring Checklist was used to assist the primary researcher in generating hypotheses about environmental variables that maintain disruptive behaviors (see Appendix E). The checklist includes antecedent and consequent events listed in the FAIR-T that are used to hypothesize functions of problem behavior (e.g., escape from task demands, teacher attention, access to tangibles, and peer attention). Three raters, including the primary experimenter, scored the FAIR-T and generated hypotheses of behavioral function for each student. Raters of the checklist indicated whether items on the FAIR-T were or were not endorsed by the teacher during the interview.

**Intervention Rating Profile-15 (IRP-15)**

The IRP-15 was provided to each teacher to evaluate his or her acceptability of the intervention. The IRP-15 is a 15-item rating system scored on a 6-point Likert scale (1 = strongly disagree to 6 = strongly agree). The scores on the IRP-15 range from 15 to 90, with higher scores indicating greater acceptability (Martens, Witt, Elliott, & Darveaux, 1985). A score above 52.50 is generally considered to be an acceptable rating (Martens et al., 1985; Von Brock & Elliott, 1987). The IRP-15 has high internal consistency (Cronbach’s alpha = .98), and items load on the General Acceptability factor (Marten et al., 1985). A copy of the IRP-15 is located in Appendix F.

**Dependent Measures and Data Collection**

A 10-second continuous partial-interval recording system was used to record teacher and student behaviors. Observations were conducted at approximately the same
time period each day and were 20-minutes in length. A copy of the observation sheet can be found in Appendix G. Electronic audio devices were used to cue observers for the interval times. All teacher behaviors except proximity were collected using frequency counts within the partial-interval recording system. Student behaviors and teacher proximity were collected using partial-interval recording only.

Consultee

Consultee behaviors directed to both target and non-target students were coded to track integrity of intervention use and generalization effects of the training on consultees’ use of SLP, respectively. The frequencies of teacher behaviors, except proximity, were converted to and are represented as frequency per minute. Rate of praise statements per minute were calculated by dividing the number of praise statements by the number of total observation minutes (i.e., 20 minutes). Proximity was calculated as percentage of intervals in which teachers were judged to be within three to five feet of a student (target or non-target).

The primary dependent variable for consultees’ behavior was SLP. SLP was defined as a praise statement directed to one or more students and that included the name of a specific student or the group as well as the specific task completed by the student(s). SLP was also tracked when teachers’ proximity (i.e., within three to five feet) to a student was substituted for the student name. Examples of SLP for an individual student included statements such as “Johnny, I like the way you cleaned up your desk,” or “Mary, good job finishing your math problems” or “Thanks for following directions,” (directed toward the student with student attention and within five feet proximity from the student). SLP directed by the teacher to the target student during baseline was considered for
participation in the study. There is no empirical literature supporting a minimum amount of praise for use in classroom settings. Therefore, a frequency per minute of less than \( 0.20 \) (i.e., one praise statement every five minutes) was used as a screen-in criterion. This criterion was established through consultation with practicing teachers who reported that providing praise to specific children or class-wide once every five minutes was a reasonable expectation and that it would not interfere with ongoing instruction. Gutti (2009) also found that teachers did not exceed this criterion during baseline sessions, suggesting that the established criterion was not too low. All teacher participants met this criterion during baseline and were included in the study.

Five additional teacher dependent measures were assessed. General praise (GP) was defined as a praise statement directed to one or more students that did not specifically label the student or the task. Examples of general praise directed to an individual student include statements such as “Good job!” (directed toward the student with student attention and within three to five feet proximity from the student) or “I like the way you are doing that” (directed toward the student with student attention and within three to five feet from the student). Proximity was coded when the teacher was within five feet of the student but did not engage in any negative or positive verbalizations including SLP and GP. Physical contact was defined as brief (i.e., one to two seconds) appropriate touch (e.g., high five, patting back). Other positive verbalizations were defined as statements directed to a student(s) that do not fall into the SLP or GP categories but may serve the same function as a praise statements (e.g., “There you go,” for getting a problem correct). Negative statements were defined as any reprimands or redirections of problem behaviors that a teacher directed to a student(s). Examples of
reprimands included asking a student to stop a behavior or telling the student that he or she will be punished. An example of a redirection was asking the student to return to work instead of engaging in the problem behavior.

Student

Each referred student’s target behaviors were individualized and were determined from the FAIR-T. For inclusion in the study, students must have exhibited mild problem behaviors at least an average of 20% of the observed intervals across all 20-minutes observation sessions during baseline. Although arbitrarily chosen, this criterion was set to levels that were high enough to observe intervention effects. Gutti (2009) found that students who were referred for the study easily met this criterion, suggesting that the criterion was not too high. Individual target behaviors varied across students based on teacher referral.

Based on results from the initial teacher intake, two to three problem behaviors were targeted for each student. Although each problem behavior was coded separately, all behaviors for each student were aggregated into one category labeled disruptive behavior for reporting purposes. Students A (Howie), B (Mario), and C (Simon) were referred for off-task behavior. Off-task behavior was defined as interrupting attention or breaking eye contact with task materials to engage in alternate behavior for more than three seconds. Based on teacher referral, data were collected for inappropriate vocalizations for all five students (i.e., Howie, Mario, Simon, Bobby, and Jack). Inappropriate vocalizations for all students were described as any academically irrelevant vocalization or verbal noise made by a student (i.e., humming, making unusual vocal noises, speaking without the teacher’s permission, whispering). Out of seat was coded for Mario and Jack. Out of seat was
defined as completely out of seat or out of area (i.e., designated spot on carpet, leaving a designated group/desk) with no part of buttocks or legs in contact with the seat. Bobby engaged in fidgeting and playing with objects. Fidgeting was coded when Bobby was engaged in a repetitive, non-functional movement for more than three seconds (e.g., shaking leg, rocking side to side in seat). Playing with objects was coded when Bobby and Jack used items related to academic tasks inappropriately (e.g., tapping pencil on table, twirling pencil between fingers) or played with items not related to academic task at hand (e.g., playing with a toy car).

Experimental Design and Data Analysis

The first two research questions assessed the combined effects of direct training and the STAR problem solving model on teachers’ use of SLP directed to target and non-target students. To address these questions, three teachers (i.e., Ms. Berry, Ms. Andre, and Mr. Raymond) received direct training with rehearsal, modeling, and feedback in the use of SLP plus training in the use of the STAR problem solving method. A multiple baseline across participants design was used to assess the effects of the combined training package on teachers’ use of SLP and the effects of the intervention on the target students’ behaviors. A phase change from baseline to intervention for Ms. Berry was contingent on a decreasing and/or stable trend in the use of SLP provided to target students. A phase change from baseline to intervention phase for Ms. Andre was based on a decreasing and/or stable trend in Mr. Raymond’s use of SLP directed toward Simon in baseline as well as an increasing and/or stable trend in Ms. Berry’s use of SLP directed toward Howie during the intervention phase. A phase change from baseline to intervention phase for Mr. Raymond was based on a decreasing and/or stable trend in his use of SLP
directed toward Simon as well as an increasing and/or stable trend in Ms. Andre’s use of SLP directed toward Mario in the intervention phase.

To address research questions three to six, two additional teachers (i.e., Ms. Peters and Ms. Post) served as controls in order to evaluate the independent effects of the direct training model and the STAR problem solving model. These teachers were initially trained to use SLP with only one training component (i.e., direct training or the STAR problem solving model). Ms. Peters was trained in the use of SLP via the direct training procedures alone, whereas Ms. Post was trained using the STAR problem solving model alone. Teachers were then trained in SLP using the other training procedure. Evaluation of the data for Ms. Peters and Ms. Post was conducted using a time series design somewhat analogous to constant series control design. Phase changes for Ms. Peters and Ms. Post were dependent on a stable and/or increasing or decreasing trend in their individual use of SLP directed toward the specific target student. These data were considered as separate within series designs.

Data were collected for teachers’ use of praise statements directed toward target students as well as non-target peers in the classroom. Data were also collected for student’s disruptive behavior for all phases of the study to evaluate the effects of the intervention on student behavior. All data were graphed and analyzed through visual inspection of the rate of teacher’s SLP towards target and non-target students in the classroom.
Procedures

Initial Consultation and Baseline

The primary experimenter initially met with individual teachers to consult about the referred students. A semi-structured interview using the FAIR-T was conducted to assess the antecedent and consequent events related to the target student’s behavior. A hypothesis for the function of the target student’s problem behaviors was determined from the ratings in the antecedents and consequences section of the FAIR-T. Three independent raters who included the primary experimenter and two, previously trained, school psychology graduate students rated the interview for agreement of the hypothesized function of each target student’s behavior using the FAIR-T Scoring Checklist. Because SLP is designed to call attention to students’ appropriate behaviors, students whose target behaviors were hypothesized to be a function of teacher attention were predicted to benefit from the intervention. Therefore, endorsement of teacher attention as a hypothesized function for student inappropriate behaviors was required for inclusion in the study. However, because multiple functions may occur in the context of academic demands, endorsement of additional functions such as escape, peer attention, or access to tangibles did not exclude students from participation. All three raters endorsed teacher attention as a possible function of problem behavior for all participants. No teacher-student dyad was excluded from the study due to endorsement of escape, peer attention, or access to tangibles, alone.

Baseline data were collected for the number of praise statements the teachers directed to the target student and other students in the classroom. A frequency per minute of praise statements was calculated using the teacher frequency data. For participation,
teachers’ average rate of SLP directed toward target students could not exceed .20 praise statements across baseline sessions. All consultees met the criterion. Direct observation data were also collected for the referred student’s target behaviors. Students’ average disruptive behaviors across baseline sessions had to be 20% or above for inclusion in the study. All students exhibited the problem behaviors at least an average of 20% of the observed intervals across all sessions in baseline. Data for the baseline phase were collected until either a stable level or a decreasing trend in the teacher’s use of SLP directed towards the target student was demonstrated.

*Intervention Implementation*

The intervention recommended to teachers was SLP. Praise or contingent attention is empirically supported for reducing problem behaviors in the classroom (Jones et al., 1997; Reinke, Lewis-Palmer, & Merrell, 2008). Behavior specific praise has been shown to increase appropriate behavior and decrease inappropriate behaviors in the classroom settings (Reinke et al., 2008). Praise has successfully been used to modify various behaviors such as off-task and academic performance across all ages, behaviors, and settings (Jones et al., 1997).

Prior to intervention implementation, teachers were trained in the use of SLP. Consultation with each teacher began with a discussion of the referred student’s target behaviors. The primary experimenter and the teacher listed and defined appropriate, alternative behaviors. The appropriate behaviors were defined in a handout and were developed in a written plan for the teacher’s future reference. Teachers were trained using direct training procedures and/or the *STAR* problem solving model. Teachers A (Ms. Berry), B (Ms. Andre), and C (Mr. Raymond) were trained using both direct training and
the STAR problem solving model. The direct training procedures were used first, followed by the introduction and training of the STAR problem solving model during the first training session. Evaluation of learned skills was conducted the following school day. Training followed the procedures stated below (see Direct Training and STAR Problem Solving Model sections). Teacher D (Ms. Peters) was initially trained in the use of SLP using the direct training procedures alone, and Teacher E (Ms. Post) was trained using the STAR problem solving model alone. Ms. Peters and Ms. Post served as controls to assess the individual effects of direct training and the STAR problem solving model. Ms. Peters and Ms. Post did not implement the intervention as planned following the first training method; therefore, they were trained in the use of SLP using the second training procedure. The experimenter and/or another trained observers collected data for the number of praise statements the teacher directed to the target student as well as the non-target students in the classroom. Data were also collected for the target behaviors of the target students. Following training and prior to the implementation of the intervention, the teachers were asked to complete the IRP-15 to assess treatment acceptability.

