Generalization of Teachers' Use of Effective Instruction Delivery Following In Situ Training

Joy Kathleen Wimberly
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GENERALIZATION OF TEACHERS’ USE OF EFFECTIVE INSTRUCTION DELIVERY FOLLOWING IN SITU TRAINING

by

Joy Kathleen Wimberly

A Thesis
Submitted to the Graduate School and the Department of Psychology at The University of Southern Mississippi in Partial Fulfillment of the Requirements for the Degree of Master of Arts

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December 2016
ABSTRACT

GENERALIZATION OF TEACHERS’ USE OF EFFECTIVE INSTRUCTION DELIVERY FOLLOWING IN SITU TRAINING

by Joy Kathleen Wimberly

December 2016

The efficacy of in situ training for increasing Head Start teachers’ use of effective instruction delivery in Head Start classrooms while evaluating concomitant increases in Head Start students’ compliance was examined in the current study. Of further interest was the extent to which Head Start teachers maintained and generalized accuracy of effective instruction delivery in untrained settings. Four Head Start teachers and four Head Start students served as participants in this study. A multiple baseline across participants was used to test the effects of in situ training on teachers’ accuracy of effective instruction delivery and students’ initiation compliance. Data were analyzed via visual inspection and effect size calculations. Results indicate that in situ training increased teachers’ accuracy of effective instruction delivery, while concomitantly increasing student compliance for some students. Moreover, in situ training also increased teachers’ effective instruction delivery in untrained settings. The results of this study are discussed in terms of its extension of the school-based consultation literature, its limitations, future directions for research, and implications for applied practice.
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DEDICATION

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CHAPTER I - INTRODUCTION

Non-compliance is one of the most frequently reported and problematic behaviors in the school setting (Belfiore, Basile, & Lee, 2007; Miles & Wilder, 2009). Non-compliance can be defined as the failure to initiate compliance for an assigned task or demand in a timely manner (as measured by latency), or the failure to complete an assigned task or demand within a given time period (as measured by frequency, rate, percentage, or duration; Belfiore et al., 2007).

Non-compliance can be an issue particularly for children at Head Start. Head Start is an early childhood education program in the United States that serves about 900,000 young children from low-income families each year (Office of Head Start, 2014). Non-compliance is a central feature of emotional or behavioral disorders (EBD) and approximately 30% of Head Start children may meet the criteria for EBD (Feil et al., 2005; Hecker et al., 2014; Qi & Kaiser, 2003). Bulotsky-Shearer and colleagues (2011) found early problem behavior such as non-compliance to predict lower academic outcomes, motivation, attention, persistence, and attitudes toward learning in children at Head Start.

Teachers can also be negatively affected by students’ non-compliance. The management of problem behavior is reported to be one of the most tedious aspects of teaching for teachers (Musti-Rao & Haydon, 2011). Teachers also report limited knowledge for effectively managing non-compliant student behavior in the classroom (Austin & Agart, 2005). Classroom management is one of the highest ranked professional needs particularly among first year teachers, and the need was cited in rural, suburban and urban settings (Coalition for Psychology in the Schools and Education, 2006).
Finally, classroom management is known to be one of the most prevalent causes of job burnout and teacher attrition (Kratochwill, 2012).

Research has shown that teacher training paired with consultation and coaching can decrease preschool children’s disruptive behavior (DB) and increase teachers’ self-efficacy in classroom management, as well as the overall quality of classrooms with high concentrations of low-income children (Brennan et al., 2008; Raver et al., 2008). Therefore, school-based consultants are in need of more effective methods for consulting with teachers.
CHAPTER II - REVIEW OF THE LITERATURE

Problem Solving Consultation

Problem solving consultation (PSC; formally referred to as behavioral consultation) is a process that can help manage non-compliant student behavior through the utilization of evidence-based techniques the teacher is provided and can use. PSC was first introduced by Bergan (1977) and further discussed by Bergan and Kratochwill (1990). PSC is an indirect service delivery model that involves four-steps of problem solving: a) problem identification, b) problem analysis, c) treatment implementation, and d) treatment evaluation. Problem identification involves operationally defining the problem behavior(s), gathering data and other pertinent information about the problem behavior(s), and establishing goals. Problem identification is typically done through an interview between the consultee and consultant. In problem analysis, data on the problem behavior(s) in the classroom are reviewed in order to develop an intervention plan. The third step is treatment implementation in which the teacher is trained on the appropriate use of the treatment of choice. During this phase, data for the integrity of treatment implementation and effect of treatment are collected. Treatment evaluation is the fourth step and includes determining if the intervention was effective in remediating the target behavior(s) as defined in the problem identification step.

PSC is the preferred consultation model among most school-based practitioners (Sanetti & Kratochwill, 2008) and has been empirically supported for its effectiveness in schools (Chitiyo & Wheeler 2009). Busse and colleagues (1995) conducted a meta-analysis of the PSC literature and effect sizes on level of attainment of treatment goals were calculated using the “no assumptions” approach (i.e., treatment mean minus
baseline mean divided by baseline standard deviation; Busk & Serlin, 1992). Effect sizes ranged from -.55 to 2.90 with a mean within-subject Cohen’s $d$ effect size of .95. Based on evaluation criteria recommended by Busk & Serling, (1992), this indicates an overall modest effect, and a majority of the cases demonstrated beneficial effects from consultation. Additionally, reductions in aggressive behavior, increases in on-task behavior, and increases in compliance were all found to be a result of PSC in the classroom. However, PSC may rely too much on verbal interaction with insufficient use of guided practice and performance feedback (PF; Mueller & Nkosi, 2007; Witt, Noell, LaFleur, & Mortensen, 1997). Specifically, the stages of PSC rely solely on a series of verbal interviews that do not directly assess treatment integrity data or whether teachers implemented the procedures accurately, so it is difficult to determine if the intervention was implemented as planned, which limits the ability to establish a functional relationship between a treatment and improved client outcomes (Sanetti & Kratochwill, 2008).

Direct Behavioral Consultation (DBC; Dufrene et al., 2012; Watson & Robinson, 1996; Watson & Sterling-Turner, 2008) is an extension of PSC that addresses some of the limitations of PSC. Like PSC, DBC relies on the same four-step problem-solving model, with the addition of assessment and teacher trainings, and a greater focus on practicing implementation. DBC places a great premium on training teachers to implement interventions under authentic classroom conditions. Additionally, when there are implementation failures, DBC places a great premium on PF procedures that are designed to remediate implementation failures. Although the literature base in support of DBC is
small, there is emerging evidence that DBC is particularly useful for improving treatment integrity (e.g., Dufrene et al., 2012).

A goal of consultation is for consultees to generalize skills they are trained to future concerns (Bergan & Kratochwill, 1990; Tillman, 2000). For instance, if teachers apply the intervention skills they were trained during a previous consultation experience to future similar concerns in different contexts with minimal or no assistance from the consultant (Sterling-Turner et al., 2002a; Watson & Sterling-Turner, 2002b) then generalization occurs, and there is less of a need for future consultation. Thus, applying learned skills from consultation to prevent problems from occurring at all (Gutkin & Curtis, 1999). Generalization program training is one strategy; however, there is little research on this topic (Riley-Tillman & Eckert, 2009) including the extent to which teachers have generalized procedures they have learned during consultation (Scheeler, 2007).

Generalization

Generalization is the process with which behavior change takes place when it has not been directly taught (Cooper, Heron & Heward, 2007). Historically, researchers used “train and hope” (Stokes & Baer, 1977 p. 351) procedures, and generalization was considered a “passive phenomenon” (Stokes & Baer, 1977 p. 349) in the behavioral intervention and consultation literatures. In other words, researchers implemented various interventions or consultation procedures and hoped that their consultees would generalize the techniques naturally to other behaviors and settings. “Train and hope” however, is not the most effective method for promoting generalization and research has shown that generalization requires specific programming (Harring, 1988).
Stokes and Osnes (1989) suggest the following techniques for programming for generalization: exploit current functional contingencies, train diversely, and incorporate functional mediators. Specifically, contacting and recruiting natural consequences, modifying maladaptive consequences, reinforcing occurrences of generalization, using sufficient stimulus and response exemplars, making antecedents and consequences less discriminable, incorporating common salient physical and social stimuli, and incorporating self-mediated physical, verbal, and covert stimuli are all principles and tactics likely to facilitate the occurrence of generalization and maintenance of behavior change. There is limited research evaluating generalization-training techniques embedded with consultation procedures that are designed to increase teachers’ generalized intervention implementation.

Riley-Tillman and Eckert (2001) conducted one of the first studies that tested generalization-training techniques for increasing teachers generalized use of praise. The primary purpose was to examine the extent to which teachers’ generalized consultation skills following a generalization prompt and a generalization-training program. Participants included three general education elementary school teachers and their students with difficulties staying on-task. A multiple baseline across participants was used and the dependent measures included teacher implementation of praise with non-target students, teacher implementation of praise with the target student, and on-task student behavior. Following PSC, a praise intervention designed to increase on-task behavior was used. Next, a generalization prompt was implemented by asking the teachers, “Have you ever thought about trying this intervention with any other students in your classroom?” Finally, a structured interview designed to train for generalization
(Stokes & Osnes, 1989) included the following components: (1) identify students’ target behaviors, (2) assess classroom and environmental variables to develop and implement an intervention, and (3) evaluate the relative effectiveness of the intervention (Riley-Tillman & Eckert, 2001). During the consultation phase, teachers were trained to provide praise to the target student contingent upon engaging in on-task behavior.

Ultimately, consultation resulted in a modest increase in praise for all teachers; however, only one teacher increased praise for non-target students following the generalization prompt. Finally, generalization-training did not result in clear, consistent evidence of generalization of praise for any participants. This study was one of the first to evaluate programming for generalization and proved programming for generalization can be difficult. Thus, more generalization programming studies are warranted (Riley-Tillman & Eckert, 2001).

Coffee and Kratochwill (2013) replicated and extended Riley-Tillman and Eckert (2001) by examining the implementation and generalization of a praise intervention following PSC. Participants included four general education elementary teachers along with 15 students referred for problem behaviors. Of each teacher’s participating students, one student was randomly selected and assigned as the consultation target student, another the generalized target student, and the remaining non-target students. Similar to Riley-Tillman and Eckert (2001), the researchers consulted with teachers on how to implement a praise intervention. The conditions were also similar to Riley-Tillman and Eckert’s (2001) study; however, prior to the generalization prompt phase, booster sessions were added, because it was noted that the teachers were not performing the
intervention with appropriate integrity. During booster sessions the researcher reviewed the intervention protocol with the teachers.

Like Riley-Tillman and Eckert (2001), although intensive consultation and generalization-training procedures were implemented by the researchers, the extent to which the intervention generalized was limited. The researchers suggest future generalization studies should investigate using direct training procedures to increase intervention implementation, as it has resulted in higher levels of intervention implementation compared to didactic training (Coffee & Kratochwill, 2013, Sterling-Turner et al., 2002a; Sterling-Turner et al., 2002b).

Additionally, Taber (2015) further extended the generalization literature by examining the implementation and generalization of a praise intervention following in situ training. In situ training is a direct training procedure that takes place during ongoing instructional activities in the classroom and may include prompting teachers to implement classroom management strategies as teachers interact with students (Dufrene et al., 2014, Dufrene et al., 2012). Taber (2015) used in situ training as a means to increase four high school teachers’ use of behavior specific praise (BSP) and decrease students’ DB. A multiple baseline design across classrooms with probes for generalization was used. During in-situ training, a researcher provided prompts to teachers via bug-in-the-ear (BITE) to praise students every two-minutes. Next, praise was assessed in a maintenance phase and if praise fell below .25 praise statements per minute, PF was given. During PF, the researcher met with the teacher and showed them data on their use of BSP and student levels of DB in both the trained and untrained classes.
Results indicate *in situ* training increased teachers’ use of BSP after training was terminated; however, there was some variability in the extent to which teachers maintained BSP after *in situ* training ended. For one teacher, BSP was maintained immediately following training and at follow-up. For the other three teachers, BSP decreased slightly and the researcher implemented one brief PF session, which increased BSP levels that maintained at follow-up. In terms of generalization, one teacher generalized BSP to a class where training did not occur. For the other three teachers, the researcher provided a brief generalization procedure that involved showing the teacher data on their use of BSP and student levels of DB in both the trained and untrained classes. For those three teachers, the generalization procedure successfully resulted in generalized praise in settings where training did occur. Results from this study demonstrated greater maintenance of teachers’ increased use of BSP than Coffee and Kratochwill (2013) and Riley-Tillman and Eckert (2001), both of which did not demonstrate meaningful increases that were maintained after training was removed. Previous studies (Coffee and Kratochwill, 2013; Riley-Tillman and Eckert, 2001) have employed intensive generalization techniques that have failed to result in sustained intervention following training. This study is important to note, because it demonstrates that *in situ* training combined with one brief PF meeting or one brief generalization prompt meeting is effective at promoting teachers’ maintained and generalized intervention implementation (Taber et al., 2015).