Direct Training

The teachers were introduced to SLP by a consultant (i.e., primary experimenter or a fourth year graduate student) that used a script to guide discussion with the teacher (Appendix H). The teacher was initially provided with a definition and an example of SLP. Next, the importance of praise as an effective intervention and an effective classroom management strategy was addressed. Additionally, the benefits of praise and the rationale for SLP for the target student were outlined. The teachers were then trained in the delivery of SLP. Teachers were trained using behavioral skills training procedures
outlined by Miltenberger (2004) and Moore et al. (2002). Teachers were initially provided with verbal instructions for implementing SLP. Following didactic training, the primary experimenter modeled the intervention while the teacher role-played the part of the student during the first training session. An intervention handout was then provided. The handout included the time-in component of the Effective Child Management Strategies (Olmi, 1998) modified for teacher’s use (Appendix I). The teachers were instructed to review the handout and the intervention procedures. The teachers were also notified that the consultant would return the next school day to assess his or her understanding of the intervention.

The next school day, the teachers were asked to practice the intervention while the primary experimenter role-played the part of the student. Both corrective feedback for incorrect implementation and praise for correct implementation were provided during and following the role play session. Training continued until the teacher received 100% treatment integrity. Training sessions were approximately 20-25 minutes in length. To ensure that teachers had multiple opportunities to practice the use of SLP and to receive feedback, teachers were required to use at least five SLP within the five minutes role play session in order to receive 100% treatment integrity. All teachers implemented the intervention with 100% integrity during the first role play session, therefore, only one session was conducted with each participant following baseline.

*STAR Problem Solving Model*

The STAR mnemonic was used to serve as a problem solving model for training teachers to respond to child misbehavior in the classroom setting. The STAR problem solving model handout outlined the steps for determining, evaluating, and responding to a
target student’s problem behaviors. STAR stands for Stop, Think, Ask, and Respond. The STAR mnemonic was introduced and teachers were first taught to Stop and Think when they observed misbehavior in the classroom. Teachers were encouraged to assess the severity of the behavior (i.e., impacting the learning of other students or danger to self or others). It was also recommended that teachers continue to use behavioral procedures outlined by the school district for serious or dangerous behaviors. However, if the inappropriate behavior was not serious, the teachers were asked to Ask themselves if another student in the classroom was behaving appropriately and/or if the target student was engaging in any other behavior that was appropriate (e.g., student was talking out of turn but may have been sitting appropriately in his or her seat). Teachers were then told to Respond to the behavior by praising another student who was engaged in appropriate behavior or by praising the target student for any display of appropriate behavior. It was also recommended that they ignore student inappropriate behaviors.

Teachers were provided with a handout that described and outlined the steps of the STAR problem solving model (see Appendix J). The consultant used a script to guide discussion with the teachers (Appendix K). The STAR problem solving model training was approximately 15-20 minutes in length. In order to ensure that teachers understood the STAR problem solving model, teachers were informed that they would be tested on the contents of the handout the following day. Consultees were required to answer the questions with 100% accuracy in order to move to the treatment phase. All consultees completed the test with 100% accuracy the first time given. A copy of the test can be found in Appendix L.
Ms. Berry, Ms. Andre, and Mr. Raymond were provided with both direct training and the STAR problem solving model. The consultant used a combination of the direct training script and the STAR problem solving model script during training. Direct training procedures were conducted prior to the introduction of the STAR problem solving model. The combined direct training and STAR problem solving model training, across two days and across all three participants (i.e., Ms. Berry, Ms. Andre, Mr. Raymond) was approximately 35-45 minutes in length. Ms. Peters and Ms. Post received only one of the training types. For Ms. Peters, training was conducted using only direct training techniques and Ms. Post was trained using only the STAR problem solving model. Data for the intervention implementation phase was collected until either a stable level or an increasing trend in the teacher’s SLP directed towards the target student was demonstrated. When either of these criteria was met for all three teachers (i.e., Ms. Berry, Ms. Andre, and Mr. Raymond) a phase change to the follow-up phase was made. If a decreasing trend was evident for Ms. Peters and Ms. Post, if neither criterion was met, a phase change to the direct training plus STAR problem solving model phase was implemented. However, if Ms. Peters and Ms. Post demonstrated an increasing trend in the use of SLP toward the target student a phase change to the follow-up phase was made. However, both teachers needed the additional training. All teachers were asked to complete the IRP-15 at the end of each phase except after follow-up.

**Booster Training**

A booster training was conducted if teachers’ use of SLP directed to the target student did not increase from baseline rates or if there was a decreasing trend. The training procedures were the same as the combined direct training + STAR problem
solving model procedures. Ms. Berry, Ms. Andre, and Ms. Post were retrained on the intervention following low rates of SLP. Booster trainings were approximately 35-45 minutes in length and were divided across two days.

Follow-up

Teachers’ continued use of the intervention was assessed during the follow-up phase for two of the five participants one week after the last intervention datum was collected. Due to the end of the school year, data were not collected for Ms. Berry, Ms. Andre, and Mr. Raymond. One follow-up datum was collected for Ms. Peters and Ms. Post one week following the last intervention session. Again, only one datum was collected for the two participants due to end of the school year. Follow-up data were collected in the same manner as baseline and intervention data and procedures remained the same as in the intervention phases.

Observer Training

The consultant trained additional observers to collect data. Initially, the consultant used didactic training to explain the observation procedures and the specific teacher and student target behaviors. Next, the observers shadowed the consultant during the observation sessions and collected data alongside the experimenter. A 90% or higher inter-observer agreement for two observation sessions with the consultant was required before the observers were able to collect data independently.

Interobserver Agreement (IOA) and Experimenter Procedural Integrity

IOA data were collected for at least 30% of the sessions in each phase. IOA was calculated separately for each of the three teacher dependent variables and student behavior. Agreement was calculated on an interval by interval basis as the number of
agreements of occurrence and non-occurrence of a behavior divided by the number of agreements plus the number of disagreements and then multiplying by 100 (i.e., total agreement). Table 1 shows the mean percentages of IOA across all phases for each teacher dependent variable directed to the target students for all five teacher participants and IOA for student disruptive behaviors for all five student participants. Table 2 shows the mean percentages of IOA across all phases for each teacher dependent variable directed to nontarget students for all five teacher participants. IOA remained high across all participants.

Experimenter procedural integrity was also collected for the training procedures to ensure correct implementation of training and prompting procedures. Meetings with each teacher were audio taped, and a school psychology graduate student completed a procedural integrity checklist of the scripts. Procedural integrity sheets can be found in Appendix M for the direct training, in Appendix N for the STAR problem solving model, and in Appendix O for the combined training procedures. A percentage of the procedural integrity was calculated by dividing the number of procedural steps implemented correctly by the number of total procedural steps on the checklist and multiplying by 100. The primary experimenter trained the first four participants (i.e., Ms. Berry, Ms. Andre, Mr. Raymond, and Ms. Peters) and conducted all training sessions with 100% integrity. A secondary experimenter trained Ms. Post with 100% integrity across all training sessions.
Table 1

*IOA for Teacher Dependent Variables Directed to Target Student Across All Phases for all Teachers and IOA for Student Behavior*

<table>
<thead>
<tr>
<th>Target</th>
<th>Ms. Berry &amp; Howie</th>
<th>Ms. Andre &amp; Mario</th>
<th>Mr. Raymond &amp; Simon</th>
<th>Ms. Peters &amp; Bobby</th>
<th>Ms. Post &amp; Jack</th>
</tr>
</thead>
<tbody>
<tr>
<td>SLP</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>( M )</td>
<td>99.81%</td>
<td>99.77%</td>
<td>98.92%</td>
<td>99.55%</td>
<td>100%</td>
</tr>
<tr>
<td>Range</td>
<td>99-100%</td>
<td>99-100%</td>
<td>97-100%</td>
<td>98-100%</td>
<td></td>
</tr>
<tr>
<td>GP</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>( M )</td>
<td>100%</td>
<td>99.54%</td>
<td>99.69%</td>
<td>99.34%</td>
<td>100%</td>
</tr>
<tr>
<td>Range</td>
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<td>99-100%</td>
<td>98-100%</td>
<td>98-100%</td>
<td></td>
</tr>
<tr>
<td>NS</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>( M )</td>
<td>99.07%</td>
<td>98.88%</td>
<td>99.79%</td>
<td>98.61%</td>
<td>100%</td>
</tr>
<tr>
<td>Range</td>
<td>98-100%</td>
<td>98-100%</td>
<td>98-100%</td>
<td>98-100%</td>
<td></td>
</tr>
<tr>
<td>PI</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>( M )</td>
<td>99.14%</td>
<td>98.98%</td>
<td>98.16%</td>
<td>98.33%</td>
<td>99.93%</td>
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<td>Range</td>
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<td>97-100%</td>
<td>97-100%</td>
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<td>99-100%</td>
</tr>
<tr>
<td>Student Bx</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>( M )</td>
<td>92.69%</td>
<td>91.38%</td>
<td>95.94%</td>
<td>96.94%</td>
<td>97.95%</td>
</tr>
<tr>
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<td>78-95%</td>
<td>93-100%</td>
<td>95-98%</td>
<td>94-100%</td>
</tr>
</tbody>
</table>

*Note:* SLP = Specific labeled; GP = General praise; PI = Positive interactions (i.e., positive verbalizations, physical contact, proximity); NS = Negative statements; Student Bx = Student Disruptive Behavior.
Table 2

*IOA for Teacher Dependent Variables Directed to Nontarget Students Across All Phases for all Teachers*

<table>
<thead>
<tr>
<th></th>
<th>Ms. Berry &amp; Howie</th>
<th>Ms. Andre &amp; Mario</th>
<th>Mr. Raymond &amp; Simon</th>
<th>Ms. Peters &amp; Bobby</th>
<th>Ms. Post &amp; Jack</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Nontarget</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>SLP</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>99.91%</td>
<td>99.62%</td>
<td>99.48%</td>
<td>99.55%</td>
<td>99.72%</td>
</tr>
<tr>
<td>Range</td>
<td>99-100%</td>
<td>98-100%</td>
<td>99-100%</td>
<td>98-100%</td>
<td>99-100%</td>
</tr>
<tr>
<td><strong>GP</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>99.91%</td>
<td>96.61%</td>
<td>98.19%</td>
<td>99.10%</td>
<td>98.37%</td>
</tr>
<tr>
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<td>93-100%</td>
<td>97-100%</td>
<td>97-100%</td>
<td>97-100%</td>
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<tr>
<td><strong>NS</strong></td>
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<td></td>
</tr>
<tr>
<td>M</td>
<td>98.79%</td>
<td>96.52%</td>
<td>99.13%</td>
<td>99.17%</td>
<td>99.31%</td>
</tr>
<tr>
<td>Range</td>
<td>98-100%</td>
<td>90-98%</td>
<td>98-100%</td>
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<td>97-100%</td>
</tr>
<tr>
<td><strong>PI</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>98.20%</td>
<td>98.96%</td>
<td>97.74%</td>
<td>98.68%</td>
<td>98.18%</td>
</tr>
<tr>
<td>Range</td>
<td>93-99%</td>
<td>97-100%</td>
<td>93-99%</td>
<td>97-99%</td>
<td>94-99%</td>
</tr>
</tbody>
</table>

*Note.* SLP = Specific labeled; GP = General praise; PI = Positive interactions (i.e., positive verbalizations, physical contact, proximity); NS = Negative statements; Student Bx = Student Disruptive Behavior.
CHAPTER III

RESULTS

Direct Training + STAR Problem Solving Model

Specific, Labeled Praise (SLP)

Figure 1 illustrates SLP statements per minute directed to target and non-target students across all phases for Ms. Berry, Ms. Andre, and Mr. Raymond. Figure 2 illustrates SLP statements per minute direct to target and non-target students across all phases for Ms. Peters and Ms. Post.