A limitation to Taber (2015) includes during baseline for some teachers only one generalization probe was conducted, limiting the sample of BSP and student level of DB for classes where training did not occur. Next, *in situ* training included five consecutive
sessions of training in the classroom, which may not be feasible in school-based consultation. Future research should examine whether fewer training sessions would also result in sustained intervention for teachers following consultation. Taber (2015) demonstrated in situ training was effective as a means to promote increased use of teachers’ praise, however other behavior management strategies such as EID were not investigated, thus more research in maintaining and generalizing additional classroom management interventions are needed.

Similar to Taber (2015), Nguyen (2015) extended and replicated Dufrene et al. (2012) and Dufrene et al. (2014) by evaluating the efficacy of in-situ teacher training on BSP and the extent to which training generalized to novel students. Participants included four general education teachers along with students with disruptive classroom behaviors. Teacher pre-training consisted of explaining in-situ training and a discussion and rationale for BSP as an intervention. During in situ training, teachers were trained to provide praise to the target students at a criterion of once every two minutes. Like Taber (2015), in situ training resulted in an increase in praise towards target students. Additionally, it was observed that for all students except one, as BSP increased there was a concomitant decrease in problem behavior by the target students. Unfortunately, teachers’ BSP toward target students was not stable during maintenance.

With regard to generalization, for one teacher, in situ training was sufficient to maintain and generalize BSP toward non-target students until follow-up. However, for the other three teachers, generalization-training in the form of sequential modification was provided. Sequential modification included the researcher informing the teacher that additional training was required, because an additional goal of training was to provide
praise to other students. The researcher reintroduced the BITE to the teacher and prompted the teacher to praise non-target students who displayed appropriate behavior. Training continued until the training criterion of one praise statement every four minutes towards non-target classroom students was met. Sequential modification resulted in maintained BSP towards non-target students throughout the duration of the study and into follow-up.

Similar to Taber (2015), further studies may be required to determine an efficacious manner of training teachers to implement classroom management procedures that will maintain following consultation. Nguyen (2015) was unique in that she utilized sequential modification as a generalization programming technique. As a result, teachers generalized praise and additionally maintained generalized praise (Nguyen, 2015). Future research should continue to test the effects of sequential modification for promoting teachers’ generalized intervention use. Finally, like Taber (2015) in situ training only focused on praise as an intervention for DB and other behavior management strategies such as Effective Instruction Delivery (EID) were not investigated, thus more research in this area is needed.

A small number of studies have examined generalization-training procedures to increase the extent to which teachers implement interventions in a generalized fashion (Coffee & Kratochwill, 2013; Duncan et al., 2013; Riley-Tillman & Eckert, 2001). The studies conducted have largely focused on praise and have failed to evaluate additional universal classroom management procedures (e.g. EID, pre correction, time out). The following review of the literature will focus on EID, direct training consultation
procedures, and PF, particularly as they relate to increasing the extent to which teachers use EID and concomitantly increase compliance in the classroom.

Effective Instruction Delivery

Behavioral parent and teacher training (BPT) programs are evidence-based interventions for decreasing childrens’ DB and increasing their appropriate behavior (McMahon and Forehand, 2003; Hutchings et al., 2007; Jones et al., 2008; Sanders, 2008). Lundahl et al. (2006) conducted a meta-analysis of 63 studies to assess the effectiveness of BPT for the treatment of DB in children. Cohen’s $d$ effect sizes were calculated on child behavior, parent behavior, and parent perception outcomes of BPT and revealed composite $d$'s of 0.42, 0.47, and 0.53 respectively. Results indicated BPT programs designed to modify disruptive child behavior result in moderate positive effects immediately after treatment. Additionally, Lee et al. (2012) conducted a meta-analysis on BPT programs for children with Attention-Deficit/Hyperactivity Disorder. Forty studies were included and generated a Pearson $r$ effect size of .34, indicating a moderate effect for parent and child behavior and parents’ perceptions of BPT. Although there has been variability in the magnitude of effect sizes for BPT programs, results of meta-analysis of the BPT literature indicate that BPT results in statistically significant improvements in childrens’ behavior (Lee et al., 2012).

One BPT technique, EID includes modifying the way in which parent instructions are delivered and results in improved child compliance (Ford et al., 2001). EID includes (a) gaining eye contact through the “look at me” command, (b) contingent praise (CP) for eye contact, (c) delivering the instruction in close proximity (d) stating the instruction as a directive, (e) stating the instruction descriptively, (f) allowing for a 5-second wait
period for a response or nonresponse to occur and (g) CP for compliance (Ford et al., 2001). One advantage to EID is that it is an antecedent intervention; thus it focuses on increasing the probability of compliance prior to the delivery of a command and can reduce or even prevent the occurrence of problem behaviors such as non-compliance (Radley & Dart, 2016). Several studies that follow have tested the effects of EID designed to improve child compliance.

Roberts, Tingstrom, Olmi, and Bellipanni (2008) tested the effects of EID, time-in (TI), and CP on compliance. TI is an additional antecedent procedure that includes parents’ increasing positive attention provided to their child (Solnick et al., 1977) and is designed to create a reinforcing environment for children (Christophersen et al., 1987). Four children who all had a mean initiation compliance (i.e. child initiates compliance for instruction within 5s of instruction delivery) level below 40% to first-time presented parental requests were the participants, along with their parents. The two dependent variables were child initiation compliance and parents’ accuracy of EID. A multiple baseline across subjects design was used, and participants were randomly assigned to one of two pairs. The first pair’s sequence of phases consisted of a) baseline, b) EID, c) EID/CP, d) EID/CP/TI and e) follow-up. The second pair’s sequence of phases consisted of a) baseline, b) EID, c) EID/TI, d) EID/TI/CP and e) follow-up.

During baseline, the researchers instructed parents to present 10 instructions to their children without prompts. Following baseline, the researchers prompted parents when to present an instruction via BITE. Prior to each compliance phase, parents were trained via behavioral skills training (BST). BST includes written and verbal instructions,
modeling, role-playing, practice, and feedback. Training was complete when parents reached a procedural integrity level of 80% or higher for EID, CP, and TI.

Results indicate that the use of EID alone increased compliance above baseline levels for the four children. TI and CP further increased compliance for three out of the four children. The three compliance components resulted in compliance levels greater than 80% for all children. Compliance levels were also maintained at a 1-month follow-up for two children. Limitations include the parents used CP occasionally in antecedent phases (EID and EID/TI) despite being trained to withhold CP, thus increases in compliance cannot be attributed to just the antecedent manipulations of EID and EID/TI. Additionally, there was a lack of follow-up data for two of the participants, thus it is impossible to determine if intervention effects were maintained following treatment. Finally, this study did not address or assess the maintenance or generalization of EID across settings. Assessing generalization across settings (such as the clinic and home) provide parent(s) with additional practice as well as provide the child with more praise and positive interactions with their parent(s) and could provide a variety of effects on the child’s behavior.

Bellipanni, Tingstrom, Olmi, and Roberts (2013) evaluated the separate and combined effects of EID, TI, and CP in compliance training. Participants included four children with compliance levels that fell below 40% to first time teacher requests and their teachers. The primary dependent variable was child initiation compliance. Teachers’ accuracy of EID, TI, and CP were also measured. During baseline, a researcher instructed teachers to give a minimum of 10 commands in their typical manner throughout the sessions. If commands were not given at the appropriate rate, the researcher prompted the
teacher (with gestures) to give commands. Following baseline, the researcher trained teachers based on procedures adapted from Ford et al. (2001), which include verbal and written instructions, guided instruction, modeling by the researcher, videotapes, intermittent monitoring, and corrective feedback. During teacher training, treatment integrity was monitored to evaluate mastery of compliance training procedures acquired during initial training. Teachers were required to have at least 80% accuracy of EID and TI in two role-playing scenarios (Ford et al., 2001) and were retrained if accuracy fell below 80%. The teachers were introduced to the components sequentially for each pair of students. It was found that all students increased compliance from below 40% to between 84% and 96%. Separate and independent effects of the positive antecedent components of EID and TI were found, when used alone and in combination. The subsequent manipulation of CP either increased compliance slightly or maintained compliance at already high levels.

Like Roberts et al. (2008), limitations included the limited amount of follow-up data for some participants; therefore, it is difficult to determine if all of the students maintained compliance following treatment. Additionally, the researchers were also unable to always keep the intervention components completely separate and independent. For instance, during the TI only phase when EID should have not been present, teachers used some components of EID. It is unknown if and to what extent these components of EID influenced compliance, although these levels of EID were not as high as during actual EID phases.

An important limitation to address in both Roberts et al. (2008) and Bellipanni et al. (2013) is both studies did not test the effects of parent and teacher training on the
generalization and maintenance of EID. Despite anecdotal reports that generalization of EID across settings may have occurred post training (Bellipanni et al., 2008), data were not collected to confirm this including the extent to which teachers were implementing procedures with integrity during times that the observer was not present. Future research may test additional consultation procedures for increasing the use of EID and the extent to which EID maintains integrity following training.

Direct Training Consultation Procedures

Consultation is one strategy to promote evidence-based behavior management procedures such as EID (Dufrene et al., 2012), although the effectiveness of training procedures can vary. Research has shown that direct training is more effective than indirect training and direct training can result in higher treatment integrity, thus desired behavior change (Coffee & Kratochwill, 2013; Dufrene et al., 2012; Moore et al., 2002; Sterling-Turner et al., 2002a). Dufrene et al. (2012) evaluated the effectiveness of in situ training at Head Start to increase teachers’ use of praise and accuracy of EID. The dependent variables were teachers’ BSP and accuracy of EID and childrens’ DB. Following baseline, teachers were given didactic training for praise and EID accuracy. In the didactic training session, the researcher described and provided examples of praise and EID. Following didactic training, the researcher gave teachers a handout describing the use of praise and EID with an opportunity to practice with corrective feedback.

Didactic training did not result in meaningful increases in teachers’ BSP or decreases in DB. The researcher then provided in situ training that consisted of a prompt to use praise and EID in the exact words that the teacher was expected to say via BITE. Results indicated three out of four of the teachers maintained BSP increases and accuracy
of EID implementation immediately after *in situ* training and at a one-month follow-up (the other teacher withdrew from the study after obtaining a position with another agency). Students’ DB also decreased during *in situ* training for all four classrooms. Additionally, DB remained at low levels for the three classrooms that participated in follow-up. Results of this study are important, because they demonstrate that teachers’ accuracy of EID and use of BSP can be maintained immediately following *in situ* training and one month later. However, this study was not without limitations.

Limitations include a possible order effect; didactic training always preceded *in situ* training, which may have influenced the results and provided implications that *in situ* training was not the only factor that influenced the increase in use of BSP and EID. Second, the study only included Head Start teachers and children, so *in situ* training’s effectiveness with other teacher populations is unknown. Another limitation includes possible reactivity of teachers to observations. Data were collected using direct observation by researchers in the classroom and as a result, the extent to which teachers used praise and EID when researchers were not present is unknown. The researchers also failed to evaluate the extent to which teachers generalized BSP and EID in other settings, so it is unknown if other settings would produce the same results. Finally, teachers’ baseline level of EID was high, and as a result, a functional relationship between *in situ* training and increases in teachers’ EID cannot be determined.

Dufrene, Lestremau, and Zoder-Martell (2014) replicated Dufrene et al. (2012) with two teachers in two elementary alternative school classrooms. The primary purpose was to evaluate the effectiveness of *in situ* training of BSP in a novel setting, thereby providing results to indicate that the results of Dufrene et al. (2012) can generalize to
other educational settings. Like Dufrene et al. (2012), didactic training on praise was provided before in situ training using BST (Dufrene et al., 2014). For both teachers, students’ DB decreased as BSP increased. One teacher maintained the use of BSP during follow-up. The second teacher’s BSP levels dropped in maintenance, therefore an in situ training plus PF phase was implemented. During the PF phase, a researcher reviewed BSP data from the previous day’s session along with praise and corrective feedback (Dufrene et al., 2014). Following the additional in situ training and PF, the second teacher’s level of BSP reached the same level as originally achieved in the first initial direct training phase. A one-month follow-up for this teacher revealed a rate of BSP use below baseline, however after a two-month follow-up, praise returned to the level attained during in situ training.

As apparent in the Dufrene et al. (2012) study, this study also contained sequencing effects created by the didactic training phase, which came before all in situ training phases. Thus, it is uncertain whether teachers’ increased BSP during in situ training would have occurred without the indirect training that preceded it. Also, acceptability data on the teachers’ perceptions of consultation and training procedures were not collected, and thereby the social validity indicating the teachers’ acceptance and value of the consultation procedures is unknown. It is also important to note this study did not include any information on the generalization of praise to untrained settings, so it is unknown if the same results would occur in different settings. Finally, unlike Dufrene et al. (2012), EID as a dependent measure was not investigated along with praise, thus it is unknown if in situ training for EID would have produced the same results.
Zoder-Martell et al. (2014) further replicated the findings of Dufrene et al. (2012) and Dufrene (2014) by testing the effects of in situ training for increasing the extent to which direct care staff (DCS) at a residential facility initiated positive interactions during mealtime. The researcher provided DCS with in situ training via BITE to increase initiation of positive interactions with residents. The in situ training procedure increased the DCS’ initiation of positive interactions and three of the DCS maintained their increases in positive interactions above criterion (rate of positive verbal interactions higher than baseline rates) in follow-up. Like Dufrene et al. (2014), a single PF session was given to the fourth DCS who did not maintain increased positive interactions and ultimately resulted in an increase in rate of positive interactions to rates higher than during in situ training. This study is important to note, because it demonstrates the maintenance of in situ training procedures in settings other than schools, indicating that in situ training is generalizable to other settings.

Additionally, Labrot et al. (2015) demonstrated in situ training can generalize to even more settings by testing the effects of in situ training on four after-care teachers at Head Start. In situ training included prompting teachers via BITE to provide BSP to students engaging in appropriate behavior. Results indicated three out of four teachers maintained their rate of praise during one-week and one-month follow-up. For the teacher that did not maintain praise, in situ training was re-implemented and resulted in an immediate increase in BSP. When training was again terminated, the teacher’s BSP decreased and as a result, the researcher met with the teacher to determine a strategy to increase praise. It was determined that the teacher would wear a MotivAider® to prompt them to praise once every minute. When the MotivAider® was introduced, the teacher
increased their rate of praise. Additional maintenance data could not be collected due to it being the end of the program, so it is unknown whether the teacher would have maintained increases in praise after the prompting device was used.

Both Zoder-Martell et al. (2014) and Labrot et al. (2015) eliminated the order effects that were evident in Dufrene et al. (2012) and Dufrene et al. (2014) by removing the didactic instruction phase that preceded *in situ* training. Furthermore, both Zoder-Martel et al. (2014) and Labrot et al. (2015) demonstrated praise and initiation of positive interactions still increased following *in situ* training, despite removing didactic training. It is important to note however, unlike Dufrene et al. (2012) both Zoder-Martell et al. (2014) and Labrot et al. (2015) did not test the effects of *in situ* training for antecedent based interventions like EID, or evaluate the extent to which training produced generalized implementation of intervention with other participants or in other settings.

**Performance Feedback**

Training teachers can be effective for the implementation of intervention immediately following training, however with time, teachers’ implementation of an intervention may begin to deteriorate and the generalization of intervention implementation may not occur (Noell et al., 2002). PF can be utilized to remediate this (Leach & Conto, 1999). PF involves monitoring a behavior that is a focus of concern and providing feedback regarding that behavior (Noell et al., 2005). Specifically, the consultant describes what went well (e.g. what intervention steps are consistently implemented, any improvement in student outcomes) and what went poorly (e.g. steps not implemented, steps not implemented correctly, or a lack of improvement in student
outcomes) to a consultee following consultation. PF may be used to promote the generalization and maintenance of skills taught in the classroom (Scheeler, 2007).

Noell et al. (1997) evaluated a PF procedure using elementary teachers’ implementation of a reinforcement-based intervention to increase elementary students’ academic performance. Three teacher-student dyads participated in their regular education classrooms. The primary target behavior was treatment integrity, defined as the number of treatment steps teachers implemented. Student academic performance data, or the correct percentages on daily assignments in the target academic performance, were also collected via permanent product. During PF, the researcher met with the teachers and presented a graph of student academic performance and teacher intervention implementation data. Additionally, the researcher discussed how to improve implementation for that day and praised accurate treatment steps from the previous day.

All of the teachers exhibited increases in treatment integrity when PF was given. Limitations included: the researcher met with the student prior to the intervention to assess academic performance, which may have enhanced the effectiveness of PF by increasing the credibility of the researcher. Next, it is possible that reactivity to observation occurred, because teachers may not have been aware initially that their behavior and those of their students were being monitored via permanent product.

Noell et al. (2005) further extended the PF literature, by examining potential barriers to implementation of treatment plans, emphasizing commitment to the child, discussing negative consequences associated with non-implementation and including proactive planning for implementation. This study was also unique in that it was the first to use a randomized field trial for consultation procedures designed to increase teacher
treatment integrity. Forty-five elementary school students were referred for consultation and intervention for academic concerns, challenging behavior, or a combination. The primary dependent variable was the extent to which teachers implemented the students’ intervention plans as they were designed, as determined by permanent products. PF was associated with superior treatment implementation and child behavioral outcomes when compared to brief weekly interviews and weekly interviews with emphasis on commitment to implement treatment. The effect size for the follow-up condition on treatment integrity had a large effect. Treatment implementation did not differ for the weekly follow-up meeting and the commitment emphasis conditions at a statistically significant level. Teacher ratings for consultants and treatment acceptability were similar across conditions.

Noell et al. (2005) demonstrated PF was a superior method for promoting treatment integrity, however it was not without limitations. First, the sample of consultees was small and relatively homogenous, therefore the extent to which teachers in a different environment would produce the same results is unknown or limits the study’s external validity. Finally, the PF group had more frequent contact with teachers during follow-up than any other condition, because it was modeled after previous PF research, which could pose a threat to the study’s internal validity. In light of these limitations, this study did provide support for PF as means to assure treatment plan implementation.

Solomon et al. (2012) conducted a meta-analysis on the effect of PF on teacher treatment integrity. Thirty-six single case studies were included that used teachers’ use of classroom-based intervention with PF. Academic interventions included practices such as additional repetition, goal setting with reinforcement, and feedback. Behavioral
Interventions included varying reinforcement schedules, redirection, or increases in the use of BSP with target students. Performance feedback resulted in significant behavior change across all effects regardless of intervention, setting, dependent variable, or the latency of feedback. This study demonstrated that attention to treatment integrity beyond initial consultation is extremely vital and that PF has proven to be a useful framework for addressing deteriorating fidelity (Solomon et al., 2012).

**Multicomponent Consultation Procedures**

PF has proven to be a useful procedure for addressing deteriorating fidelity in a variety of multicomponent consultation procedures. Martens, Hiralall, and Bradley (1997) examined the effects of goal setting and PF to increase teachers’ use of praise as a means to decrease students’ DB. A special education teacher was trained to increase praise for two students who were referred for disruptive and off-task behaviors, with a goal of six praise statements in a 30-minute session. The next session, the researcher gave the teacher a feedback note with information such as: If praise goal was met for student A, if praise goal was met for student B, and the lists of specific behaviors (up to four) to praise for each student. Goal setting with feedback increased teacher praise and appropriate student behavior. Limitations include the researchers did not collect follow-up or maintenance data, so it is unknown if praise was maintained following the removal of goal setting and feedback. Finally, because goal setting was paired with feedback, it is unknown if goal setting or feedback were the sole causes of the increased praise and appropriate student behavior or if one was more effective than the other.

Duncan, Dufrene, Sterling, and Tingstrom (2013) systematically replicated Riley-Tillman and Eckert (2001) and Martens et al. (1997) by testing the effects of
generalization-training with goal setting and feedback on teachers’ use of BSP to target and non-target students. Three teacher-student dyads participated in the study. The researcher trained teachers to deliver BSP using BST. Training continued until teachers were able to deliver BSP with 100% integrity. Following training, teachers received a set goal for delivery of BSP to their target student, depending on their rate of BSP in baseline. Teachers were told to use BSP for appropriate target behaviors and to ignore inappropriate behaviors. Teachers received a feedback note indicating whether or not they met the goal of BSP for the day. Before withdrawing the feedback note, the researcher asked the teacher whether or not they had considered using BSP as an intervention with novel students in their classroom. The researcher then informed the teacher that the feedback note would no longer be given and the BSP goal from previous phases was not emphasized.

Similar to Nguyen (2015), the final phase included generalization-training with goal setting and PF. A researcher provided teachers with specific training for generalization, which included sequential modification across targets and incorporating functional mediators (i.e., verbal, physical stimuli). During sequential modification across targets, the researcher instructed teachers to use praise with novel students along with the target student. Incorporating functional mediators included providing a handout of a response model and goal setting plus a feedback note. Lastly, a follow-up phase one month following the termination of goal setting and provision of a feedback note was included to determine if levels of BSP were maintained.

Limitations include BSP was the only teacher-implemented intervention and therefore, it is difficult to determine whether a variety of other interventions (e.g., EID,
time-out, and remedial academic interventions) can be programmed and generalized.

Next, multiple components were incorporated into the generalization package used; therefore, it is difficult to determine which component was the most effective at generalizing teachers’ BSP use. Also, the exact number of BSP statements issued was not stated on the feedback notes, only whether or not the teachers had met their goal, therefore it is difficult to determine if providing this information would have an effect on the teachers’ rate of BSP. Finally, because this study focused on generalization across students, it is unclear whether generalization would also occur across settings.

The results of Duncan et al. (2013) suggest that teacher praise increased towards the target student during goal setting and feedback, but decreased when it was removed. Moreover, Generalization towards non-target students did not occur until teachers were trained to generalize, but teacher praise towards target students decreased during this phase. Additionally, when praise rates were high, student DB decreased. Similar to Riley-Tillman and Eckert (2001) and Coffee and Kratochwill (2013), despite labor intensive consultation methods, teachers’ praise toward target students did not maintain following withdrawal of goal setting and feedback, and teachers’ generalized praise use was modest at best despite receiving multiple generalization training procedures.

PF has proven to be an effective method for increasing the treatment integrity of school-based interventions (Noell et al., 2005; Solomon et al., 2012), however the majority of studies that have used PF have done so in a reactive manner, using PF when teachers’ implementation of a procedure has declined (Duncan et al., 2013; Nguyen, 2015). Next, when proactive direct training procedures have been employed, they have typically included resource intensive training procedures followed by additional
consultation procedures (e.g., Coffee & Kratochwill, 2013; Duncan et al., 2013; Riley-
Tillman & Eckert, 2001) that have not demonstrated maintenance or generalization. As a
result, additional research is needed to test proactive approaches to increasing teachers’
implementation of an intervention while evaluating maintenance and generalization of the
skills learned during consultation.

Summary

A small number of studies have tested generalization-training procedures to
increase the extent to which teachers implement interventions in a generalized fashion
(Coffee & Kratochwill, 2013; Duncan et al., 2013; Nguyen, 2015; Riley-Tillman &
Eckert, 2001; Taber, 2015). This is of concern, particularly because a goal of consultation
is for teachers to use the skills taught during consultation to address future concerns that
are of a similar nature (Bergan & Kratochwill, 1990; Gutkin & Curtis, 1999; Tillman,
2000). The generalization studies conducted have largely focused on praise (Nguyen,
2015; Taber, 2015) and have failed to evaluate antecedent procedures such as EID that
have the potential to prevent non-compliance (Radley & Dart, 2015). Fewer studies have
utilized sequential modification as a means to program generalization (Duncan et al.,
2013; Nguyen, 2015). Additionally, generalization studies have historically focused on
intensive training and follow-up procedures (e.g., Coffee & Kratochwill, 2013; Duncan et
al., 2013; Nguyen, 2015; Riley-Tillman & Eckert, 2001; Taber, 2015). Despite labor-
intensive consultation procedures, teachers have demonstrated limited, generalized
intervention use (e.g., Coffee & Kratochwill, 2013; Duncan et al., 2013; Riley-Tillman &
Eckert, 2001). Additional research evaluating novel consultation procedures that may
increase the extent to which teachers acquire skills during consultation and maintain and
generalize those skills to various settings is needed.

Purpose

The purpose of this study was to extend Dufrene et al. (2012) and Nguyen (2015) by evaluating whether in situ training of EID results in maintained teachers’ use of EID, and if it does, if teachers’ use of EID generalizes to other settings as a means to increase compliance in the classroom. Next, if in situ training alone does not produce generalized EID, this study tested the effects of sequential modification via goal setting and PF for programming generalization of EID to non-training settings (Nguyen, 2015). The following research questions were addressed.

Research Questions

1. Does in situ training, via BITE, cause an increase in teachers’ use of EID toward a target student?

2. If in situ training increases teachers’ use of EID with a target student, is there a concomitant increase in the target student’s initiation compliance with teacher commands?

3. Will teachers’ use of EID be maintained immediately following training?

4. Does in situ training via BITE promote the generalization of teachers’ use of EID in an untrained setting?

5. If teachers do not generalize EID to the target student in a novel setting, will generalization occur if training is sequentially modified via goal setting plus PF?

6. Does in situ training result in maintained teachers’ use of EID at follow-up?
CHAPTER III – METHOD

Participants and Setting

Participants included 4 female Head Start teachers (referred by pseudonyms) in four local Head Start centers located in the southeastern United States and their students. All teachers were African American. Three teachers taught regular Head Start classrooms (i.e., children ages 3-5), and one teacher taught in an early Head Start classroom (i.e., children ages 2-3). There were approximately 20 children in each classroom. In addition to the main classroom teacher, there was one assistant in each classroom. Demographics included approximately 99% minority students (i.e., 68% African American, 16% biracial or multiracial, 15% Hispanic). All students were of low SES, as Head Start enrollment criteria require family income at or below the federal poverty line.

Discipline referrals by Head Start/Early Head Start administration and teachers for concerns regarding student compliance served as the recruitment process. The Institutional Review Board (IRB) at The University of Southern Mississippi approved this study (Appendix C). All teachers and student’s parents or guardians provided informed consent (Appendix A and B).

Specific inclusionary criteria for the study included: (1) students were non-compliant with teacher instructions and (2) had no gross sensory impairment or low receptive language. Students with equal or less than 40% compliance with first time, teacher presented instruction (directives) were included (McMahon & Forehand, 2002). Additionally, teachers that delivered instructions with less than 50% accuracy of EID (according to EID checklist; Appendix F) were included. Exclusion criteria included individuals with moderate to severe disabilities or individuals engaging in severely
aggressive or destructive behavior, because students with moderate to severe disabilities and those that engage in severely aggressive or destructive behavior may have intervention needs that go beyond EID.