Ms. Berry. Ms. Berry’s use of SLP, directed to Howie was low and stable during baseline with a mean frequency per minutes of 0.02 (range, 0 to 0.05) across the phase. SLP statements directed to non-target students were also low with a decreasing trend ($M = 0.05$ per minutes; range, 0 to 0.1). A small but immediate increase in the use of SLP directed toward Howie was evident following direct and STAR problem solving training. However, rates did not maintain across the phase. Rates per minutes of SLP directed toward Howie ($M = 0.09$ per minutes; range, 0 to 0.2) and non-target students ($M = 0.11$ per minutes; range, 0 to 0.3) were slightly variable with a decreasing trend across the phase. Due to the low frequency per minutes of SLP, a booster training was conducted for Ms. Berry. Following booster training, Ms. Berry immediately increased her use of SLP directed toward Howie ($M = 0.28$ per minutes; range, 0.05 to 0.3). Furthermore, rates per minutes of SLP directed toward Howie were stable with an increasing trend across the phase. An immediate increase in the frequency per minutes of SLP directed toward non-target students was not evident following the booster training. However, Ms.
Figure 1. Rate of specific, labeled praise (SLP) directed toward target student (T), nontarget student (NT). BL = Baseline; DT + STAR = Following direct training with STAR problem solving model training; DT + STAR Booster = Following booster training using direct training and STAR problem solving model.
Figure 2. Rate of specific, labeled praise (SLP) directed toward target student (T), non-target student (NT). BL = Baseline; DT = Following direct training; STAR = Following training using STAR problem solving model; DT + STAR = Following direct training with STAR problem solving model training; DT + STAR Booster = Following booster training using direct training and STAR problem solving model. F/U = Follow-up session.
Berry’s mean frequency per minutes of SLP for non-target students increased from the initial training phase \( (M = 0.26 \text{ per minutes}; \text{ range, } 0.05 \text{ to } 0.6) \). Data were variable with an increasing trend across the phase. Due to the end of the school year, follow-up data for Ms. Berry’s use of SLP were not collected.

**Ms. Andre.** During baseline, Ms. Andre’s mean frequency per minutes of SLP directed to Mario was zero across the phase. Rates per minutes of SLP directed toward non-target students were low and stable across baseline sessions \( (M = 0.04; \text{ range, } 0 \text{ to } 0.15) \). Following training using direct training and STAR problem solving model procedures, rates per minutes of SLP directed to Mario increased slightly, but generally remained low and stable across the intervention phase \( (M = 0.04; \text{ range, } 0 \text{ to } 0.1) \). Ms. Andre’s use of SLP directed to non-target students decreased slightly following training \( (M = 0.01 \text{ per minutes}; \text{ range, } 0 \text{ to } 0.05) \) and remained stable and low throughout the phase. A booster training was conducted because changes in teacher behavior were not evident. Following booster training, Ms. Andre’s use of SLP for Mario immediately increased \( (M = 0.32 \text{ per minutes}; \text{ range, } 0.25 \text{ to } 0.4) \) and remained stable across the phase. Immediate changes in Ms. Andre’s rates per minutes of SLP directed to non-target students were also evident following booster training. The use of SLP for non-target students increased and remained stable throughout the phase \( (M = 0.25 \text{ per minutes; range, } 0.15 \text{ to } 0.35) \). Due to the end of the school year, follow-up data on Ms. Andre’s use of SLP were not collected.

**Mr. Raymond.** Mr. Raymond’s rates per minutes of SLP directed to Simon \( (M = 0.01; \text{ range, } 0 \text{ to } 0.05) \) and non-target students \( (M = 0.02; \text{ range, } 0 \text{ to } 0.1) \) were low and stable across all baseline sessions. Immediate increases in the frequency per minutes of
SLP directed toward both Simon and non-target students were evident following direct training and STAR problem solving model training for Mr. Raymond. Rates per minutes of SLP directed toward Simon were stable across all sessions following training with a mean frequency per minutes of 0.22 (range, 0.1 to 0.3). Mr. Raymond’s use of SLP directed to non-target students was also higher than baseline but slightly variable, with a small decreasing trend across the phase. Mr. Raymond’s mean frequency per minutes of SLP directed toward non-target students increased from baseline to 0.48 per minutes (range, 0.3 to 0.65). Because Mr. Raymond’s use of SLP was high following initial training, a booster training was not conducted. Due to the end of the school year, follow-up data for Mr. Raymond’s use of SLP were not collected.

*Ms. Peters.* During baseline, Ms. Peters’ frequency per minutes of SLP statements directed toward Bobby was low and stable ($M = 0.03$ per minutes; range, 0 to 0.1). Ms. Peters’ rates per minutes of SLP statements directed toward non-target students ($M = 0.19$ per minutes; range, 0.1 to 0.25) were stable across baseline sessions but were higher than SLP statements directed to Bobby. Following training, a slight immediate increase in the Ms. Peters’ use of SLP directed to Bobby was observed, and an overall increase in the mean frequency per minutes of SLP was observed from baseline ($M = 0.12$ per minutes; range, 0.05 to 0.25). However, use of SLP was not maintained and had a slight decreasing trend across the phase. On the other hand, an immediate increase in Ms. Peters’ frequency per minutes of SLP directed toward non-target students following training was not evident. Although variable, an overall increasing trend across the phase was evident and the mean frequency per minutes of SLP ($M = 0.33$ per minutes; range, 0.1 to 0.5) was higher in the direct training phase than in baseline. Because Ms. Peters’ use of SLP
directed toward Bobby was not maintained, the STAR problem solving training was conducted. Following the STAR problem solving training, immediate increases in Ms. Peters’ use of SLP directed toward Bobby were not evident. However, the frequency per minutes of SLP had an increasing trend across the phase with a slightly higher mean frequency per minutes of SLP ($M = 0.18$ per minutes; range, 0.1 to 0.25) than in the Direct Training phase. Ms. Peters’ use of SLP directed to non-target students remained at similar rates per minutes as in the Direct Training phase ($M = 0.39$ per minutes; range, 0.15 to 0.6). Data were variable across the phase with a slight increasing trend. One follow-up session was conducted with Ms. Peters. At follow-up, Ms. Peters’ use of SLP remained around the mean frequency per minutes of SLP in the STAR problem solving model phase.

Ms. Post. Ms. Post did not provide any SLP statements to Jack during baseline sessions. On the other hand, Ms. Post’s rates per minutes of SLP directed to non-target students, in baseline, were initially higher but followed a decreasing trend to zero ($M = 0.06$ per minutes; range, 0 to 0.15). Immediately following training using the STAR problem solving model, Ms. Post’s frequency per minutes of SLP directed to Jack slightly increased however, rates per minutes decreased to zero ($M = 0.05$ per minutes; range, 0 to 0.1). Ms. Post’s use of SLP directed to non-target students was at zero per minutes throughout the STAR problem solving phase. Due to the low rates per minutes of SLP, Ms. Post was retrained on the use of SLP using direct training procedures. Again, a slight immediate increase was observed in Ms. Post’s use of SLP directed toward Jack. However, SLP did not maintain across the phase and dropped to zero per minutes toward the end of the phase ($M = 0.04$ per minutes; range, 0 to 0.1). Ms. Post’s use of SLP
directed to non-target students remained at zero per minutes following direct training. A booster training session was incorporated where Ms. Post was trained in SLP using both direct training and STAR problem solving procedures. Following the training, Ms. Post immediately increased her use of SLP directed to Jack, and SLP maintained across the phase with a mean rate of 0.2 per minute (range, 0.15 to 0.25). On the other hand, her use of SLP directed to non-target students increased only slightly over the course of the phase ($M = 0.03$ per minutes; range, 0 to 0.05). One follow-up observation was conducted, and Ms. Post’s use of SLP directed to both Jack and non-target students remained similar to rates observed in the booster phase.

*Positive and Negative Interactions*

Table 3 represents Ms. Berry’s, Ms. Andre’s, and Mr. Raymond’s average rates per minutes of positive interactions (i.e., general praise (GP), positive verbalizations (PV), proximity (PX), and physical contact (PC) and average frequency per minutes of negative statements (NS) directed toward the target and nontarget students across each phase. Ms. Peters’ and Ms. Post’s average rates per minutes of positive interactions and negative statements directed to target and non-target students across each phase are represented in Table 4.

*Ms. Berry.* Ms. Berry’s use of GP statements and PC directed toward Howie slightly increased from baseline following training in the use of SLP statements. However, the use of GP and PC decreased following the booster training. Ms. Berry’s PX to Howie and PV increased across all the phases. GP and PV directed to non-target students, however, remained near the same rates per minutes across all phases. PX and PC directed to non-target students, on the other hand, increased all across phases.
Table 3

*Teachers' Mean Frequency per minutes of General Praise, Positive Verbalizations, Physical Contact, and Negative Statements and Mean Percent of Intervals of Close Proximity*

<table>
<thead>
<tr>
<th></th>
<th>Ms. Berry</th>
<th>Ms. Andre</th>
<th>Mr. Raymond</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>DT+</td>
<td>DT+</td>
<td>DT+</td>
</tr>
<tr>
<td></td>
<td>BL</td>
<td>STAR</td>
<td>Booster</td>
</tr>
<tr>
<td>Target</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GP</td>
<td>0.02</td>
<td>0.07</td>
<td>0.01</td>
</tr>
<tr>
<td>PV</td>
<td>0</td>
<td>0.01</td>
<td>0.05</td>
</tr>
<tr>
<td>PC</td>
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<td>0.09</td>
<td>0.02</td>
</tr>
<tr>
<td>PX</td>
<td>0%</td>
<td>13%</td>
<td>32%</td>
</tr>
<tr>
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<td>0.02</td>
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<td>0.1</td>
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<tr>
<td>PV</td>
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<td>0.1</td>
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<tr>
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<td>0.08</td>
<td>0.09</td>
</tr>
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<tr>
<td>NS</td>
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<td>0.12</td>
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</table>

*Note.* GP = General praise; PV = Positive Verbalizations; PC = Physical Contact; PX = Proximity; NS = Negative statements; BL = Baseline phase; DT + STAR = Following direct training and STAR problem solving model training; DT + STAR Booster = Following booster training using direct training and STAR problem solving models.
Table 4

*Teachers' Mean Frequency per minutes of General Praise, Positive Verbalizations, Physical Contact, and Negative Statements and Mean Percent of Intervals of Close Proximity*

<table>
<thead>
<tr>
<th></th>
<th>Ms. Peters</th>
<th></th>
<th></th>
<th></th>
<th>Ms. Post</th>
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<td>STAR</td>
<td>F/U</td>
<td>BL</td>
<td>STAR</td>
<td>STAR</td>
<td>Booster</td>
<td>F/U</td>
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<tr>
<td>PC</td>
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<td>0</td>
<td>0</td>
<td>0.01</td>
<td>0</td>
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<tr>
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<td>45%</td>
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<td>2%</td>
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<tr>
<td>PC</td>
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<td>0.01</td>
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<tr>
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</table>

*Note.* GP = General praise; PV = Positive Verbalizations; PS = Physical Contact; PX = Proximity; NS = Negative statements; BL = Baseline phase; DT = Following direct training; STAR = Following training using STAR problem solving model; DT + STAR = Following direct training and STAR problem solving model training; Booster = Following booster training using direct training and STAR problem solving models; F/U = Follow-up phase.
Ms. Andre. Ms. Andre’s average frequency per minutes of GP statements directed to Mario only increased slight following booster training. PC, on the other hand, increased following initial training, but decreased following the booster training. PX directed to Mario decreased from levels observed in baseline, following training, and increased after booster training. PV increased slightly but was low across all phases. Ms. Andre’s use of GP and NS directed to non-target students decreased across all phases.