*Teacher-Student Dyad 1*

Teacher 1 was a Black female, who held a Bachelor’s degree in General Studies and was teaching her first year at Head Start. Student 1 was a five-year-old, Caucasian female, referred for non-compliance (e.g., ignoring verbal prompts/failure to initiate compliance within 5 seconds). Teacher 1 reported that non-compliance often occurred during morning activity time (free period whereby students have the opportunity to choose among a variety of activities, i.e. play with a puzzle, read a book) and lunch. Therefore, all observations for Teacher-Student dyad 1 were conducted during activity time (training setting) and lunch (generalization-setting). Administration records reviews indicated that Student 1 did not have any diagnoses prior or during the course of the study.

*Teacher-Student Dyad 2*

Teacher 2 was a Black female, who held a Bachelor’s degree in General Studies and was teaching her third year at Head Start. Student 2 was a five-year-old, Black male referred for non-compliance (e.g., ignoring verbal prompts/failure to initiate compliance within 5 seconds). Teacher 2 reported that non-compliance often occurred during morning activity time and breakfast. Therefore, all observations for Teacher-Student dyad 2 were conducted during morning activity time (training setting) and breakfast (generalization-setting). Administration records reviews indicated that Student 2 did not have any diagnoses prior or during the course of the study.
Teacher-Student Dyad 3

Teacher 1 was a Black female, who held an Associate’s degree in General Studies and had 3 years of experience teaching at early Head Start. Student 3 was a three-year-old, Black female, referred for non-compliance (e.g., ignoring verbal prompts/directions, refusal to follow rules, failure to initiate compliance within 5 seconds). Teacher 3 reported that non-compliance often occurred during breakfast and activity time. All observations for Teacher-Student dyad 3 were conducted during breakfast (training setting) and during activity time (generalization-setting). Administration records reviews indicated that Student 3 did not have any diagnoses prior or during the course of the study.

Teacher-Student Dyad 4

Teacher 4 was a Black female, who held a Bachelor’s degree in Education, with 1 year of teaching experience at Head Start. Student 4 was a five-year-old, Black male, referred for non-compliance (e.g., ignoring verbal prompts/directions, refusal to follow rules, failure to initiate compliance within 5 seconds). Teacher 4 reported that non-compliance often occurred during afternoon snack time and breakfast time. Therefore, all observations for Teacher-Student dyad 4 were conducted during snack time (training setting) and during breakfast time (generalization-setting). Administration records reviews indicated that Student 4 did not have any diagnoses prior or during the course of the study.
Instruments

Behavior Intervention Rating Scale

The Behavior Intervention Rating Scale (BIRS; See Appendix D; Von Brock & Elliott, 1987) was administered to all four teachers to assess the social validity of the EID intervention. The BIRS consists of 24 items that are rated on a 6-point Likert scale from strongly disagree (1) to strongly agree (6). The teachers rated statements such as “This would be an acceptable intervention for the child’s problem behavior” and “This intervention would be an appropriate intervention for a variety of children.” Total scores range from 24 to 144. Higher scores on the BIRS indicate greater social validity for the intervention. Factor analysis by Elliot and Treuting (1991) identified three factors for the BIRS: acceptability, effectiveness, and time. Combined, all three factors account for 73.6% of the total variance. Acceptability accounted for 63% of variance and factor loadings were all greater than .50 on this factor and less than .27 on the other two factors. Effectiveness accounted for 6% of the variance and all factor loadings were greater than .50 on this factor and less than .30 on the other factors. Time of effectiveness accounted for 4.3% of variance with factor loadings greater than .60 on this factor and less than .27 on the other two factors. With regard to internal consistency, for the entire scale, coefficient alpha was found to be .97. The three subscales: acceptability, effectiveness, and time yielded alphas of .97, .92, .87, respectively. Teachers completed the BIRS immediately following the in situ training phase.

Consultation Acceptability Satisfaction Scale

The Consultation Acceptability and Satisfaction Scale (CASS; See Appendix E; Taber, 2015) was administered to assess teachers’ perceptions of the social validity of in
situ training. On the CASS, 12 items are rated on a 6-point Likert scale from strongly disagree (0) to strongly agree (5). CASS items were created to assess teachers’ perceptions of the acceptability, appropriateness, and effectiveness of the consultation process. High scores on the CASS indicate high levels of acceptability and satisfaction with the consultation process. Currently, there are no published accounts of technical adequacy of the CASS.

Materials

*Bug-in-the-ear*

A bug-in-the-ear (BITE) is a small, wireless one-way communication instrument that includes a transmitter with a small microphone and a receiver with a single ear bud. A BITE was used to provide real-time, in situ verbal prompts to the teachers in accurate EID format (e.g., Dufrene et al., 2012). The purpose of using the BITE during training was to reduce intrusiveness and disruption to teachers and students during class instruction.

*MotivAider®*

A MotivAider® is a device worn on a belt or pocket that emits tactile prompts (i.e. vibration) on a fixed time interval. When the preset time interval elapses (e.g. 1 minute), the MotivAider® “buzzes” for approximately 3 seconds. The researcher wore the MotivAider® to prompt the teacher to provide commands to the target student.

Dependent Measures and Data Collection Procedures

The primary dependent variable for this study was teachers’ accuracy of EID. EID was defined as having the following components: (1) teacher was within three feet of child, (2) teacher solicited eye contact from child, (3) teacher praised child for eye
contact if child made eye contact, (4) teacher issued a directive (i.e., teacher delivered
direct statement indicating specific behavioral request), (5) teacher used descriptive
wording in instruction, (6) teacher waited 5 s for child to comply with instruction prior to
reissuing instruction if child was initially noncompliant, and (7) teacher praised child
following compliance for initial instruction or if child eventually complied with
subsequently delivered instruction (Ford et al., 2001). Teacher praise for eye contact, 5-s
wait time, and praise for compliance were coded only when appropriate and as a result
were not always included in the denominator of the calculation for a given command. An
EID checklist was used (Appendix F) that includes the 7 components that make up
accuracy of EID. During an observation session, the teachers delivered 10 commands,
and each command was coded for the 7 steps that make up accuracy of EID (Appendix
F). The average of teachers’ EID accuracy was calculated by adding the number of
accurately implemented steps from the EID checklist across 10 commands and dividing
that number by the total number of possible steps across all commands and multiplying
that number by 100.

Student initiation compliance was also recorded. Initiation compliance was
defined as initiating compliance for an instruction within 5 s of instruction delivery
(Everett et al., 2005). Initiation compliance was recorded during 10-minute observations
(i.e., concurrent with coding for teacher accuracy of EID; see Appendix F). Percent of
initiation compliance was calculated by dividing the number of commands the target
student complied with, by the total number of commands delivered, and multiplying by
100.
For at least 30% of the observation sessions, a generalization probe was conducted where training did not occur (i.e. during the preschool’s circle time breakfast time, snack time). This generalization probe was conducted every second or third observation throughout the study, across all phases.

Undergraduate and graduate students in school psychology conducted the observations for this study. Prior to conducting observations, the researcher trained all observers on the operational definitions of target behaviors and the coding scheme. Each observer was required to meet a 90% agreement criterion with the primary researcher in order to collect data. A primary observer was determined for each observation and the graphed score was the score collected from the primary observer. Observers sat in a minimally obtrusive location in the classroom while conducting observations.

Interobserver Agreement and Procedural Integrity

Interobserver agreement (IOA) data were collected for at least 40% of the observation sessions for all dependent variables across each participant and phase. A secondary observer collected data at the same time as the primary observer on both teachers’ accuracy of EID and target students’ initiation compliance. IOA for teachers’ accuracy of EID was calculated by dividing the number of agreed and disagreed upon accurate steps in EID and multiplying that number by 100. IOA for students’ initiation compliance was calculated by dividing the number of agreed initiation compliance occurrences by the number of agreed and disagreed upon occurrences of initiation compliance and multiplying that number by 100.

Procedural integrity data were also collected using checklists for each phase and for the generalization probes (see Appendices F-K). The checklist for the baseline phase
included items indicating (1) the researcher told the teachers to give commands as they typically would to the target student, (2) the researcher wore a MotivAider® set to go off once every minute, (3) the researcher prompted the teacher to deliver a command to the target student once every minute (4) observers sat in a minimally obtrusive location in the classroom and (5) no other instructions, prompts, or feedback were provided to the teacher. The *in situ* phase, included items stating that (1) the researcher provided the teacher with the BITE, (2) the researcher ensured that the BITE was “on” and that the volume was at an appropriate level, (3) the researcher wore a MotivAider® set for once every minute, (4) the researcher prompted the teacher to deliver commands to the target student in accurate EID format (EID checklist; Appendix F) once every minute and (5) observers sat in a minimally obtrusive location in the classroom. The maintenance, generalization probe, and follow-up procedural checklists included the same items as the baseline phase checklist (See Appendices I-K). The generalization-training procedure checklist was identical to the *in situ* phase, with the addition of (1) the researcher informed the teacher additional training is required and in addition to using EID in the training setting, an additional goal would be to use EID in the generalization-setting. Procedural integrity was collected for 100% of sessions, across all conditions. Procedural integrity was calculated by dividing the number of steps completed accurately by the total number of steps on the checklist and multiplying that quotient by 100. Procedural integrity was 100% for all sessions. IOA for procedural integrity was evaluated for 58% of sessions, across all sessions. IOA for procedural integrity was calculated by dividing the number of agreed upon steps by the number of agreed upon plus disagreed upon steps and multiplying the quotient by 100.
For Teacher-Student dyad 1, IOA was collected for 50% of all of the training setting observations with 97% (range, 92-100%) agreement for teacher behaviors and 99% (range, 90-100%) agreement for student behaviors. IOA was collected in the training setting for 60% of baseline observations with 95% (range, 92-97%) agreement for teacher behaviors and 100% agreement for student behaviors, 40% of in situ observations with 97% (range, 92-100%) agreement for teacher behaviors and 100% agreement for student behaviors, 60% of maintenance observations with 97% (range, 94-100%) agreement for teacher behaviors and 100% agreement for student behaviors, and 40% of follow-up observations with agreements of 100% for both teacher and student behaviors. IOA was collected for 60% of all generalization-setting observations with 94% (range, 90-100%) agreement for teacher behaviors and 100% agreement for student behaviors. IOA was collected in the generalization-setting for 50% of the baseline observations with 91% agreement for teacher behaviors and 100% agreement for student behaviors, 50% of in situ observations with 100% agreement for both teacher and student behaviors, 60% of maintenance observations with 93% (range, 90-100%) agreement for teacher behaviors and 100% for student behaviors, and 40% of follow-up observations with agreements of 90% for teacher behaviors and 100% for student behaviors.

For Teacher-Student dyad 2, IOA was collected for 54% of all of the training setting observations with 99% (range, 92-100%) agreement for teacher behaviors and 100% agreement for student behaviors. IOA was collected in the training setting for 57% of baseline observations with 96% (range, 92-100%) agreement for teacher behaviors and 100% agreement for student behaviors, 43% of in situ observations with 100% agreement for both teacher and student behaviors, 60% of maintenance observations with 100% agreement for teacher behaviors and 100% agreement for student behaviors.
agreement for both teacher and student behaviors and 60% of follow-up observations with 99% (range, 98-100%) agreement for teacher behaviors and 100% agreement for student behaviors. IOA was collected for 62% of all generalization-setting observations with 98% (range, 96-100%) agreement for teacher behaviors and 95% (range, 90-100%) agreement for student behaviors. IOA was collected in the generalization-setting for 67% of the baseline observations with 97% (range, 96-98%) agreement for teacher behaviors and 95% (range, 90-100%) agreement for student behaviors, 67% of in situ observations with 98% (range, 97-98%) agreement for teacher behaviors and 100% agreement for student behaviors, 67% of maintenance observations with 97% (range, 96-98%) agreement for teacher behaviors and 90% agreement for student behaviors, and 67% of follow-up observations with agreements of 99% (range, 98-100%) for both teacher and student behaviors.

For Teacher-Student dyad 3, IOA was collected for 47% of all of the training setting observations with 98% (range, 96-100%) agreement for teacher behaviors and 100% agreement for student behaviors. IOA was collected in the training setting for 60% of baseline observations with 97% (range, 93-100%) agreement for teacher behaviors and 100% agreement for student behaviors, 43% of in situ observations with 99% (range, 96-100%) agreement for teacher behaviors and 100% agreement for student behaviors. IOA was collected for 71% of all generalization-setting observations with 98% (range, 93-100%) agreement for teacher behaviors and 100% agreement for student behaviors. IOA was collected in the generalization-setting for 50% of the baseline observations with 100% agreement for both teacher and student behaviors, 100% of in situ observations with 100% agreement for both teacher and student behaviors, 60% of maintenance
observations with 97% (range, 93-100%) agreement for teacher behaviors and 100% for student behaviors.