Mr. Raymond. Following training, Mr. Raymond’s use of GP and PV increased slightly but generally remained low. Mr. Raymond’s PC with Simon remained low across phase while PX decreased from baseline, following training. GP directed to non-target students slightly increased from baseline rates per minutes following training. Use of PV and PC decreased from baseline to the intervention phase while PX increased.

Ms. Peters. GP statements Ms. Peters directed toward Bobby slightly increased following direct training, decreased following STAR problem solving training and increased again during the follow-up phase. Ms. Peters’ PX to Bobby was generally consistent across phases; however, an increase in PX was evident during the follow-up session. Ms. Peters’ use of GP directed to non-target students decreased following the STAR training but increased slightly, albeit not to rates evident during baseline, during follow-up. Ms. Peters’ PX to non-target students increased across all phases. PV and PC were low across all phases for Bobby and non-target students.

Ms. Post. GP statements Ms. Post directed towards Jack were generally low with little change across all phases. In addition, PC and PV were generally not observed across all phases. Ms. Post’s PX to Jack, albeit low, gradually increased across phases and dropped to 0% during the follow-up session. GP directed to non-target students decreased
from baseline slightly following STAR training, increased following direct training, and decreased again following the booster training. Rates per minutes of GP directed toward non-target students maintained during follow-up. PV and PC remained low across all phases. Ms. Post’s PX to non-target students was variable across phases but generally decreased across all phases.

*Negative statements.* Ms. Berry’s use of NS directed to Howie decreased across all phases. However, her use of NS directed to non-target students was variable across phases. Ms. Andre’s use of NS directed to Mario was variable across phases. NS directed to non-target students decreased to low rates per minutes across all phases. Mr. Raymond’s use of NS directed to both Simon and non-target students decreased from baseline rates per minutes following training. Ms. Peters’ use of NS directed to Bobby and non-target students was variable across phases. Ms. Post’s use of NS directed to Jack was low and remained around the same level across all phases. Ms. Post’s NS directed to non-target students was variable across all phases.

*Student Behavior*

Figure 3 represents Howie, Mario, and Simon’s percentage of disruptive behavior across all phases as well as each teacher’s use of SLP directed to the target student. Figure 4 illustrates Bobby and Jack’s percentage of intervals of disruptive behaviors and teachers’ rates of SLP directed toward.

*Howie.* Howie’s disruptive behaviors during baseline were at a mean of 37% of the observed intervals (see Figure 3, top panel). However, levels of disruptive behaviors trended downward across baseline sessions. When SLP was introduced, following the direct and STAR problem solving training, Howie’s disruptive behaviors decreased ($M = \ldots$)
Figure 3. M BL = Baseline; DT + STAR = Following direct training with STAR problem solving model training; DT + STAR Booster = Following booster training using direct training and STAR problem solving model. * Student began medication regimen for ADHD symptoms.
Figure 4. Percentage of intervals of student disruptive behavior and teacher’s rate of specific labeled praise directed to the target student across phases. BL = Baseline; DT = Following direct training; STAR = Following training using STAR problem solving model; DT + STAR = Following direct training with STAR problem solving model training; DT + STAR Booster = Following booster training using direct training and STAR problem solving model; F/U = Follow-up session.
13%; range, 3 to 40%) and followed a slight decreasing, but variable, trend across the phase. It is important to note that Howie was also prescribed a medication after the fourth treatment session to target symptoms of ADHD. In addition, Howie’s disruptive behaviors decreased despite Ms. Berry’s variable use of SLP. When the booster training was conducted, Howie’s disruptive behaviors remained low, but the mean was slightly higher than in the DT + STAR problem solving phase ($M = 17$%; range, 2% to 53%). Disruptive behaviors were also more variable but generally had a slight decreasing trend across the booster training phase. Ms. Berry’s use of SLP increased during the booster training phase.

Mario. Mario’s disruptive behaviors in baseline were at a mean rate of 29% (range, 11% to 42%) of the observed intervals with a decreasing trend across the phase. Following DT + STAR training, Ms. Andre’s use of SLP had a slight increasing trend and Mario’s disruptive behaviors immediately increased with an overall higher frequency per minutes of behavior than in baseline ($M = 33$%; range, 11% to 68%). Following the booster training, however, Mario’s disruptive behaviors were lower than in the DT + STAR phase ($M = 22$%; range, 14% to 35%) with a slight increasing trend. In addition, Ms. Andre’s use of SLP increased and remained stable across the phase.

Simon. Simon’s disruptive behaviors were stable during baseline ($M = 37$%; range, 30% to 40%) and Mr. Raymond’s use of SLP was at zero. Following the DT + STAR training Mr. Raymond’s use of SLP increased and Simon’s behaviors decreased slightly and remained stable across the phase ($M = 20$%; range, 10% to 34%).

Bobby. Bobby engaged in disruptive behaviors during an average of 32% of observed intervals across baseline (range, 23% to 49%). Disruptive behaviors were fairly
stable across the phase. Following direct training, Ms. Peters’ use of SLP directed toward Bobby increased and Bobby’s disruptive behaviors decreased from baseline and followed a slight decreasing trend across the phase ($M = 11\%$; range, 0 to 26\%). A slight immediate increase in Bobby’s disruptive behaviors was evident following the STAR training ($M = 12\%$; range, 0\% to 24\%) despite Ms. Peters’ consistent use of SLP. Levels of disruptive behaviors remained low but variable across the phase. During the follow-up session, Bobby continued to engage in disruptive behaviors near the same levels as in the treatment phases (6\%).

*Jack.* During baseline Jack exhibited disruptive behaviors during an average of 26\% of the observed intervals (range, 9\% to 48\%). Data showed an increasing trend across the phase. Following training using the STAR problem solving model, Ms. Post’s use of SLP remained low, and Jack’s engagement in disruptive behaviors, although more variable, remained near the same levels as in baseline ($M = 30\%$; range, 5\% to 68\%). When Ms. Post was trained using the direct training model and the STAR problem solving model, her rates of SLP remained low and Jack’s disruptive behaviors remained at high levels and further increased from the previous phase ($M = 44\%$; range, 7\% to 100\%). Data continued to be variable, and overall there was an increasing trend. When a booster training was conducted, Ms. Post’s use of SLP increased, and Jack’s disruptive behaviors immediately decreased and remained low throughout the phase ($M = 6\%$; range, 1\% to 14\%). Data were stable across the phase with an overall decreasing trend. During the follow-up session, Jack’s disruptive behaviors increased (33\%) to levels observed in baseline.
Treatment Acceptability

Acceptability data were collected at the beginning of each phase (i.e., post-training and pre-use) using the IRP-15 (Martens et al., 1985). Treatment acceptability data for all five participants across all phases are presented in Table 5. All scores for all teachers fell in the acceptable range. Mr. Raymond and Ms. Peters rated the intervention as highly acceptable throughout all phases. Ms. Andre rated the intervention lower than the other teachers, but her ratings were well within the acceptable range. Ms. Berry’s and Ms. Post’s ratings of the intervention increased following from pre-implementation to post-implementation.

Table 5

Acceptability Ratings for Each Teacher Across All Phases

<table>
<thead>
<tr>
<th>Phases</th>
<th>Ms. Berry</th>
<th>Ms. Andre</th>
<th>Mr. Raymond</th>
<th>Ms. Peters</th>
<th>Ms. Post</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre DT</td>
<td>90</td>
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<td></td>
<td></td>
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</tr>
<tr>
<td>Pre STAR</td>
<td></td>
<td>70</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Pre DT + STAR</td>
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<td>60</td>
<td>90</td>
<td>90</td>
<td>80</td>
</tr>
<tr>
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<td>60</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Post DT + STAR</td>
<td>85</td>
<td>60</td>
<td>90</td>
<td>90</td>
<td>85</td>
</tr>
</tbody>
</table>

*Note.* DT = Post direct training and pre-intervention implementation; STAR = Pre STAR training and pre-intervention implementation; DT+STAR = Pre direct and STAR training and pre-intervention implementation; DT + STAR Booster = Pre direct and STAR booster trainings and pre-intervention implementation, Post DT+STAR = Post intervention implementation and pre-follow up.
CHAPTER IV
DISCUSSION

School psychologists’ primary means of providing services in school settings has been through consultation (Noell, Duhon et al., 2002). Consultative interactions should serve two general purposes. The first purpose is to alleviate teachers’ current concerns (Zins & Erchul, 2002). The latter purpose of consultation focuses on prevention and aims to provide teachers knowledge and skills to attend to future problems with little or no assistance from the consultant (i.e., generalization). Generalization is the extent to which consultees are able to apply the skills and knowledge acquired in one consultative interaction to other problems behaviors, settings, or students (Zins & Erchul, 2002).

Because consultation is an indirect service model in which consultants generally rely on consultees to be the primary service providers, the consultees’ ability to accurately implement the interventions as recommended is critical to facilitate changes in client behavior. The extent to which an intervention is implemented as written or planned is known as treatment integrity. Treatment integrity partially addresses the primary purpose of consultation, in that consultants are attempting to mitigate consultees’ current concerns by ensuring that the interventions are implemented as planned in order to optimize client behavior change. Because successes or failures of appropriate and evidenced-based interventions are generally contingent on consultee treatment integrity, recent consultation literature has focused on methods such as performance feedback (Coddington et al., 2005; Noell et al., 2000; Noell, Duhon, et al., 2002; Noell et al., 2005; Witt et al., 1997) and scripts (Ehrhardt et al., 1996; Hiralall & Martens, 1998) to improve treatment integrity.
Although performance feedback and scripts have been shown as effective for increasing treatment integrity, training in the use of the intervention is the initial step in preparing teachers to implement the intervention with integrity. Direct training methods have been used successfully in training parents (Greene et al., 1999; Marcus et al., 2001; Mueller et al., 2003; Rickert et al., 1988; Rotto & Kratochwill, 1994) and teachers (Moore et al., 2002; Sterling-Turner et al., 2002). However, the extent to which teachers used these skills for similar student presentations of challenging behavior and whether there may need to be more antecedent strategies in place in order for consultation to result in higher levels of treatment integrity is unknown. Specifically, incorporating antecedent techniques involving cognitive strategies into consultative interactions may increase consultees’ use of interventions to other students in the classroom.

The present study aimed to incorporate a cognitive strategy with direct training methods. The cognitive strategy included the use of a mnemonic named STAR, to encourage consultees to Stop, Think, Ask, and Respond to problem behaviors in the classroom. The goal of the study was to examine the effects of the combined training package on consultees’ use of the intervention (i.e., specific, labeled praise; SLP) as recommended for the target student as well as the generalization of these skills to other students in the classroom. It was hypothesized that the combined training methodology would be effective for training consultees (i.e., teachers) to implement the intervention to a target student. It was also hypothesized that the training methodology would result in the consultees’ generalized use of the intervention to nontarget students.
Research Question 1

The first research question focused on whether training teachers in the use of SLP using direct training and the STAR problem solving model would increase teachers’ use of the intervention directed to a target student. These training procedures were initially implemented with three of the five participants (i.e., Ms. Berry, Ms. Andre, and Mr. Raymond). Results of the initial training procedures varied across participants. One (i.e., Mr. Raymond) out of three teachers increased their use of SLP directed to the target student following initial training. Mr. Raymond was also able to maintain the rate of SLP directed to the target student (i.e., Simon) across the phase. Ms. Berry and Ms. Andre’s use of SLP directed to the target students also increased, however to a lesser extent, following initial training. Furthermore, rates of SLP were not maintained across the phase.