For Teacher-Student dyad 4, IOA was collected for 46% of all of the training setting observations with 99% (range, 93-100%) agreement for teacher behaviors and 100% agreement for student behaviors. IOA was collected in the training setting for 45% of baseline observations with 99% (range, 93-100%) agreement for teacher behaviors and 100% agreement for student behaviors, 100% of in situ observations with 100% agreement for both teacher and student behaviors, 60% of maintenance observations 100% agreement for both teacher and student behaviors and 100% agreement for student behaviors and 100% of follow-up observations with agreements of 100% for both teacher and student behaviors. IOA was collected for 40% of all generalization-setting observations with 99% (range, 93-100%) agreement for teacher behaviors and 100% agreement for student behaviors. IOA was collected in the generalization-setting for 40% of the baseline observations with 97% (range, 93-100%) agreement for teacher behaviors and 100% agreement for student behaviors, 100% of in situ observations with 100% agreement for both teacher and student behaviors, 60% of maintenance observations with 100% agreement for both teacher and student behaviors and 100% of follow-up observations with 100% agreement for both teacher and student behaviors.

Experimental Design and Data Collection Procedures

A multiple baseline design (Cooper, Heron, & Heward, 2007) across teacher-student dyads with probing for generalization was used to evaluate the effectiveness of in situ training. This design is appropriate, because staggering the intervention across participants demonstrates experimental control and the generalization probes determine if
the intervention generalizes to other settings (Kazdin, 2011). Additionally, teachers’ behavior following consultation may not be reversible and the multiple baseline design does not require withdrawal of the intervention. Four teacher-student dyads were included in the concurrent multiple baseline design. The following phases were evaluated: baseline, in situ training, maintenance, generalization-training (if a teacher failed to generalize accuracy of EID following in situ training), and two-week follow-up with one exception. Teacher 1’s follow-up occurred 2 months after the final maintenance session, because Student 1 moved in the middle of the school year, so a new student was recruited in her place.

Visual analysis was used to determine the level, trend, variability, immediacy of effects, proportion of overlapped data, and consistency of data patterns across similar phases (Kazdin, 2011). The baseline phases for each teacher-student dyad consisted of a minimum of 5, 7, 9, and then 11 data points in the order in which they were recruited for participation in the study (Kratochwill et al., 2013).

In addition to visual analysis of data, Tau-U (Parker, Vannest, Davis, & Suaber, 2011) was used to calculate an effect size. Tau-U is a method for measuring non-overlap of data between two phases (A and B). Tau-U takes into account baseline trend, and if there is a trend in the unintended direction, then that trend is accounted for in the calculation (Vannest & Ninci, 2015). Tau-U effect size scores ranging from 0-.20 are considered small effects, scores ranging from .20-.60 are considered moderate effects, scores ranging from .60-.80 are considered large effects, and scores above .80 are considered a very large effect (Vannest & Ninci, 2015). Baseline percentages for teacher and student data were compared across maintenance and follow-up, in both training and
generalization-settings as to evaluate the overall effects of in situ training on teachers’ accuracy of EID. The in situ phases were not included in the comparison, as it represents behavior that was prompted by the consultant. Additionally, because Teacher 3 withdrew from the study prior to maintenance and follow-up phases, her data were excluded from Tau-U calculation.

Procedures

Phase Change Decisions

Phase change decisions were based on the primary dependent variable of teachers’ accuracy of EID towards the target student. Phase changes from baseline to in situ training were made contingent on a stable or decreasing trend in teachers’ accuracy of EID in the training setting (Kratochwill et al., 2010). In situ training included a minimum of five sessions (e.g., Kratochwill et al., 2013) and phase changes from in situ training to maintenance occurred only after the teacher met the criterion of 100% accuracy of EID in the training setting during one session. Data collection in maintenance also occurred for at least five sessions. If teachers’ accuracy of EID maintained (i.e., EID accuracy is at or above 80%) during the training setting and EID accuracy generalized to the generalization-setting (i.e., EID accuracy was at or above 80%), then the maintenance phase was terminated and follow-up data were collected two weeks later (1 month later for Teacher 1). The teachers were then provided with the previously mentioned rating scales. If teachers’ accuracy of EID did not maintain in the training setting (i.e., EID accuracy is below 80%), the teacher was once again prompted to deliver EID commands once every minute in the training setting and the teacher was trained to 100% accuracy of EID in the training setting. If teachers’ accuracy of EID was at or above 80% in the
training setting, but did not generalize accuracy of EID in the generalization-setting (i.e., EID accuracy is below 80%), then generalization-training was provided. During the generalization-training phase, the teacher was once again prompted to deliver EID directives once every minute in the training setting and the teacher was trained to 100% accuracy of EID.

Screening Observation

All teachers and target students were screened to determine if they met the inclusion criteria for the study. Head Start administration reviewed the target students’ school records to verify students did not have any moderate to severe disabilities, gross sensory impairment, or low receptive language. Record reviews indicated that all target students did not have an Individualized Education Plan (IEP) and were not receiving services for speech and language or special education services under disability categories during and throughout the course of the study. Additionally, a 10-minute screening observation in the training setting was conducted to determine if teachers delivered commands with less than 50% accuracy of EID toward the target student and target students had equal or less than 40% compliance with first time, teacher presented instructions.

During the screening observation, the researcher wore a MotivAider®, which prompted the teacher to deliver a command to the target student once every minute in the training setting. The researcher instructed the teacher to give commands to the target student as they typically would. No other instructions, prompts, or feedback were given to the teacher. Observers sat in a minimally obtrusive location in the classroom. Data on teachers’ accuracy of EID towards the target student, and the target student’s initiation
compliance were collected. During the screening observation, all teacher-student dyads met the inclusion criteria (Teacher-Student dyad 1: 41% EID accuracy, 30% initiation compliance; Teacher-Student dyad 2: 24% EID accuracy, 30% initiation compliance; Teacher-Student dyad 3: 34% EID accuracy, 35% initiation compliance; Teacher-Student dyad 4: 27% EID accuracy, 30% initiation compliance).

**Generalization Probe**

Observers collected generalization probes every second or third observation throughout the study, across all phases. The researcher wore a MotivAider® to prompt the teacher to deliver a command to the target student once every minute in the generalization-setting. The researcher told teachers to give commands to the target student as they typically would. No other instructions, prompts, or feedback were given to the teacher. Observers sat in a minimally obtrusive location in the classroom. Generalization probe observations were conducted by a member of the research team not associated with in situ direct training to minimize the threat of teacher reactivity. Data on teachers’ accuracy of EID towards the target student and the target student’s initiation compliance were collected.

**Baseline**

During baseline, the researcher wore a MotivAider® to prompt the teacher to deliver a command to the target student once every minute. Teachers were asked to give commands to the target student as they typically would. No other instructions, prompts, or feedback were given to the teacher. Observers sat in a minimally obtrusive location in the classroom. Data on teachers’ accuracy of EID towards the target student and the target student’s initiation compliance were collected.
In Situ Training

Following the baseline phase, the researcher met briefly (i.e. less than 5 minutes) with the teacher to introduce and give them the BITE and explain that they would be prompted to deliver EID commands to the target student. Training was conducted in the setting in which student non-compliance was reported by the teacher as occurring most often (e.g., lunchtime, snack time, activity time) and commands delivered by the teacher were relevant to each setting (e.g., “bring me the yellow Lego,” “put your wrapper in the garbage can,” “open your milk carton”). A BITE and MotivAider® were used by the researcher to direct the teacher to deliver one accurate EID command every minute (10 EID commands total). The teacher repeated, verbatim, the accurate EID command. Teachers were trained to deliver EID with 100% accuracy. The researcher sat in a minimally obtrusive location in the classroom. Trained observers also sat in a minimally obtrusive location in the classroom and recorded teacher and student behavior. Teachers were not given any instruction outside of the prompting for EID, nor feedback following the session. Data on teachers’ accuracy of EID towards the target student and the target student’s initiation compliance were collected.

Maintenance

The maintenance phase began on the next school day following the discontinuation of the in situ training phase (following generalization-training for Teacher 2). The maintenance phase was identical to the screening observation, and baseline phase: The researcher wore a MotivAider® to prompt the teacher to deliver a command to the target student once every minute during the training setting. However, the researcher did not provide prompts in EID format, nor did the researcher bring the
BITE to the classroom. Teachers were asked to give commands to the target student as they typically would. No other instructions, prompts, or feedback were given to the teacher. Observers sat in a minimally obtrusive location in the classroom. Data on teachers’ accuracy of EID towards the target student and the target student’s initiation compliance were collected.

**Generalization-Training**

Throughout the course of the study, the topic of using EID in additional settings than the training setting was not discussed with the teachers. Generalization-training was conducted only if teachers’ accuracy of EID did not meet a criterion of a minimum of 80% in the training or generalization-settings during any phase following *in situ* training (teachers 2 and 4), with the exception of Teacher 1. Teacher 1’s generalization was below criterion for one datum during the *in situ* phase (69%), however because her accuracy of EID was on an upward trend, she did not receive generalization-training. Generalization-training consisted of a sequential modification procedure (Stokes & Baer, 1977; Nguyen, 2015). The teacher was first provided PF regarding their EID implementation. Specifically, the consultant provided verbal feedback to the teacher regarding what went well during EID implementation (e.g., EID steps implemented correctly) and what went poorly (e.g., EID steps implemented inaccurately). Next, the consultant showed the teacher a graph of their EID accuracy. The teacher was then informed that an additional training on EID was required and in addition to using EID accurately during the training setting, a goal would be to use EID accurately in the generalization-setting as well. The researcher reintroduced and gave the BITE to the teacher and the researcher wore a MotivAider® and BITE to prompt the teacher to deliver one accurate EID command once
every minute to the target student (10 EID commands total). The teacher then repeated, verbatim, the accurate EID command. Teachers were trained to deliver EID with 100% accuracy. Observers sat in a minimally obtrusive location in the classroom. Data on teachers’ accuracy of EID and the target student’s compliance were collected.

**Follow-up**

Two weeks following the maintenance phase (2 months for Teacher 1) or generalization-training phase (for teacher 4), a follow-up phase was conducted to determine if teachers’ accuracy of EID maintained in training and generalization-settings. Observations were conducted in the same fashion as during baseline and maintenance phases- the researcher wore a MotivAider® to prompt the teacher to deliver a command to the target student once every minute during the training and generalization-setting. Teachers were asked to give commands to the target student as they typically would. No other instructions, prompts, or feedback were given to the teacher. Observers sat in a minimally obtrusive location in the classroom. Data on teachers’ accuracy of EID towards the target student and the target student’s initiation compliance were collected.
CHAPTER IV – RESULTS

Results for teachers’ accuracy of EID and students’ initiation compliance in training and generalization-settings are displayed in Figure 1 and Figure 2 respectively. Descriptive statistics for accuracy of EID and students’ initiation compliance in training and generalization-settings by teacher and phase are presented in Tables 1-4.

Teacher-Student Dyad 1

Results for Teacher 1’s accuracy of EID are presented in Figure 1 and Student 1’s percentage of initiation compliance are presented in Figure 2. Based on the screen in observation, all inclusion criteria were met. During baseline, accuracy of EID was low and on a downward trend ($M=32\%$, range=$21-41\%$) and student initiation compliance was variable and on an increasing trend ($M=69\%$, range=$30-100\%$). During assessment of generalization in baseline, accuracy of EID was also low and on a downward trend ($M=30\%$, range=$26-33\%$) and student initiation compliance high and on a downward trend ($M=80\%$, range=$70-90\%$). Immediately following in situ training, immediate and substantial increases in EID accuracy and initiation compliance were observed in the training setting. Specifically, a high and stable level for both EID accuracy ($M=100\%$) and initiation compliance ($M=100\%$). In the generalization-setting, accuracy of EID ($M=75\%$, range=$69-80\%$) was high on an increasing trend and initiation compliance ($M=90\%$, range=$80-100\%$) high and stable. As previously mentioned, Teacher 1’s generalization was below criterion for one datum ($69\%$) during the in situ phase, however because her accuracy of EID was on an upward trend, she did not receive generalization-training and maintenance observations were conducted. During maintenance, Teacher 1 continued to demonstrate high, stable levels of EID accuracy in both the training
(M=92%, range=90-95%) and generalization-setting (M=85%, range=81-91%). Student initiation compliance during maintenance remained high and stable in both the training (M=98%, range=90-100%) and generalization-setting (M=100%). Student 1 moved during the middle of the school year, so a new student was recruited specifically so 2 month follow-up data could be collected on Teacher 1’s accuracy of EID. Improvements in EID accuracy were maintained at high, stable levels during follow-up in both the training (M=88%, range=84-89%) and generalization-setting (M=84%, range=82-85%). The recruited student’s initiation compliance was high and stable in both the training (M=100%) and generalization-setting (M=100%).

Teacher-Student Dyad 2

Results for Teacher 2’s accuracy of EID are presented in Figure 1 and Student 2’s percentage of initiation compliance are presented in Figure 2. Based on the screen in observation, all inclusion criteria were met. During baseline, accuracy of EID was low and variable in both the training (M=31%, range=23-40%) and generalization-setting (M=34%, range=25-39%). Student initiation compliance was variable and on an increasing trend in both the training (M=50%, range=30-90%) and generalization-setting (M=54%, range=33-70%). Immediately following in situ training, immediate and substantial increases in EID accuracy and initiation compliance were observed in the training setting. Specifically, a high and stable level for both EID accuracy (M=99, range=91-100%) and initiation compliance (M=100%). In the generalization-setting, EID accuracy was moderate to high and variable (M=75, range=60-88%) and initiation compliance was high and stable (M=100%). Because accuracy of EID fell below the 80% criterion for two sessions during in situ training in the generalization-setting (60% and
generalization-training was provided to the teacher. Following the brief generalization-training session, both accuracy of EID (M=100%) and initiation compliance (M=100%) again rose to high levels in the generalization-setting. During maintenance, Teacher 2 continued to demonstrate high, stable levels of EID accuracy in both the training (M=94%, range=90-95%) and generalization-setting (M=95%, range=90-97%). Student initiation compliance also maintained at high levels in both the training (M=100%) and generalization-setting (M=100%). Improvements in EID accuracy were maintained at high, stable levels during two-week follow-up in both the training (M=86%, range=82-89%) and generalization-setting (M=82%, range=79-88). Initiation compliance was also maintained at high levels during two-week follow-up in both the training (M=100%) and generalization-setting (M=100%).

Teacher-Student Dyad 3

Results for Teacher 3’s accuracy of EID are presented in Figure 1 and Student 3’s percentage of initiation compliance are presented in Figure 2. Based on the screen in observation, all inclusion criteria were met. During baseline, accuracy of EID was low and variable (M=37%, range=30-45%) and student initiation compliance was variable and on a downward trend (M=31%, range=0-100%). During assessment of generalization in baseline, accuracy of EID was low and variable (M=31%, range=23-36%) and student initiation compliance was low to moderate and variable (M=37%, range=30-50%). Immediately following in situ training, immediate and substantial increases in EID accuracy and initiation compliance were observed in both the training and generalization-settings. Specifically, a high, stable level for both EID accuracy in the training (M=99%, range, 96-100%) and generalization-setting (M=86%, range=82-90%) and initiation
compliance in the training ($M=100\%$) and generalization-setting ($M=97\%$, range=90-100\%). Teacher 3 withdrew from the study following training, because she indicated she no longer had time to dedicate to this study so no maintenance or follow-up data were collected.

Teacher-Student Dyad 4

Results for Teacher 4’s accuracy of EID are presented in Figure 1 and Student 4’s percentage of initiation compliance are presented in Figure 2. Based on the screen in observation, all inclusion criteria were met. During baseline, accuracy of EID was low and variable ($M=31\%$, range=20-40\%) and student initiation compliance was variable ($M=60\%$, range=30-100\%). During assessment of generalization in baseline, accuracy of EID was low and variable ($M=35\%$, range=25-43\%) and student initiation compliance variable ($M=52\%$, range=0-100\%). Immediately following in situ training, immediate and substantial increases in EID accuracy were observed in both the training and generalization-setting. Specifically, a high and stable level for EID accuracy in both the training ($M=99\%$, range=97-100\%) and generalization-setting ($M=83\%$, range=80-83\%). During in situ training, initiation compliance was moderate to high and variable in the training setting ($M=79\%$, range=50-100\%) and high, stable in the generalization-setting ($M=100\%$). Due to the stable, high level in accuracy of EID towards Student 4, training was withdrawn and maintenance observations were conducted. During maintenance, Teacher 4’s EID accuracy in the training setting was stable, but slightly decreased in level ($M=81\%$, range=73-84\%), however improvements were still higher than the EID accuracy levels obtained during baseline. EID accuracy in the generalization-setting was high and stable ($M=89\%$, range=85-92\%). Student initiation compliance during
maintenance was high in the training setting ($M=88\%, \text{range}=80-100\%$) and moderate to high and variable in the generalization-setting ($M=72\%, \text{range}=57-100\%$). Because accuracy of EID fell below 80\% criterion for one session during maintenance in the training setting (73\%), generalization-training was provided to the teacher. Following generalization-training, accuracy of EID once again rose to a high level in both the training ($M=100\%$) and generalization-settings ($M=98\%$). Additionally, initiation compliance remained high in the training (80\%) and generalization-setting (90\%). Two-weeks following generalization-training, EID accuracy continued to rise to high levels at follow-up in both the training ($M=92\%, \text{range}=83-97\%$) and generalization-setting ($M=95\%, \text{range}=88-100\%$). Initiation compliance was high and stable for both the training ($M=98\%, \text{range}=90-100\%$) and generalization-setting ($M=97\%, \text{range}=90-100\%$).
Figure 1. Teachers’ Percentage of Accuracy of Effective Instruction Delivery for Training and Generalization Settings
Figure 2. Students’ Percentage of Initiation Compliance for Training and Generalization Settings
### Table 1

*Mean EID by Condition for Training Settings*

<table>
<thead>
<tr>
<th>Teacher</th>
<th>Baseline</th>
<th>In Situ</th>
<th>Maintenance</th>
<th>Gen Train</th>
<th>Follow-up</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teacher 1</td>
<td>32% (21-41%)</td>
<td>100%</td>
<td>92% (90-95%)</td>
<td>–</td>
<td>88% (84-89%)</td>
</tr>
<tr>
<td>Teacher 2</td>
<td>31% (23-40%)</td>
<td>99%</td>
<td>94% (90-97%)</td>
<td>100%</td>
<td>86%</td>
</tr>
<tr>
<td>Teacher 3</td>
<td>37% (30-45%)</td>
<td>99%</td>
<td>100% (90-97%)</td>
<td>88%</td>
<td></td>
</tr>
<tr>
<td>Teacher 4</td>
<td>31% (20-40%)</td>
<td>99%</td>
<td>81% (73-84%)</td>
<td>100%</td>
<td>92% (83-97%)</td>
</tr>
</tbody>
</table>

### Table 2

*Mean EID by Condition for Generalization-Settings*

<table>
<thead>
<tr>
<th>Teacher</th>
<th>Baseline</th>
<th>In Situ</th>
<th>Maintenance</th>
<th>Gen Train</th>
<th>Follow-up</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teacher 1</td>
<td>30% (26-33%)</td>
<td>75%</td>
<td>85% (81-91%)</td>
<td>–</td>
<td>84% (82-85%)</td>
</tr>
<tr>
<td>Teacher 2</td>
<td>34% (25-39%)</td>
<td>75%</td>
<td>95% (90-97%)</td>
<td>100%</td>
<td>82% (79-88%)</td>
</tr>
<tr>
<td>Teacher 3</td>
<td>31% (23-36%)</td>
<td>86%</td>
<td>83% (82-90%)</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>Teacher 4</td>
<td>35% (25-43%)</td>
<td>83%</td>
<td>89% (80-83%)</td>
<td>98%</td>
<td>95% (88-100%)</td>
</tr>
</tbody>
</table>

### Table 3

*Mean Initiation Compliance by Condition for Training Settings*

<table>
<thead>
<tr>
<th>Student</th>
<th>Baseline</th>
<th>In Situ</th>
<th>Maintenance</th>
<th>Gen Train</th>
<th>Follow-up</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student 1</td>
<td>69% (30-100%)</td>
<td>100%</td>
<td>98% (90-100%)</td>
<td>–</td>
<td>100%</td>
</tr>
<tr>
<td>Student 2</td>
<td>50% (30-90%)</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
</tr>
<tr>
<td>Student 3</td>
<td>31% (0-100%)</td>
<td>100%</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>Student 4</td>
<td>60% (30-100%)</td>
<td>79%</td>
<td>88% (80-100%)</td>
<td>80%</td>
<td>98% (90-100%)</td>
</tr>
</tbody>
</table>
Table 4

Mean Initiation Compliance by Condition for Generalization-Settings

<table>
<thead>
<tr>
<th>Student</th>
<th>Baseline</th>
<th>In Situ</th>
<th>Maintenance</th>
<th>Gen Train</th>
<th>Follow-up</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student 1</td>
<td>80% (70-90%)</td>
<td>90% (80-100%)</td>
<td>100%</td>
<td>–</td>
<td>100%</td>
</tr>
<tr>
<td>Student 2</td>
<td>54% (33-70%)</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
</tr>
<tr>
<td>Student 3</td>
<td>37% (30-50%)</td>
<td>97% (90-100%)</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>Student 4</td>
<td>52% (0-100%)</td>
<td>100% (57-100%)</td>
<td>43%</td>
<td>90%</td>
<td>97% (90-100%)</td>
</tr>
</tbody>
</table>

Effect Size Calculation

Table 5 includes Tau-U scores for accuracy of EID and initiation compliance by teacher and student. Significant positive baseline trends in the undesirable direction were checked for all teachers and students. Student 4 demonstrated a statistically significant (p< .05) trend in the undesired direction during baseline for student initiation compliance in both the training and generalization settings. As a result, Tau U was corrected to account for the significant baseline trend. Overall, results indicate that there was a very large effect on accuracy of EID for the in situ training procedure in training settings and a very large effect in generalization-settings. Results also indicate that the increase in accuracy of EID resulted in a moderate to large effects on initiation compliance in training settings and a small to very large effect in generalization-settings.
Table 5

**EID Tau-U Scores Comparing Baseline to Maintenance and Baseline to Follow-up**

<table>
<thead>
<tr>
<th>Teacher</th>
<th>Train BL to Maint</th>
<th>Gen BL to Maint</th>
<th>Train BL to FU</th>
<th>Gen BL to FU</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Tau-U Effect Size</td>
<td>Tau-U Effect Size</td>
<td>Tau-U Effect Size</td>
<td>Tau-U Effect Size</td>
</tr>
<tr>
<td>Teacher 1</td>
<td>1.0 Very Large</td>
<td>1.0 Very Large</td>
<td>1.0 Very Large</td>
<td>1.0 Very Large</td>
</tr>
<tr>
<td>Teacher 2</td>
<td>1.0 Very Large</td>
<td>1.0 Very Large</td>
<td>1.0 Very Large</td>
<td>1.0 Very Large</td>
</tr>
<tr>
<td>Teacher 4</td>
<td>1.0 Very Large</td>
<td>1.0 Very Large</td>
<td>1.0 Very Large</td>
<td>1.0 Very Large</td>
</tr>
</tbody>
</table>

Table 6

**IC Tau-U Scores Comparing Baseline to Maintenance and Baseline to Follow-up**

<table>
<thead>
<tr>
<th>Student</th>
<th>Train BL to Maint</th>
<th>Gen BL to Maint</th>
<th>Train BL to FU</th>
<th>Gen BL to FU</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Tau-U Effect Size</td>
<td>Tau-U Effect Size</td>
<td>Tau-U Effect Size</td>
<td>Tau-U Effect Size</td>
</tr>
<tr>
<td>Student 1</td>
<td>.40 Moderate</td>
<td>1.0 Very Large</td>
<td>.48 Moderate</td>
<td>1.0 Very Large</td>
</tr>
<tr>
<td>Student 2</td>
<td>.74 Large</td>
<td>.67 Large</td>
<td>.74 Large</td>
<td>.67 Large</td>
</tr>
<tr>
<td>Student 4</td>
<td>.74 Large</td>
<td>.20 Small</td>
<td>.78 Large</td>
<td>.73 Large</td>
</tr>
</tbody>
</table>

Note: Tau-U effect size scores ranging from 0-.20 are considered small effects, scores ranging from .20-.60 are considered moderate effects, scores ranging from .60-.80 are considered large effects, and scores above .80 are considered a very large effect (Vannest & Ninci, 2015). EID=effective instruction delivery. IC=initiation compliance. Teacher 3 was excluded from Tau-U calculations, because she withdrew from the study prior to maintenance and follow-up phases.

Acceptability

CASS

Each teacher completed the CASS within one week following the end of data collection sessions. The mean scores across teachers were: 5, 5, 4.83 (range 4-5), and 4.75 (range 4-5) for Teacher 1, 2, 3, and 4, respectively. According to the scores, the
results were similar across all teachers, with all questions scored as agree or strongly agree. Table 7 includes mean scores for each item across all teachers.

Table 7

*CASS Results*

<table>
<thead>
<tr>
<th>Teacher</th>
<th>Mean</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teacher 1</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Teacher 2</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Teacher 3</td>
<td>4.83</td>
<td>4-5</td>
</tr>
<tr>
<td>Teacher 4</td>
<td>4.75</td>
<td>4-5</td>
</tr>
<tr>
<td>Overall</td>
<td>4.9</td>
<td>4-5</td>
</tr>
</tbody>
</table>

Note: 12 items are rated on a 6-point Likert scale from *strongly disagree* (0) to *strongly agree* (5).

Higher scores on the CASS indicate higher levels of acceptability and satisfaction with consultation procedures.