It is important to emphasize that teacher gains were minimal following initial training. Additional trainings were necessary to increase teachers’ rate of praise, consequently increasing the amount of time spent providing consultation. Previous research suggests that additional supports may be necessary to facilitate behavior change, such as booster trainings, goal setting (Ehrhardt et al., 1996; Hiralall & Martens, 1998), or performance feedback (Codding et al., 2005; Noell et al., 2000; Noell, Duhon et al., 2002; Noell et al., 2005; Witt et al., 1997). Therefore, booster trainings using the same training procedures were conducted for Ms. Berry and Ms. Andre. Following re-training, both teachers slightly increased their use of SLP directed to the target students from the initial training phase. Ms. Berry and Ms. Andre also maintained their rate of praise throughout the phase.
There are several possible reasons for improved integrity following booster training. First, the consultees were able to practice the skills for a second time and receive additional feedback on their use of the intervention during the training. Therefore, practice effects may have played a role in the teachers’ increased treatment integrity. Negative reinforcement may be another possible reason for increased integrity following booster training. That is, teachers may not have wanted to participate in additional trainings and, therefore, implemented the intervention to avoid further consultative interactions. These data support DiGennaro et al.’s (2005) findings that teacher’s implementation of the intervention was high when performance feedback was contingent on low treatment integrity.

Another possible explanation for improved integrity following booster training is that student disruptive behaviors generally decreased when teachers increased their use of SLP, suggesting that teachers’ use of SLP may have been negatively reinforced by decreases in student disruptive behavior. For example, Ms. Andre’s use of SLP increased following booster training, and concomitant decreases in student disruptive behaviors were also observed. Therefore, reductions in aversive student disruptive behaviors may serve as natural contingencies for increased treatment integrity. Similar results were evident across all participants.

Research Question 2

Teachers’ generalized use of SLP directed to nontarget students following training for a specific target student using direct training and the STAR problem solving model procedures were also assessed. Mr. Raymond and Ms. Berry increased their use of SLP directed to nontarget students following the initial training, whereas Ms. Andre did not.
Mr. Raymond’s use of SLP directed to nontarget students was higher than rates in baseline but variable across the phase. Ms. Berry’s rate of SLP was low and variable with zero rate of praise across several observation sessions. Data suggest that teachers were able to only marginally generalize the intervention to non-target students. These data are consistent with Riley-Tillman and Eckert (2001), who reported minimal increases in teachers’ use of praise statements directed to non-target students following initial training.

Booster trainings were conducted to increase Ms. Berry and Ms. Andre use of SLP directed to target students, however, additional training to generalize the skills was not necessary for increased SLP use toward nontarget students. Following the booster trainings, both Ms. Berry and Ms. Andre were able to increase their use of SLP to nontarget students. These data are consistent with Ms. Berry’s and Ms. Andre’s use of SLP directed to the target students. As the intervention use for the target students increased, so did the use of SLP for nontarget students. Although specific training for generalization was not conducted, statements suggesting teachers ignore target student’s inappropriate behaviors and praise nontarget students for the matched appropriate behaviors were incorporated during both training types. Therefore, generalization of praise to nontarget students may have been a result of teachers’ attempts to ignore target student’s inappropriate behaviors.

Teachers may also have experienced natural contingences in the form of negative reinforcement from student behavior change. That is, nontarget students’ disruptive behaviors may have decreased as a result of teachers’ use of SLP. The reduction of student disruptive behaviors may have served as a reinforcer for teachers’ use of SLP and
therefore increased the likelihood of their continued use of SLP directed to students in their classroom. Data for nontarget students’ disruptive behaviors were not collected; therefore the specific extent to which negative reinforcement played a role in teachers’ use of SLP directed to nontarget students is unknown and only speculative.

Use of SLP directed to nontarget students was generally higher than SLP directed to the target student for all three teachers across all intervention phases. Teachers may have had more opportunities to praise nontarget students’ appropriate behaviors because more nontarget students were present in the classroom when compared to the one target student. It may have been easier for teachers to observe and recognize nontarget students’ appropriate behavior because of the larger number of opportunities.

Research Question 3

The third research question focused on whether direct training alone increases teachers’ use of SLP directed to a target student. Ms. Peters increased her use of SLP following direct training alone. These data support previous research in which, direct training was sufficient for treatment implementation (Sterling-Turner et al., 2002). Research also suggests direct training alone initially promotes high treatment integrity however; consultee’s intervention use fades over time without additional supports (e.g., Noell et al., 1997; Witt et al., 1997). A similar effect was evident with Ms. Peters’ use of SLP following direct training only. She gradually decreased her rate of SLP; therefore, another training using the STAR problem solving procedures alone was conducted. Immediate increases in treatment integrity were evident following STAR training. Ms. Peters also maintained her rate of SLP throughout the phase indicating that an additional training was beneficial in increasing and maintaining treatment integrity. One follow up
session indicated that Ms. Peters continued to use SLP at rates comparable to the previous phase.

Although STAR problem solving model resulted in increased treatment integrity, it is difficult to determine if Ms. Peters’ behavior change was due to the cognitive procedures outlined during the training. Improvement in her skills may have been due to simply repeating instructions and re-training the intervention procedures. That is, the type of training may not matter as long as some form of additional training is conducted. Evidence is limited in the current participant data to support the utility of the STAR problem-solving model in increasing treatment integrity. Another reason for increased treatment integrity following the second training may be negative reinforcement. Again, Ms. Peters may have increased her use of SLP to avoid additional training sessions with the consultant.

Research Question 4

Research Question 4 aimed to evaluate whether teachers’ use of SLP would generalize to nontarget students following intervention training specified for a target student using direct training methods alone. Ms. Peters’ use of SLP directed to nontarget students increased, albeit with great variability across the phase, following direct training methods alone. These data indicate that generalization of intervention to novel students can occur without further generalization training. However, specific generalization training may be necessary in order to maintain consistent use of SLP. The utility of direct training methods alone in increasing generalization of the intervention to nontarget students was assessed in previous research. Gutti (2009) found that direct training with the use of goal setting and a feedback note did not aid in generalization of praise with
nontarget students. The results of the present study are inconsistent with Gutti’s findings. Possible reasons for the inconsistency may be related to teacher characteristics. During consultative interactions, Ms. Peters expressed that she would like to actively increase her use of praise with students, therefore indicating that she was invested in using the intervention in her classroom.

Research Question 5

The fifth research question aimed to examine whether training using the STAR problem solving model alone increases a teacher’s use of SLP directed to a target student. Ms. Post’s use of SLP directed to Jack did not increase following training using the STAR problem solving model alone. She continued to have low rates of SLP directed to Jack following a second training using direct training methods. Following a booster training using both direct training and the STAR problem solving model, Ms. Post marginally increased her use of SLP. Again a booster training was necessary in order to increase integrity. Results indicate that the use of STAR procedures alone may not be beneficial in increasing teacher’s use of SLP. However, rates of SLP remained low following direct training methods also for Ms. Post. Further investigations are necessary to determine the effects of the STAR problem solving model alone on teachers’ use of interventions. Other factors may have played a role in teacher’s non-responsiveness to the training procedures. Specifically, Ms. Post’s acceptability rating of the intervention, albeit in the acceptable range, was lower than other teachers following the initial training. She may not have been initially invested in the intervention, therefore resulting in inaccurate implementation.
Research Question 6

Research Question 6 aimed to examine whether teachers’ use of SLP would generalize to nontarget students following training in the intervention using STAR problems solving methods alone for a target student. Data indicate that STAR problem solving model alone did not aid Ms. Post in generalizing the intervention to other students in the classroom. Furthermore, Ms. Post did not generalize the use SLP to nontarget students following direct training alone. Minimal increases in generalization were evident following booster training using both training procedures. Because, Ms. Post’s intervention implementation for the target student was poor, it is somewhat expected that the intervention skills may not generalize. That is, if Ms. Post’s intervention integrity for the target student is low, we can assume that Ms. Post lacks the necessary skills to implement the intervention or that she opted not to implement the intervention. Consequently, the probability of implementing the same intervention for nontarget students is generally low.

Other Teacher Verbalizations

Other verbalizations were also recorded to assess whether training in the use of SLP prompted changes in teachers’ use of other type of statements. In general, negative statements directed to the target students decreased across phases for all five teachers. Despite low rates of SLP statements directed to the target student for Ms. Berry, Ms. Andre, and Ms. Post, their use of negative statements decreased across phases. Both training types incorporated statements regarding ignoring problem behaviors. This may indicate that these teachers may have started to actively ignore some of the disruptive behaviors following training.
Decreases in negative statements directed to nontarget students across were evident for three out of five teachers (i.e., Ms. Andre, Mr. Raymond, and Ms. Peters). Ms. Berry and Ms. Post’s negative statements directed to nontarget students were variable across phases. These effects were minimal perhaps because specific training regarding nontarget students was not conducted. These teachers participants did not generalize their skills of ignoring disruptive behaviors to nontarget students.

The use of General Praise statements (GP) directed to the target students increased from baseline for all teachers including those who received DT + STAR (i.e., Ms. Berry, Ms. Andre, and Mr. Raymond) and those who received DT (i.e., Ms. Peters) or STAR alone (i.e., Ms. Post) following initial training. GP statements varied across phases but did not drop to baseline rates across participants. In addition, GP directed to nontarget students was variable across all phases for all teachers. These data may suggest that the trainings did not have an effect on the teachers’ use of GP directed to both target and nontarget students.

Based on a limitation in Gutti (2009), data were also collected for proximity, other positive verbalizations, and physical touch. However, data were inconsistent across all teacher participants, suggesting that the training had little to no effects on the generalization of these additional skills to target and nontarget students. It may be necessary to explicitly train in order for teachers to generalize these skills.

Target Student Behavior

Effects of the intervention on target students’ behaviors were also examined. Results varied across student participants. Mean percentage of intervals of student disruptive behaviors decreased for three out of five students when teachers’ use of SLP
directed to the target students increased. Simon and Bobby’s disruptive behaviors decreased from baseline levels when Ms. Peters’ and Mr. Raymond’s use of SLP increased, respectively. Bobby and Simon’s disruptive behaviors also remained stable across intervention phases. Ms. Post’s use of SLP was also associated with reductions in Jack’s disruptive behaviors. Jack’s disruptive behaviors were variable across the first three phases, but immediately decreased when Ms. Post increased her use of SLP statements directed to Jack following the booster training. These data are consistent with results found in previous studies (e.g., Dufrene et al. (in press); Gutti, 2009). Both Dufrene et al. (in press) and Gutti (2009) observed that teachers’ use of praise resulted in concomitant decreases in students’ disruptive behavior. In addition, decreases in the student disruptive behavior were possibly related to decreases in teachers’ use of negative statements. Teachers were also encouraged to ignore minor disruptive behaviors. Therefore teachers may have paid less to the students’ disruptive behaviors consequently decreasing the likelihood that students engage in disruptive behaviors in the future.

Howie’s disruptive behaviors also decreased. Unlike Simon, Bobby, and Jack, Howie’s results may have been a product of extraneous variables. That is, Howie’s behaviors continued to decrease despite Ms. Berry’s variable use of SLP. It is important to note that Howie also began an ADHD medication in the middle of the second phase. The observed change in Howie’s disruptive behaviors may have been the product of medication management. In addition, when Ms. Berry increased her SLP statements directed to Howie following the booster training, his behaviors increased slightly from the initial training phase. Mario’s disruptive behaviors also followed a similar trend. His behaviors did not decrease from baseline levels across all phases, despite Ms. Andre’s
increased use of SLP following the booster training. Mario’s levels of disruptive behavior across all phases and Howie’s increased levels in disruptive behavior following teacher booster training may suggest that additional intervention supports are necessary for these two students. Student participants were selected based on teacher report that teacher attention serves as one possible reinforcer for students’ disruptive behaviors. However, Mario and Howie may have been accessing additional contingencies (e.g., escape from task, peer attention), which were more salient than teacher praise. Additional supports that manage other contingencies may be necessary for these students to reduce disruptive behaviors.