*BIRS*

Each teacher completed the BIRS following the end of data collection sessions. The mean scores across teachers were: 5.25 (range 5-6), 5 (range 4-6), 4.96 (range 4-6) and, 5.33 (range 4-6), for Teacher 1, 2, 3, and 4 respectively. Items loading onto the acceptability factor had a mean score of 5.28 (range 4-6). Items loading onto the effectiveness factor had a mean score of 4.9 (range 4-5). Items loading on to the time factor had a mean score of 4.75 (range 4-6). All teachers agreed that the intervention was acceptable, appropriate for other behavior problems, they would be willing to use it in the classroom, is reasonable, and would not result in negative side-effects for the child. Table 8 includes mean scores for each item across all teachers.
# Table 8

**BIRS Results**

<table>
<thead>
<tr>
<th>Teacher</th>
<th>Acceptability</th>
<th>Effectiveness</th>
<th>Time</th>
<th>Combined</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>Range</td>
<td>Mean</td>
<td>Range</td>
</tr>
<tr>
<td>Teacher 1</td>
<td>5.33</td>
<td>5-6</td>
<td>5.14</td>
<td>5-6</td>
</tr>
<tr>
<td>Teacher 2</td>
<td>4.67</td>
<td>4-6</td>
<td>5.14</td>
<td>5-6</td>
</tr>
<tr>
<td>Teacher 3</td>
<td>5.33</td>
<td>4-6</td>
<td>5.29</td>
<td>4-6</td>
</tr>
<tr>
<td>Teacher 4</td>
<td>5.47</td>
<td>4-6</td>
<td>5.14</td>
<td>4-6</td>
</tr>
<tr>
<td>Total</td>
<td>5.29</td>
<td>4-6</td>
<td>4.9</td>
<td>4-5</td>
</tr>
</tbody>
</table>

Note: 24 items are rated on a 6-point Likert scale from strongly disagree (1) to strongly agree (6).

Higher scores on the BIRS indicate greater social validity for the intervention.
CHAPTER V – DISCUSSION

This study extends the consultation and generalization literatures by testing the efficacy of teacher training procedures while evaluating effects on generalization. The study demonstrates that the use of the in situ training procedure resulted in increases in EID accuracy for all teachers throughout the course of the study. Additionally, the procedure resulted in increases in EID accuracy to novel settings without explicit training. Moreover, when teachers’ EID accuracy in the training or generalization-setting started to decline, generalization-training resulted in increases in EID accuracy which maintained throughout follow-up.

Research Questions 1 and 2

Across all teachers, in situ training resulted in immediate increases in accuracy of EID towards target students in the training setting. Dufrene et al. (2012) also tested the effects of in situ training on Head Start teachers’ EID; however, in Dufrene et al., teachers’ baseline level of EID was high, and as a result, Dufrene et al. was not able to establish a functional relationship between in situ training and increases in teachers’ EID. As a result, this study extends the teacher training literature by demonstrating that in situ training with a BITE may increase teachers’ EID.

It was also observed in the current study that for some students, as teachers’ accuracy of EID increased, there was a concomitant increase in initiation compliance. For Students 1 and 2, the impact of teachers’ use of EID on student increases in compliance is less convincing, because there was an accelerating trend for student initiation compliance during baseline. It is important to note that even though there may have been a ceiling effect for Student 1 and 2’s initiation compliance during baseline, following baseline,
both students’ initiation compliance remained high and stable throughout the course of the study and up until follow up. Student 3 and 4 demonstrate a clearer demonstration of increases in initiation compliance following EID, with the exception of Student 4’s *in situ* training phase. While this is only the second study to measure accuracy of EID following *in situ* training (Dufrene et al., 2012), these results are consistent with Dufrene et al. (2012), Dufrene et al., (2014) and Nguyen (2015) in that as teachers’ implementation of a behavior management technique increases following *in situ* training, there is a concomitant increase in students’ pro social behavior for some students and similar to Dufrene et al. (2012), those results are maintained up until follow up.

**Research Questions 3 and 4**

Teachers 1 and 2 increased and maintained accuracy of EID above predetermined criterion (i.e. 80% accuracy of EID) immediately following training. Teacher 4 successfully increased and maintained accuracy of EID above baseline levels following training, although for one session during maintenance, accuracy of EID was slightly below criterion (73%). The current study demonstrated low levels of accuracy of EID during baseline that increased following *in situ* training that maintained at high levels throughout maintenance. Dufrene et al. (2012) included high levels of EID during baseline; as a result, Dufrene et al. (2012) were not able to evaluate maintenance of EID. Therefore, these results extend previous research by demonstrating maintained EID following *in situ* training. Future research should continue to test the maintenance of teachers’ intervention implementation following *in situ* training to shed light on these results.
All teachers’ accuracy of EID successfully generalized to a novel setting without explicit training. While Teachers 1 and 2’s accuracy of EID dropped to levels below criterion during the training phase (Teacher 1) and maintenance phase (Teacher 2) in their generalization-settings, Teacher 1’s accuracy of EID was on an increasing trend, so no additional training was required for her to increase accuracy of EID throughout the course of the study. For Teacher 2, generalization training following in situ training was provided and successfully increased accuracy of EID.

These results are similar to Taber (2015) and Nguyen (2015) in that one teacher successfully generalized without any prompting or feedback while the other teachers failed to meet generalization criterion, so further training was required. Of importance, the two teachers’ percentages following training maintained well over baseline levels.

Anecdotally, multiple observers observed Teachers 1, 2, and 3 use EID on additional students than the target student. Teacher 1 also indicated to the consultant that at follow-up she was still using EID on other students and noticed that their compliance was improving. Although no data were collected on the generalization of teachers’ use of EID across students, the ability of in situ training to promote generalization across participants without prompting appears promising. Additionally, Teacher 3 indicated that her assistant teacher was using EID in other settings, and this was also observed by multiple observers, however no data were collected to verify this. Future research should continue to measure the effects of in situ training on the generalization of interventions across participants and settings.
Research Questions 5 and 6

When two teachers’ accuracy of EID dropped to levels below criterion (< 80% accuracy of EID) for one session during the in situ phase in the generalization-setting (Teacher 2) and maintenance phase in the training setting (Teacher 4), training was sequentially modified via goal setting plus PF. Following additional training, EID accuracy levels immediately increased and maintained throughout follow-up. These results are similar to Nguyen (2015), in that sequential modification via goal setting and PF resulted in generalized intervention implementation for teachers. However, Nguyen examined the generalization of teachers’ BSP use to novel students following in situ training. Both Nguyen (2015) and the current study demonstrate that a brief generalization training session is sufficient to generalize and maintain intervention implementation, in contrast to previous studies that have employed labor-intensive techniques that have failed to result in sustained effects (Coffee & Kratochwill, 2013; Duncan, et al., 2013; Riley-Tillman & Eckert, 2001). Future research should continue to test the effects of sequential modification via goal setting and PF when intervention implementation starts to decline following in situ training.

Limitations and Future Research

Though the results of this study suggest in situ training may be an efficacious way to train teachers to increase and generalize EID accuracy, several limitations should be noted.

First, teachers’ reactivity to observations may have occurred. In particular, it may have become apparent to the teachers immediately following in situ training that the observers were collecting data on accuracy of EID. However, it is important to note that
all teachers demonstrated low and/or variable EID during baseline and there was a consistent, immediate effect for *in situ* training for all teachers. Moreover, all teachers continued to maintain their use of EID throughout the course of the study when *in situ* training was discontinued, which reduces concerns regarding reactivity. Additionally, observers not associated with training collected data in generalization-settings, and during baseline, teachers demonstrated low and/or variable EID in generalization settings. Codding and colleagues’ (2008) study suggests that performance feedback results in increased intervention implementation that did not differ when an observer was absent or present, indicating observer reactivity did not have an impact on their results. Codding et al. (2008) provides support that teachers’ reactivity to observation may not have an effect on behavior change.

Second, the teachers that participated in this study were all Head Start teachers, which may limit the generalizability of findings. Future research may include teachers from additional settings (e.g., middle schools, high schools) to determine the extent to which *in situ* training for accuracy of EID is effective in a variety of settings with diverse teacher populations. While this study initially included four participants, which would have allowed for three replications of an intervention effect, Teacher 3 withdrew from the study prior to maintenance and follow-up phases, so only three participants with two replications of an intervention effect were included. According to What Works Clearinghouse (WWC), if there are three phase repetitions with a minimum of five data points per phase, this study meets evidence standards without reservations (Kratochwill et al., 2010). Regardless, an additional replication of consultation effects would have further strengthened internal validity. Thus, the current study meets standards and is novel in
that many antecedent intervention studies for compliance in the past have failed to meet WWC standards with or without reservations (Radley & Dart, 2016).

Finally, researchers only prompted teachers to give commands that were relevant to the settings in which observations were conducted (e.g. “open your milk carton” during lunch), thus the consultant did not differentiate between whether prompted commands were high probability commands or low probability commands. The researcher did prompt the teachers to give commands the same way throughout baseline, maintenance, and follow up (e.g. tell Student 1 to bring you the Lego), which may have reduced any threats to internal and external validity. Future research may still consider whether prompting high probability commands versus low probability commands via in situ training has differential effects on compliance, particularly when those commands are delivered in EID format.

Implications for Applied Practice and Conclusion

The present study demonstrates that in situ training can efficaciously increase teachers’ accuracy of EID, while concomitantly increasing some students’ compliance. While these findings are preliminary and are continuing to emerge in the consultation literature, consultants may consider using in situ training as means to maintain and generalize intervention implementation. Consultants should first collect baseline data on teacher’s accuracy of EID and students’ compliance and implement training procedures using BITE. Consultants should closely monitor teachers’ performance and students’ response to EID on intervention procedures and collect data on whether the teacher maintains and generalizes these procedures. If teachers’ intervention implementation starts to decline or if teachers fail to generalize intervention techniques, consultants
should consider an additional brief meeting with the teacher (i.e. 5 minutes) providing PF regarding their intervention implementation and re implementing the BITE (Nguyen, 2015, Taber, 2015). PF may include verbally indicating to the teacher what went right during intervention implementation and what went wrong, as well as providing feedback visually in the form of a graph (Noell et al., 2005).

The current study and previous literature support the use of a BITE device as means to consult and train teachers in their naturalistic settings (e.g., Dufrene et al., 2012, Dufrene et al., 2014, Labrot et al., 2015), however these devices may be costly for consultants (Labrot et al., 2015), so other more affordable techniques to provide real-time verbatim prompts to teachers may be considered. Other recommended techniques could include the use of tactile props or index cards. Because direct training is better than indirect training in terms of treatment implementation (Dufrene et al, 2012, Sterling-Turner et al., 2012a) any technique that provides teachers with immediate feedback regarding their intervention implementation during authentic instructional setting is worth researching.

Although this study extends the school-based consultation and compliance literatures by addressing several limitations of previous in situ training and EID research, future research should continue to replicate these procedures and examine additional generalization components (e.g. generalization across participants, skills, additional settings such as clinic and home) and compliance interventions (e.g. time out, errorless compliance training) as means to increase student compliance.
APPENDIX A – Teacher Consent Form

Dear Teacher,

I am a doctoral student in the School Psychology Program at The University of Southern Mississippi. I currently work under the guidance of Dr. Brad Dufrene and as part of my thesis project; I am researching effective instruction delivery for teachers with students with problems with compliance. A student in your classroom has been referred for exhibiting problem behaviors; therefore, we hope you will consent to participating in the project.

I or other students from The University of Southern Mississippi will be collecting classroom observations throughout all the phases of this study. Initially you will be asked to instruct in your usual manner and observers will collect data on your behaviors and the target students’ behaviors. In the next phase, you will be trained on the intervention procedures using a one-way radio consisting of a receiver and a headphone to provide prompting and instructions. At the end of the training, you will be asked to complete a questionnaire to assess your satisfaction with the consultation. You will then be asked to continue implementing the recommended intervention. There may be additional training based on the data collected. At the end of the study, you will be asked to complete a questionnaire to assess your satisfaction with the intervention.

Your participation in this study may result in benefits for you and your students such as: (a) decrease in problem behaviors displayed compared to prior to the intervention, (b) increase in appropriate behaviors displayed compared to prior to the intervention, and (c) a skill that can be used with other students. The possible risks due to participation in this study are: (a) disruption in the classroom due to the observers being
present, and (b) disruption in the classroom due to the use of the one-way radio to communicate with you during training sessions.

If your students’ behaviors display undesired effects due to the intervention, modifications can be made or the discontinuation of participation in the study can occur and the student(s) can be provided with other services to address the problem. All non-classwork materials required for this study will be provided to you from myself or other trained graduate students.

All information including observations obtained during this study will be confidential. Your name and your students’ names and other identifying information will not be shared to anyone not related to this study. If the results from this project are to be shared at professional conferences or submitted for publication in any scholarly journals, all identifying information will be removed. Participation in this study is voluntary and you may withdraw from this study at any time without any consequences.

If you have any questions or concerns regarding this study, please direct questions to Joy Wimberly or Dr. Brad Dufrene at (601) 266 – 5256 or via email at joy.wimberly@eagles.usm.edu or brad.dufrene@usm.edu.

Sincerely,

____________________________
Joy Wimberly, B.S.
School Psychologist-in-Training
Department of Psychology
The University of Southern Mississippi

____________________________
Brad A. Dufrene, Ph.D.
Supervising Licensed Psychologist
MS License # 50-881
Department of Psychology
The University of Southern Mississippi
To Be Completed By Teacher

If you agree to participate, please read, sign, and return this form.

I have received and read the consent document and have decided to participate in this project. The purpose and procedures have been explained to me. I have had an opportunity to ask questions and I understand that if I have questions at any time in the future, I can ask and expect to receive a reply in a timely manner. I am voluntarily signing this form to participate under the conditions as stated.

I understand that I will be asked to implement an intervention and that observations will be conducted in the classroom. In order to participate in this study, I understand that I will be required to complete interview(s), implement the intervention and complete some questionnaires. I understand that I will be trained in the intervention with the use of a radio by the consultant. I also understand that all data collected in the process of this study will be confidential and that there will be nothing to identify myself or my students in the event that the data from this study be presented or published.