Acceptability

Although rated in the acceptable range, teachers who initially found the intervention to be less acceptable than the other teacher participants were more likely to have problems with treatment integrity. Specifically, Ms. Berry, Ms. Andre, and Ms. Post rated the intervention as lower, post initial training, than Mr. Raymond and Ms. Peters. These data may suggest that high levels of initial acceptability may have to be present in order for the teachers to implement the intervention with higher integrity (Allen, 2003).

Limitations

The current study has several limitations that should be addressed. First, the effectiveness of the STAR problem solving model in training teachers to implement SLP with integrity is preliminary. It is difficult to ascertain the utility of this model in consultative interactions without further investigation. Because the model was used in conjunction with direct training procedures, the individual effects of the STAR problem solving model are relatively unknown. The STAR training procedure was only used in
isolation for one participant (i.e., Ms. Post) with minimal effects, therefore, further investigations are necessary to determine the effectiveness of the STAR problem solving model alone.

Furthermore, the STAR problem solving model was exclusively used to train the intervention, SLP, in the present study and in Gutti (2009). Although the STAR acronym was derived from the evidenced-based parent training program, Parenting Young Children (Fox et al., 1991), the STAR problem solving model alone has been used only in this context. Therefore the use of the STAR problem solving model in training other interventions is unknown and may limit consultants to specific interventions (e.g., specific, labeled praise).

In addition, the procedures outlined for the STAR problem solving model may not have been significantly different from direct training procedures to show differential effects. Although, direct training procedures included a practice component with feedback, the content of the scripts for direct training and STAR problem solving model were relatively similar. Specifically, both incorporated the same didactic training procedures in which descriptions of the problem behaviors, appropriate alternate behaviors, importance of specific, labeled praise, and ignoring inappropriate behaviors were reviewed. In addition, teachers also received a handout of the intervention procedures following each training type. The STAR problem solving model and direct training may be employing similar training methodology, therefore, making it difficult to observe deferential effects.

Although generalization of intervention to nontarget students was addressed, data on teachers’ generalization of the intervention across time is limited. That is, long term
effects of the trainings cannot be assessed because follow-up data were only collected for two out of five teacher participants. In addition, only one follow-up observation was conducted for each of the two teachers. Therefore, the extent to which teachers used SLP following the termination of the consultative interaction ended is unknown.

Teachers were simply asked to increase their use of SLP toward the target students following training. A goal or amount of SLP to use was not specified for the teachers during training. This may be a training limitation because goal setting (i.e., at least one praise statement every 5 minutes) may have been beneficial for the teachers to follow through with the plan. For example, Gutti (2009) observed that although, teachers did not always meet their goal they provided greater rates of SLP when a goal was set.

The next few limitations refer to training length. Although efforts were made to keep the training time similar across all participants, some participants received more training time than others. The length depended on teacher’s understanding of the information and the number of questions he or she asked. This limitation is slightly offset by the content of the training (i.e., the training script), which remained the same for all participants. Additionally, three of five teachers received booster trainings, therefore enhancing their exposure to the training procedures. Training procedures were also conducted across two or more days for all teacher participants. In addition, the length of direct training was relatively longer to the STAR problem solving training due to the practice component in direct training. Given the limited amount of time teachers have for other responsibilities these training sessions may need to be modified in order to reduce the length.
Student behavior was hypothesized to be maintained, at least partially, by attention from teacher. However, other maintaining factors, such as escape and attention from peers, were also present for all target students. Formal functional analyses were not conducted; therefore, the primary function of the students’ behaviors was not identified. Minimal student behavior change results were possibly due to the intervention not adequately addressing the functions of a behavior. In addition, several problem behaviors were targeted for each student participant. Therefore, the intervention may have been differentially effective across behaviors. It is difficult to decipher, from the data, whether this was the case.

Teacher reactivity to observers is another limitation to address. Teachers may have increased their use of SLP only when the observers were present. However, reactivity may have been minimal because observers were present during all phases of the intervention including baseline, training, and intervention phases.

Summary and Implications

The present study informs consultation practices regarding training in several ways. The use of a cognitive strategy in training teachers has not been previously addressed in consultative literature. The addition of the STAR problem solving model to direct training procedures may have been effective in teachers’ generalized use of the intervention directed to nontarget students. However, it is difficult to ascertain the STAR problem solving model’s contribution to teachers’ increased use of SLP for target and nontarget students. Because the use of a mnemonic is a covert behavior, teachers’ use of the problem solving strategies is difficult to observe and therefore unknown. Generalization effects were not evident in other studies, following direct training methods
alone (e.g., Riley-Tillman & Eckert, 2001). That is, Riley-Tillman and Eckert (2001) did not observe changes in teachers’ use of praise directed to nontarget students following direct training procedures. Further evaluation of the STAR problem solving model is necessary in order to demonstrate the effectiveness of the training procedure. In addition, researchers and practitioners should continue to develop ways to incorporate techniques to increase generalization into their consultative interactions.

The present study adds to the literature by further illustrating the utility of direct training procedures in consultative interactions. These data, however, should be viewed with some caution because teacher gains post direct training were not always substantial, and booster trainings were necessary in order for some teachers to implement the intervention with integrity. Despite the need for retraining, teachers were able to increase and maintain their implementation across the phase following a second training session. These data suggest that teachers may require multiple trainings and multiple practice sessions in order to learn the necessary skills. Therefore, there are consultative implications for the amount of time a consultant should spend training teachers on intervention use before treatment implementation. That is, it is critical that consultants initially emphasize training procedures and training teachers to integrity before allowing them to implement the intervention in the classroom. For example, Direct Behavioral Consultation (DBC) may be necessary for sustained intervention use (Dufrene et al., in press; Watson & Sterling-Turner, 2008). Dufrene et al. successfully demonstrated one example of DBC training in which consultants verbally prompted teachers to use praise using a one-way radio device during routine instructional activities. Dufrene et al. found that teachers’ use of praise increased during the training and maintained, albeit at slightly
lower rates, when the prompting procedures were withdrawn. Therefore, *in vivo* training may be necessary for teachers to successfully and consistently implement recommended interventions. Although the current study adds to the literature, further investigation on training type is necessary. Researchers and practitioners should continue to develop ways to incorporate training procedures that are effective in helping consultees maintain skills.
APPENDIX A

INSTITUTIONAL REVIEW BOARD APPROVAL LETTER

THE UNIVERSITY OF SOUTHERN MISSISSIPPI

Institutional Review Board
118 College Drive #5147
Hattiesburg, MS 39406-0001
Tel: 601.266.6820
Fax: 601.266.5509
www.usm.edu/irb

HUMAN SUBJECTS PROTECTION REVIEW COMMITTEE
NOTICE OF COMMITTEE ACTION

The project has been reviewed by The University of Southern Mississippi Human Subjects Protection Review Committee in accordance with Federal Drug Administration regulations (21 CFR 26, 111), Department of Health and Human Services (45 CFR Part 46), and university guidelines to ensure adherence to the following criteria:

- The risks to subjects are minimized.
- The risks to subjects are reasonable in relation to the anticipated benefits.
- The selection of subjects is equitable.
- Informed consent is adequate and appropriately documented.
- Where appropriate, the research plan makes adequate provisions for monitoring the data collected to ensure the safety of the subjects.
- Where appropriate, there are adequate provisions to protect the privacy of subjects and to maintain the confidentiality of all data.
- Appropriate additional safeguards have been included to protect vulnerable subjects.
- Any unanticipated, serious, or continuing problems encountered regarding risks to subjects must be reported immediately, but not later than 10 days following the event. This should be reported to the IRB Office via the “Adverse Effect Report Form”.
- If approved, the maximum period of approval is limited to twelve months. Projects that exceed this period must submit an application for renewal or continuation.

PROTOCOL NUMBER: 29101206
PROJECT TITLE: The Effects of Direct Training and the Star Problem Solving Model on Teachers' Treatment Integrity and Generalized Use of an Intervention
PROPOSED PROJECT DATES: 10/01/09 to 10/01/10
PROJECT TYPE: Dissertation or Thesis
PRINCIPAL INVESTIGATORS: Neelima Guti
COLLEGE/DIVISION: College of Education & Psychology
DEPARTMENT: Psychology
FUNDING AGENCY: N/A
HSPRC COMMITTEE ACTION: Expedited Review Approval
PERIOD OF APPROVAL: 10/19/09 to 10/18/10

[Signature]
Lawrence A. Hosman, Ph.D.
HSPRC Chair

10-21-09
Date
Dear Teacher,

I am a doctoral student in the School Psychology Program at The University of Southern Mississippi working under the guidance of Dr. Heather Sterling-Turner. As part of my Doctorate’s dissertation project, I am researching the effectiveness of interventions designed to decrease mild disruptive behaviors in the classroom. A student in your classroom has been referred by you for exhibiting behavioral difficulties at school; therefore, we hope you will consent for your student’s participation in the following investigation.

If you agree to participate in this study, we will ask you to do some tasks. First, prior to the implementation of the intervention, you will be asked to complete an interview with me to obtain information pertaining to your student’s behaviors of concern, identify the target behavior and activity setting in which it occurs, and to identify factors that may maintain the behavior. I will also observe and record the target behavior of concern in the classroom. If your student qualifies for participation, I will then train you to implement a simple, classroom based intervention. The training sessions will be audio-taped to ensure my integrity to the training procedures. If the student does not qualify for participation or parental consent is not provided, other services will be made available to you.

I, or another trained graduate student from the USM School Psychology program, will collect classroom observations throughout all phases of the study. In the initial phase of the study, I will conduct several classroom observations during which I will collect data for your student’s target behavior. The recommended intervention will not be implemented at this point. During the next few phases, you will implement the recommended intervention. Before implementation of the intervention and several times thereafter, I will ask you to complete a structured questionnaire in order to assess your satisfaction with the intervention.

This study may result in three benefits for you and your student: (a) your student may decrease the amount of inappropriate behaviors he/she had displayed prior to the intervention, (b) your student may increase his/her appropriate behaviors and, (c) you may acquire skills to implement a new intervention technique that can be used with subsequent students.

Your student’s behavior will be monitored to ensure undesired effects (e.g., increase in inappropriate behaviors) do not happen. If any unanticipated untoward effects on your student's behavior are observed, appropriate modifications or discontinuation of the procedure will occur, and your student will be provided with other appropriate services. There would appear to be very few risks for either you or your student participating in this study. The greatest discomfort for you may be related to
implementing a new procedure in the classroom. To reduce discomfort, I and/or other trained graduate students will provide training, materials, and will be available to answer any questions you may have. Your student should not experience any discomfort from the implementation of the recommended intervention.

All interviews, observations, and other information obtained during this study will be kept strictly confidential. Your name, student’s name, and other identifying information will not be disclosed to any person not connected with this study. Results from this research project may be shared at professional conferences or published in scholarly journals; however, all identifying information will be removed from publications and/or presentations. Your participation in this study is entirely voluntarily. In addition, you may withdraw from this study at any time without penalty, prejudice, or loss of benefits. Further services, if needed, may be provided outside the scope of this study.

Whereas no assurance can be made concerning results that may be obtained (as results from investigational studies cannot be predicted) I will take every precaution consistent with the best scientific practice.

If you agree to participate, please read, sign, and return the following page. Please keep this letter for your records. If you have any questions about this study, please contact Neelima Gutti or Dr. Heather Sterling-Turner at (601) 266-5255. This project and this consent form have been reviewed by the Human Subjects Protection Review Committee, which ensures that research projects involving human subjects follow federal regulations. Any questions or concerns about rights as a research subject should be directed to the Institutional Review Board Office, The University of Southern Mississippi, Box 5147, Hattiesburg, MS 39406-5147, (601) 266-6820.