I understand that I may withdraw my consent for participation at any time without penalty.

Name of Teacher __________________ Signature __________________ Date ______________

Name of Witness __________________ Signature __________________
Dear Parent,

I am a doctoral student in the School Psychology Program at The University of Southern Mississippi. I currently work under the guidance of Dr. Brad Dufrene and as part of my thesis project, I am researching effective instruction delivery for teachers with students with problems with compliance. Your child has recently been referred for displaying problem behaviors in the classroom by his or her teacher.

Your child’s participation in this study may result in benefits such as: (a) a decrease in problem behaviors, (b) increase in appropriate behaviors, and (c) your child’s teacher acquiring or improving upon a skill that can be used with other students.

The possible risks due to participation in this study are: (a) disruption in the classroom due to observers being present, and (b) disruption in the classroom due to communication between teacher and consultant.

If your child’s behaviors display undesired effects due to the intervention, modifications can be made or the discontinuation of participation in this study can occur and your child can be provided with other services to address the problem.

All information from observations obtained during this study will be confidential. Your child’s name and other identifying information will not be shared to anyone not related to this study. If the results from this project are to be shared at professional conferences or submitted for publication in any scholarly journals, all identifying information will be removed. Participation in this study is voluntary and you may withdraw your child from this study at any time without any consequences.
If you have any questions or concerns regarding this study, please direct questions to Joy Wimberly or Dr. Brad Dufrene at (601) 266 – 5256 or via email at joy.wimberly@eagles.usm.edu or brad.dufrene@usm.edu.

Sincerely,

_________________________________  ________________________________________
Joy Wimberly, B.S.  Brad A. Dufrene, Ph.D.
School Psychologist-in-Training  Supervising Licensed Psychologist
Department of Psychology  MS License # 50-881
The University of Southern Mississippi  Department of Psychology
                                          The University of Southern
                                          Mississippi

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To Be Completed by the Parent

If you agree to allow your child to participate, please read, sign, and return this form.

I have received and read the consent document and have decided to allow my child to participate in this project. The purpose and procedures have been explained to me. I have had an opportunity to ask questions and I understand that if I have questions at any time in the future, I can ask and expect to receive a reply in a timely manner. I am voluntarily signing this form to participate under the conditions as stated.

I understand that all data collected in the process of this study will be confidential and that there will be nothing to identify my child in the event that the data from this study be presented or published.

I understand that I may withdraw my consent for participation at any time without penalty.

Name of Parent  Signature  Date
NOTICE OF COMMITTEE ACTION

The project has been reviewed by The University of Southern Mississippi Institutional Review Board in accordance with Federal Drug Administration regulations (21 CFR 21, 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: 15120802
PROJECT TITLE: Generalization of Teachers' Use of Effective Instruction Delivery Following In Situ Training
PROJECT TYPE: New Project
RESEARCHER(S): Joy Wimberly
COLLEGE/DIVISION: College of Education and Psychology
DEPARTMENT: Psychology
FUNDING AGENCY/SPONSOR: N/A
IRB COMMITTEE ACTION: Expedited Review Approval
PERIOD OF APPROVAL: 01/04/2016 to 01/03/2017

Lawrence A. Hosman, Ph.D.
Institutional Review Board
APPENDIX D – Behavior Intervention Rating Scale

Please circle the number that best describes your agreement or disagreement with each statement.

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Slightly Disagree</th>
<th>Slightly Agree</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. This would be an acceptable intervention for the child’s problem</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>behavior.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Most teachers would find this intervention appropriate for behavior</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>problems in addition to the one described.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>3. The intervention should prove effective in changing the child’s problem</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>behavior.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. I would suggest the use of this intervention to other teachers.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>5. The child’s behavior problem is severe enough to warrant use of this</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>intervention.</td>
<td></td>
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<td></td>
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</tr>
<tr>
<td>6. Most teachers would find this intervention suitable for the behavior</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>problem described.</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>7. I would be willing to use this in the classroom setting.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>8. The intervention would <em>not</em> result in negative side-effects for the</td>
<td>1</td>
<td>2</td>
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<td>5</td>
<td>6</td>
</tr>
<tr>
<td>child.</td>
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<td></td>
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</tr>
<tr>
<td>9. The intervention would be appropriate for a variety of children.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>10. The intervention is consistent with those I have used in classroom</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>settings.</td>
<td></td>
<td></td>
<td></td>
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<td></td>
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</tr>
<tr>
<td>11. The intervention was a fair way to handle the child’s problem</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>behavior.</td>
<td></td>
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</tr>
<tr>
<td>12. The intervention is reasonable for the behavior problem described.</td>
<td>1</td>
<td>2</td>
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<tr>
<td>13. I like the procedure used in the intervention.</td>
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<td>2</td>
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<td>6</td>
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<tr>
<td>14. The intervention was a good way to handle this child’s behavior</td>
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<td>2</td>
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<td>6</td>
</tr>
<tr>
<td>problem.</td>
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</tr>
<tr>
<td>15. Overall, the intervention would be beneficial for the child.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>16. The intervention would quickly improve a child’s behavior.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>17. The intervention would produce a lasting improvement in the child’s</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>behavior.</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>18. The intervention would improve a child’s behavior to the point that</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>it would not noticeably deviate from other classmates’</td>
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<td></td>
</tr>
<tr>
<td><strong>19.</strong> Soon after using the intervention, the teacher would notice a positive change in the problem behavior.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td><strong>20.</strong> The child’s behavior will remain at an improved level even after the intervention is discontinued.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td><strong>21.</strong> Using the intervention should not only improve the child’s behavior in the classroom, but also in other settings (e.g., other classrooms, home).</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td><strong>22.</strong> When comparing this child with a well-behaved peer before and after the use of the intervention, the child’s and the peer’s behavior would be more alike after using the intervention.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td><strong>23.</strong> The intervention should produce enough improvement in the child’s behavior so the behavior no longer is a problem in the classroom.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td><strong>24.</strong> Other behaviors related to the problem behavior are likely to be improved by the intervention.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
</tbody>
</table>

BIRS (Elliot & Treuting, 1991).
APPENDIX E – Consultation Acceptability and Satisfaction Scale

Please circle the number that best describes your agreement or disagreement with each statement

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Slightly Disagree</th>
<th>Slightly Agree</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. The consultant seemed knowledgeable about effective classroom practices.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>2. The consultant effectively answered my questions.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>3. The consultant provided recommendations that were appropriate given the concerns about the student/class.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>4. The consultant clearly explained the assessment and/or intervention procedures.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>5. The consultant effectively taught me how to implement their recommendations.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>6. The consultant provided me with the resources to implement their recommendations.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>7. The consultation process seemed appropriate given the severity of the student’s/class’s referral concern.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>8. The consultation process did NOT significantly interfere with classroom activities.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>9. The consultation process was completed in a timely fashion.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>10. The referred student/class benefited from the consultation process.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>Statement</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>---</td>
<td>---------------------------------------------------------------------------</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>11.</td>
<td>I would like to work with this consultant again in the future.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12.</td>
<td>Other teachers would benefit from working with this consultant.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

CASS (Taber, 2015).
APPENDIX F – Observation Form for EID and Initiation Compliance

Date: ________________  Initials: ________________

Setting: ________________  Phase: ________________

Teacher: ________________

<table>
<thead>
<tr>
<th>Teacher Behaviors</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Close proximity (3 feet)</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Eye contact prior to instruction</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>“(Name), look at me” immediately prior to giving the child a demand</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Contingent praise for eye contact</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>(N/A if not applicable- child does not give eye contact / teacher does not ask for eye contact)</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Directive</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Descriptive</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Wait 5 seconds before repeating instruction</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>(N/A if not applicable- child complies to 1st command)</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Contingent praise for compliance</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>(N/A if not applicable- child is noncompliant)</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Child Behaviors</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>

**EID Total steps completed:  
**

Percentage of Compliance:

_______ / ________ = _________%  

_______ / ________ = _________%

Operational Definitions:

**Initiation Compliance:** initiating compliance for instruction within 5s of instruction delivery; (Everett et al., 2005).
**EID:** For each command, circle “yes” or “no” in the corresponding box for each step that was completed.

Teacher delivery of command within **close proximity** = The teacher is no more than three feet away from the child when the command is given

Teacher solicited **eye-contact** from the student = Teacher says, “(Name), look at me” immediately prior to giving the child a command

Teacher **contingent praise for child’s eye contact** = after the child provides their teacher for eye contact, the teacher says, “Thanks for looking at me,” or “Good job looking at me.”

Use of **Directive Command** = Teacher provides the child with a command in the form of a statement (e.g., “pick up the pencil”) as opposed to the form of a question (e.g., “would you pick up the pencil?”)

**Descriptive Wording** = Teacher’s command refers to the location, color, speed of completion or initiation of the task (e.g., “Pick up the blue ball,” or “Hand me the block closest to you”).

**5 s Wait** = Teacher allows the child 5 s to initiate compliance prior to reissuing the command

**Contingent Praise for Compliance** = Teacher praises child after he or she initiates compliance to the given demand (e.g., “Billy I sure like how you handed me the pencil!” or “Thanks for handing me the pencil!”).
**APPENDIX G – Procedural Integrity for Baseline**

Teacher: ________________  Date: ________________
Observer: _______________  Class Period: __________

<table>
<thead>
<tr>
<th>Steps</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Researcher told the teachers to give commands as they typically would to target student during center time</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 Researcher wore a MotivAider® set to go off once every minute</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 Researcher prompted the teacher to deliver a command to the target student once every minute</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4 Observers sat in a minimally obtrusive location in the classroom.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5 No other instructions, prompts, or feedback were provided to the teacher</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Number of steps completed: /5
Percentage of steps completed:
APPENDIX H – Procedural Integrity for *In Situ* EID Phase

Teacher: ___________________  Date: ________________

Observer: _________________  Class Period: ___________

<table>
<thead>
<tr>
<th>Steps</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 The researcher provided the teacher with the BITE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 Researcher ensured the BITE was “on” and that the volume was at an</td>
<td></td>
<td></td>
</tr>
<tr>
<td>appropriate level</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 Researcher wore a MotivAider® set once every minute</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4 Researcher prompted the teacher to deliver one EID</td>
<td></td>
<td></td>
</tr>
<tr>
<td>command to the target student in accurate EID format (EID checklist)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>once every minute</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5 Observers sat in a minimally obtrusive location in the classroom</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Number of steps completed: /5

Percentage of steps completed:
APPENDIX I – Procedural Integrity for Maintenance

Teacher: ________________  Date: ________________
Observer: _______________  Class Period: ___________

<table>
<thead>
<tr>
<th>Steps</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>1  Researcher told the teachers to give commands as they typically</td>
<td></td>
<td></td>
</tr>
<tr>
<td>would to target student during center time</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2  Researcher wore a MotivAider® set to go off once every minute</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3  Researcher prompted the teacher to deliver a command to the</td>
<td></td>
<td></td>
</tr>
<tr>
<td>target student once every minute</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4  Observers sat in a minimally obtrusive location in the classroom</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5  No other instructions, prompts, or feedback were provided to the</td>
<td></td>
<td></td>
</tr>
<tr>
<td>teacher</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Number of steps completed: /5
Percentage of steps completed:
## APPENDIX J – Procedural Integrity for Generalization Probe

Teacher: ________________  Date: ________________
Observer: ________________  Class Period: ___________

<table>
<thead>
<tr>
<th>Steps</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Researcher told the teachers to give commands as they typically would to target student in the generalization-setting</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 Researcher wore a MotivAider® set once every minute</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 Researcher prompted the teacher to deliver a command to the target student once every minute</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4 Observers sat in a minimally obtrusive location in the classroom</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5 No other instructions, prompts, or feedback were provided to the teacher</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Number of steps completed: /5
Percentage of steps completed:
### APPENDIX K – Procedural Integrity for Follow-up

**Teacher:** ________________  
**Date:** ________________

**Observer:** _______________  
**Class Period:** ____________

<table>
<thead>
<tr>
<th>Steps</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Researcher told the teachers to give commands as they typically would to target student</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Researcher wore a MotivAider® set to go off once every minute</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Researcher prompted the teacher to deliver a command to the target student once every minute</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Observers sat in a minimally obtrusive location in the classroom</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. No other instructions, prompts, or feedback were provided to the teacher</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Number of steps completed:** /5

**Percentage of steps completed:**
APPENDIX L – Procedural Integrity for Generalization Training Phase

Teacher: ____________________  Date: ____________________
Observer: ____________________  Class Period: ___________

<table>
<thead>
<tr>
<th>Steps</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 The researcher informed teacher additional training required and in addition to the training setting an additional goal would be to use EID during in the generalization-setting as well (or vice versa)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 The researcher provided the teacher with the BITE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 Researcher ensured the BITE was “on” and that the volume was at an appropriate level</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4 Researcher wore a MotivAider® set once every minute</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5 Researcher prompted the teacher to deliver an EID command in accurate EID format to the target student once every minute</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6 Observers sat in a minimally obtrusive location in the classroom</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Number of steps completed: /5
Percentage of steps completed: 100%
REFERENCES


directions for psychology and education (pp. 187–212). Hillsdale, NJ: Lawrence Erlbaum Associates Inc.


New York: Plenum.