Sincerely,

_________________________
Neelima Gutti M.A.
School Psychologist in Training

_________________________
Heather E. Sterling-Turner, PhD.
Associate Professor of Psychology
School Psychology Training Director
THIS SECTION TO BE COMPLETED BY TEACHER

Please Read and Sign the Following:

I have read the above documentation and consent to participate in this project. I have had the purpose and procedures of this study explained to me and have had the opportunity to ask questions. I am voluntarily signing this form to participate under the conditions stated. I have also received a copy of this consent. I understand that I will be asked to implement a classroom-based intervention, and observations will be conducted in the classroom on the student’s behavior. In order to do so, I will be required to complete a structured interview, implement the intervention, and a structured questionnaire to assess my satisfaction with the intervention. In addition, I will be trained on all of the intervention procedures by the primary experimenter. I further understand that all data collected in this study will be confidential and that my name and the student’s name will not be associated with any data collected. I understand that I may withdraw my consent for participation at any time without penalty, prejudice, or loss of privilege.

_________________________________  _______________________
Signature of Teacher                  Date

_________________________________
Signature of Witness
Dear Parent,

I am a doctoral student in the School Psychology Program at The University of Southern Mississippi working under the guidance of Dr. Heather Sterling-Turner. As part of my Doctoral dissertation project, I am researching the effectiveness of interventions designed to decrease mild, disruptive behaviors in the classroom. Your child has recently been referred for exhibiting mild behavior problems in the classroom by his or her teacher.

If you agree to allow your child to participate, your child’s teacher will be asked to do several things during subsequent meetings with me. Initially, the teacher will be asked to complete an interview with me to clarify the nature of the behavior referral. Following the interview, observations will be conducted during ongoing classroom activities by me and/or trained observers from the USM School Psychology Program. If your child qualifies for participation, I will then train the teacher to implement a simple, classroom based intervention. If your child does not qualify for participation other services will be made available to the teacher.

Following the interview and observations, your child’s teacher will receive training on how to implement the classroom-based intervention. In the initial phase of the study, I will conduct several classroom observations during which I will collect data for your child’s target behaviors. The recommended intervention will not be implemented at this point. During the next few phases, the teacher will be asked to implement the recommended intervention.

Benefits for participating in this research project may include: (a) your child may have decreases in inappropriate classroom behavior, (b) your child may have increases in appropriate behavior, and (c) your child’s teacher may acquire new strategies to implement with other students exhibiting problem behavior in the classroom.

Your child will be monitored to ensure undesired effects (e.g., increase in inappropriate behaviors) do not happen. If any unanticipated untoward effects on your child’s behavior are observed, appropriate modifications or discontinuation of the procedure will occur, and your student will be provided with other appropriate services. Minimal risks are anticipated for involvement in this research project. Your child should not experience any discomfort from the implementation of the recommended intervention.

All interviews, observations, and other information obtained during this study will be kept strictly confidential. All identifying information will not be disclosed to any
person not connected with this study. Results from this research project may be shared at professional conferences or published in scholarly journals; however, all identifying information will be removed from publications and/or presentations. Your consent for your child’s participation in this study is entirely voluntarily and you may withdraw your child from this study at any time without penalty, prejudice, or loss of benefits.

Whereas no assurance can be made concerning results that may be obtained (as results from investigational studies cannot be predicted) the primary experimenter will take every precaution consistent with the best scientific practice.

If you agree to participate, please read, sign, and return the following page. Please keep this letter for your records. If you have any questions about this study, please contact Neelima Gutti at (266.5255; neelima.gutti@usm.com) or Dr. Heather E. Sterling-Turner (266.5255; heather.turner@usm.edu). This project and this consent form have been reviewed by the Human Subjects Protection Review Committee which ensures that research projects involving human subjects follow federal regulations. Any questions or concerns about rights as a research subject should be directed to the Institutional Review Board Office, The University of Southern Mississippi, Box 5147, Hattiesburg, MS 39406-5147, (601) 266-6820.

Sincerely,

_________________________
Neelima Gutti, M.A.,
School Psychologist-In Training

_________________________
Heather E. Sterling-Turner, PhD.
Associate Professor of Psychology
School Psychology Training Director
THIS SECTION TO BE COMPLETED BY PARENT

Please Read and Sign the Following:

I have read the above documentation and consent to participate in this project. I have had the purpose and procedures of this study explained to me and have had the opportunity to ask questions. I am voluntarily signing this form to participate under the conditions stated. I have also received a copy of this consent. I further understand that all data collected in this study will be confidential and that my child’s name and the teacher’s name will not be associated with any data collected. I understand that I may withdraw my consent for participation at any time without penalty, prejudice, or loss of privilege.

_________________________________________  _______________________
Signature of Parent                      Date

_________________________________________
Signature of Witness
If information is being provided by both the Teacher and the Classroom Aide, indicate both respondents' names. In addition, in instances where divergent information is provided, note the sources of specific information.

Student: ___________________  Respondent(s): ___________________

School: ___________________  Age: ____  Sex: M  F  Date: _____

1. Describe the referred student. What is he/she like in the classroom? (Write down what you believe is the most important information about the referred student.)

_______________________________________________________________________
_______________________________________________________________________
_______________________________________________________________________
_______________________________________________________________________

2. Pick a second student of the same sex who is also difficult to teach. What makes the referred student more difficult than the second student?

_______________________________________________________________________
_______________________________________________________________________
_______________________________________________________________________

3. a. On what grade level is the student reading? _________
   b. On what grade level is an average student in the class reading? _________

4. a. On what grade level is the student performing in math? _________
   b. On what grade level is an average student in the class performing in math? _________

5. a. What is the student's classwork completion percentage (0 - 100%)? _________
   b. What is the student's classwork accuracy percentage (0 - 100%)? _________

6. Is the student taking any medications that might affect the student's behavior?
   _____ Yes  _____ No

If yes, briefly explain:

_______________________________________________________________________
_______________________________________________________________________
_______________________________________________________________________
7. Do you have any specific health concerns regarding this student?
   _____ Yes    _____ No
   If yes, briefly explain:
   ____________________________________________________________
   ____________________________________________________________

8. What procedures have you tried in the past to deal with this student's problem behavior?
   ____________________________________________________________
   ____________________________________________________________

9. Briefly list below the student's typical daily schedule of activities.

<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
<th>Time</th>
<th>Activity</th>
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</table>

10. When during the day (two academic activities and times) does the student's problem behavior(s) typically occur?

   Academic Activity #1____________________ Time___________________
   Academic Activity #2____________________ Time___________________

11. Please indicate good days and times to observe. (At least two observations are needed.)

   Observation #1             Observation #2             Observation #3 (Back-up)

   Date________               Date________               Date________
   Time________               Time________               Time________
Problem Behaviors

Please list one to three problem behaviors in order of severity. Do not use a general description such as "disruptive" but give the actual behavior such as "doesn't stay in his/her seat", or "talks out without permission".

1. __________________________________________ _________________________________________________________________________

2. __________________________________________ _________________________________________________________________________

3. __________________________________________ _________________________________________________________________________

1. Rate how manageable the behavior is:
   a. Problem Behavior 1 1 2 3 4 5 UnmanageableManageable
   b. Problem Behavior 2 1 2 3 4 5 UnmanageableManageable
   c. Problem Behavior 3 1 2 3 4 5 UnmanageableManageable

2. Rate how disruptive the behavior is:
   a. Problem Behavior 1 1 2 3 4 5 Mildly Very
   b. Problem Behavior 2 1 2 3 4 5 Mildly Very
   c. Problem Behavior 3 1 2 3 4 5 Mildly Very

3. How often does the behavior occur per day (please circle)?
   a. Problem Behavior 1 <1-3 4-6 7-9 10-12 >13
   b. Problem Behavior 2 <1-3 4-6 7-9 10-12 >13
   c. Problem Behavior 3 <1-3 4-6 7-9 10-12 >13

4. How many months has the behavior been present?
   a. Problem Behavior 1 <1 2 3 4 entire school year
   b. Problem Behavior 2 <1 2 3 4 entire school year
   c. Problem Behavior 3 <1 2 3 4 entire school year
Antecedents: Problem Behavior # _____: ___________________ Yes No

1. Does the behavior occur more often during a certain type of task? _____ _____
2. Does the behavior occur more often during easy tasks? _____ _____
3. Does the behavior occur more often during difficult tasks? _____ _____
4. Does the behavior occur more often during certain subject areas? _____ _____
5. Does the behavior occur more often during new subject material? _____ _____
6. Does the behavior occur more often when a request is made to stop an activity? _____ _____
7. Does the behavior occur more often when a request is made to begin a new activity? _____ _____
8. Does the behavior occur more often during transition periods? _____ _____
9. Does the behavior occur more often when a disruption occurs in the student's normal routine? _____ _____
10. Does the behavior occur more often when the student's request has been denied? _____ _____
11. Does the behavior occur more often when a specific person is in the room? _____ _____
12. Does the behavior occur more often when a specific person is absent from the room? _____ _____
13. Are there any other behaviors that usually precede the problem behavior? _____ _____
14. Is there anything you could do that would ensure the occurrence of the behavior? _____ _____
15. Are there any events occurring in the child's home that seem to precede occurrence of the behavior at school? _____ _____
16. Does the behavior occur more often in certain settings? _____ _____
   (circle all that apply)
   large group  small group  independent work  one-to-one interaction
   bathroom  recess  cafeteria  bus  other:  _____________
**Consequences: Problem Behavior #_____:_____________________

1. Please indicate whether the following consequences occur after the behavior is exhibited.

<table>
<thead>
<tr>
<th>Consequence</th>
<th>Yes</th>
<th>No</th>
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<tbody>
<tr>
<td>Access to Preferred Activity</td>
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<tr>
<td>Termination of Task</td>
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<td>Reprimand</td>
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2. Is there any task you have stopped presenting to the student as a result of the problem behavior?  _____ Yes   _____ No

   If yes, describe:_________________________________________________

3. Are there other problem behaviors that often occur after the behavior is exhibited?  _____ Yes   _____ No

   If yes, describe:_________________________________________________

4. Does the student typically receive praise or any positive consequence when behavior occurs that you would like to see instead of the problem behavior?  
   _____ Yes   _____ No

   Comments:_____________________________________________________

Antecedents: Problem Behavior #:______________________

Yes No

1. Does the behavior occur more often during a certain type of task?_______

2. Does the behavior occur more often during easy tasks? ________

3. Does the behavior occur more often during difficult tasks? ________

4. Does the behavior occur more often during certain subject areas? ________

5. Does the behavior occur more often during new subject material? ________

6. Does the behavior occur more often when a request is made to stop an activity? ________

7. Does the behavior occur more often when a request is made to begin a new activity? ________

8. Does the behavior occur more often during transition periods? ________

9. Does the behavior occur more often when a disruption occurs in the student's normal routine? ________

10. Does the behavior occur more often when the student's request has been denied? ________

11. Does the behavior occur more often when a specific person is in the room? ________

12. Does the behavior occur more often when a specific person is absent from the room? ________

13. Are there any other behaviors that usually precede the problem behavior? ________

14. Is there anything you could do that would ensure the occurrence of the behavior? ________

15. Are there any events occurring in the child's home that seem to precede occurrence of the behavior at school? ________

16. Does the behavior occur more often in certain settings? ________

(circle all that apply)
large group small group independent work one-to-one interaction
bathroom recess cafeteria bus other:______________________

Consequences: Problem Behavior #:______________________
1. Please indicate whether the following consequences occur after the behavior is exhibited.

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2. Is there any task you have stopped presenting to the student as a result of the problem behavior? _____ Yes _____ No

   If yes, describe: ____________________________________________________

3. Are there other problem behaviors that often occur after the behavior is exhibited? _____ Yes _____ No

   If yes, describe: ____________________________________________________

4. Does the student typically receive praise or any positive consequence when behavior occurs that you would like to see instead of the problem behavior? _____ Yes _____ No

Comments:________________________________________________________________________

Antecedents: Problem Behavior #___:________________________ Yes No
1. Does the behavior occur more often during a certain type of task?_______
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   large group  small group  independent work  one-to-one interaction
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2. Is there any task you have stopped presenting to the student as a result of the problem behavior? _____ Yes _____ No

If yes, describe:_________________________________________________

3. Are there other problem behaviors that often occur after the behavior is exhibited? _____ Yes _____ No

If yes, describe:_________________________________________________

4. Does the student typically receive praise or any positive consequence when behavior occurs that you would like to see instead of the problem behavior?
   _____ Yes _____ No

Comments:________________________________________________________________________

APPENDIX E

FUNCTIONAL ASSESSMENT INFORMANT RECORD FOR TEACHER’S CHECKLIST

Instructions: Indicate if the respondent endorsed these specific antecedent or consequent events. The checklist will assist in identifying behavioral function. Mark if the items of the FAIR-T were (yes) or were not (no) endorsed by the respondent.

Variables leading to a hypothesis of escape-maintained problem behavior

Antecedent Events Endorsed:

Does the behavior occur more often during a certain type of task?
   Yes______    No______

Does the behavior occur more often during easy tasks?
   Yes______    No______

Does the behavior occur more often during difficult tasks?
   Yes______    No______

Does the behavior occur more often during new subject material?
   Yes______    No______

Does the behavior occur more often during certain subject areas?
   Yes______    No______

Does the behavior occur more often when a request is made to begin a new activity?
   Yes______    No______

Does the behavior occur more often in certain settings?
(circle those that were endorsed)
   Large group       small group       independent work

   One-to-one interactions

Consequent Events Endorsed:    YES    NO

Access to preferred activity    _______    _______

Termination of Task    _______    _______

Is there any task you have stopped presenting to the student as a result of the problem behavior?
   Yes______    No______
Variables leading to a hypothesis of attention-maintained problem behavior

Antecedent Events Endorsed:
Does the behavior occur more often when a specific person is absent from the room?  
Yes______  
No______

Does the behavior occur more often when a specific person is present in the room?  
Yes______  
No______

Consequent Events Endorsed:  
YES NO
Peer Attention
Teacher Attention
Praise
Ignoring
Re-direction
Interruption
Reprimand

Variables leading to a hypothesis of problem behavior maintained by access to tangibles

Antecedent Events Endorsed:

Does the behavior occur more often when the student’s request has been denied?  
Yes______  
No______

Does the behavior occur more often when a request is made to stop an activity?  
Yes______  
No______

Consequent Events Endorsed:  
YES NO
Access to Preferred Activity
Rewards

Hypothesis of Behavioral Function:
________________________________________________________________________
________________________________________________________________________
APPENDIX F

INTERVENTION RATING PROFILE – 15

Please respond to each of the following statements thinking about the intervention you read/were recommended. Please then circle the number associated with your response. Be sure to answer all statements.

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<tr>
<th></th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Slightly Disagree</th>
<th>Slightly Agree</th>
<th>Agree</th>
<th>Strongly Agree</th>
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<tr>
<td>This would be an acceptable intervention for the child’s problem behavior.</td>
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<td>Most teachers would find this intervention appropriate for behavior problem in addition to the one described.</td>
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<td>This intervention should prove effective in helping to change the child’s problem behavior.</td>
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<td>I would suggest the use of this intervention to other teachers.</td>
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<td>The child’s behavior problem is severe enough to warrant the use of this intervention.</td>
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<td>Most teachers would find this procedure suitable for the problem behavior described.</td>
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<td>I would be willing to use this intervention in the classroom setting.</td>
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<td>This intervention would not result in negative side effects for the child.</td>
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<td>This intervention would be appropriate for a variety of children.</td>
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<td>This intervention is consistent with those I have used in the classroom setting.</td>
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<td>The intervention is a fair way to handle the child’s problem behavior.</td>
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<td>This intervention is reasonable for the problem behavior described.</td>
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<td>I liked the procedures used in this intervention.</td>
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<td>This intervention was a good way to handle this child’s behavior problem.</td>
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<td>Overall, this intervention would be beneficial to this child.</td>
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APPENDIX G

DATA COLLECTION SHEET

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APPENDIX H

DIRECT TRAINING SCRIPT

Consultant: Thank you for meeting with me today. When you first approached (primary experimenter/or another consultant), you were concerned about X’s behavior. **List the target behaviors.** What are some alternative behaviors that you would like X to engage in? **Talk about and list appropriate behaviors.** To address your concerns and to attempt to increase these appropriate behaviors I would like to propose an intervention that might be effective. This intervention will call attention to X’s appropriate behavior through the use of specific, labeled praise. Praise is known to be one of the most salient interventions for students. It has been effective in reducing many problem behaviors and increasing appropriate behaviors. This intervention is simple, easy, and does not require you to change your classroom routine to a great extent. Praising for appropriate behavior can serve as a cue to the student to let him/her know, what it is that you want them to do. Also, X may become more motivated to engage in appropriate behaviors to get access to your attention. X seems to want your attention when he/she is behaving inappropriately. If you ignore X’s inappropriate behaviors and mostly responding to only appropriate behaviors, X will likely want to engage in that appropriate behavior more. Specific, labeled praise calls for you, the teacher, to point out the student’s appropriate behavior. When delivering a praise statement we want to include in that statement the student’s name as well as the appropriate behavior the student is exhibiting. This will let your student know exactly what you expect from him/her in the classroom. For example you would want to say “X, good job finishing your math problems” instead of “Good job.” Again, it is important to **specifically** identify the student by name and **label** the appropriate behavior the student is engaged in to let him/her know exactly what they are doing correct.

Consultant: Lets practice! I will first model the intervention for you while you pretend to be X. **Engage in a ~2 minutes role-play.** Now it is your turn; I will be X and we will practice the intervention for 5 minutes. **Engage in a 5 minutes role-play session.** Provide corrective feedback for incorrect implementation and reinforcing statements for correct implementation.
APPENDIX I

INTERVENTION HANDOUT

Time-In (Specific Labeled Praise) Guidelines for Teachers and Educational Settings

Children thrive on attention. One way teachers can promote appropriate behavior in students is by calling attention to the appropriate behavior through the use of praise. It is known that by increasing the amount of praise students receive for generally appropriate behavior, inappropriate behaviors decrease without the use of other specific interventions. For example, parents receiving training in behavior management for children who do not follow commands are taught to recognize and call attention to the children’s appropriate behavior. This alone usually decreases children’s inappropriate behavior without the use of punishment based procedures. As in parent training procedures, using praise for generally appropriate behavior in the classroom can decrease the likelihood of students’ inappropriate behavior. There are a few things you can do to increase the amount of praise.

1. **Specific Labeled Praise:** When delivering a praise statement include in the statement the student’s name as well as the appropriate behavior the student is exhibiting. This will let your student know exactly what you expect from him/her in the classroom. E.G., Mary, good job finishing your math problems.

2. **Physical Proximity:** Praise a student when in close physical proximity (i.e., 3-5 ft) to where it is easy to reach him or her.

REMEMBER: Children need lots of brief praise.

The Time-In portion of the handout was modified from the following citation:

PROBLEM SOLVING MODEL HANDOUT

*STAR* Problem Solving Model for Teachers

**Stop & Think** when you observe a student’s misbehavior. Is the behavior serious? Is it impacting the learning of other students in your classroom? Is the behavior dangerous to self or others?

If so, take appropriate action. If not, ...

**Ask** yourself if there is another student in the classroom who is engaging in appropriate behavior. Also ask yourself if you can find an appropriate behavior that the student who is misbehaving is engaged in (e.g., the student is talking without permission, but he is appropriately sitting in his chair).

**Respond** to the behavior appropriately. Ignore the student’s inappropriate behavior and call attention to the same student’s and/or another student’s appropriate behavior using *specific, labeled praise* (e.g., Billy, I like the way you are sitting in your seat).

The *STAR* acronym used for the problem solving model was modified from the following citation:


Longmont, CO: Sopris West.
Consultant: Thank you for meeting with me today. When you first approached (primary experimenter/or another consultant), you were concerned about X’s behavior. List the target behaviors. What are some alternative behaviors that you would like X to engage in? Talk about and list appropriate behaviors. To address your concerns and to attempt to increase these appropriate behaviors I would like to propose an intervention that might be effective. This intervention will call attention to X’s appropriate behavior through the use of specific, labeled praise. Praise is known to be one of the most salient interventions for students. It has been effective in reducing many problem behaviors and increasing appropriate behaviors. This intervention is simple, easy, and does not require you to change your classroom routine to a great extent. Praising for appropriate behavior can serve as a cue to the student to let him/her know, what it is that you want them to do. Also, X may become more motivated to engage in appropriate behaviors to get access to your attention. X seems to want your attention when he/she is behaving inappropriately. If you ignore X’s inappropriate behaviors and mostly responding to only appropriate behaviors, X will likely want to engage in that appropriate behavior more. Specific, labeled praise calls for you, the teacher, to point out the student’s appropriate behavior. When delivering a praise statement we want to include in that statement the student’s name as well as the appropriate behavior the student is exhibiting. This will let your student know exactly what you expect from him/her in the classroom. For example you would want to say “X, good job finishing your math problems” instead of “Good job.” Again, it is important to specifically identify the student by name and label the appropriate behavior the student is engaged in to let him/her know exactly what they are doing correct.

Consultation: But, I understand that with all the things that you have to do as a teacher, like instructing the students, moving around the classroom, handing out papers, filling out paperwork and so forth, it can be hard to remember that those kids want your attention. Sometimes, it is also difficult to remember to take the time to point out students’ appropriate behaviors. Prompting yourself can make it easier to remember. I have made myself an outline of the steps for effectively working with challenging students (Give teacher the STAR problem solving handout). Let’s take a few minutes to go over this handout. This is what we call the STAR program. STAR stands for Stop and Think, Ask, and Respond. So, when you see a student misbehaving we encourage you to Stop and Think about the student’s misbehavior. You would want to assess if the behavior is serious. Is it disrupting the class and impacting instruction, and/ or is the behavior harmful to the student him/herself or others. When you assess the situation and you decide that the behavior is serious, then take appropriate action. But, if you decide that the behavior is not serious, then you want to Ask yourself if there is another student who is behaving appropriately or is there any appropriate behavior that the disruptive student is engaging in. Last, you would want to Respond to the behavior. Use specific, labeled praise to identify appropriate behavior of another student or the disruptive student. For
example, if Billy’s disruptive behavior is talking out loud but he is sitting appropriate at his desk, then I would praise Billy for sitting appropriately in his seat.
APPENDIX L

STAR PROBLEM SOLVING MODEL TEST

Please complete the following questions based on the STAR problem solving model.

1. The STAR acronym stands for S__________________, T ________________, A______________, R__________________.

2. What is the first thing you need to do when you observe a student misbehaving?

3. What questions do you ask yourself when you see a student misbehaving?

4. If you find that the student’s behavior is mildly disruptive to the class what do you look for?

5. How do you respond to mild inappropriate behaviors in the classroom?

6. How do you call attention to a student’s appropriate behavior?
APPENDIX M

EXPERIMENTER INTEGRITY CHECKLIST – DIRECT TRAINING

Date: ___________________ Observer: ___________________

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<td>3 Experimenter defines and discusses general goals of the intervention.</td>
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<td>9 Experimenter presents teacher with a handout with an outline of the intervention.</td>
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APPENDIX N

EXPERIMENTER INTEGRITY CHECKLIST – STAR PROBLEM SOLVING MODEL

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<td>7 Experimenter discusses each step with teacher.</td>
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# EXPERIMENTER INTEGRITY CHECKLIST – DIRECT TRAINING AND STAR PROBLEM SOLVING MODEL

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