

2009

Teachers' sense of efficacy and use of behavioral interventions: Consultation effects and sustainability

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Teachers' Sense of Efficacy and Use of Behavioral Interventions: Consultation Effects

And Sustainability

by

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A dissertation submitted in partial fulfillment
of the requirements for the degree of
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Date of Approval:
March 9, 2009

Keywords: student behavior, teacher behavior, treatment integrity, teacher beliefs,
intervention training, intervention coaching, performance feedback

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Teachers' Sense of Efficacy and Use of Behavioral Interventions: Consultation Effects and Sustainability

Brandi L. Tanner

ABSTRACT

The amount of services delivered by school psychologists through consultation is increasing as is the number of students with challenging behaviors in the classroom. In this type of delivery model, the school psychologist works as a consultant to the teacher who will actually deliver the intervention to the student.

The purpose of this research was to examine the relationship between participation in a tertiary level behavior intervention program and teacher efficacy, confidence in dealing with challenging behavior, and implementation of behavior interventions. Two studies were conducted to examine a series of research questions. Study 1 used archival data to examine the influence of teacher efficacy before participation in a tertiary level behavior intervention on the amount of coaching necessary for a teacher to implement an intervention with an acceptable level of integrity. To explore sustainability, Study 2 used a survey of teachers who had participated in a tertiary behavior intervention as well as teachers who had not, to determine if they differed on teacher efficacy, confidence in dealing with challenging behaviors, and use of recommended behavioral strategies.

Teacher efficacy was not found to be a statistically significant predictor of the amount of coaching time necessary for the teacher to implement the intervention with integrity. It is hypothesized that other factors such as readiness to change may be contributing to the model. PTR participants did not significantly differ from non-participants in any of the proposed areas. It is possible that non-participants over-estimated their knowledge and abilities. Future research should continue to explore the effects of consultation and its sustainability and while considering these additional factors.

Chapter 1

Introduction

Consultation in Schools

Consultation is increasing as a service delivery model for psychologists practicing in schools today and is expected to expand significantly over the next few decades (Wilkinson, 2006). When school-based consultation emerged in the 1970s and early 1980s, it was viewed as a voluntary collaborative relationship between co-equal professionals with teachers having the right to reject or modify the consultant's suggestions (Martens & Ardoin, 2002). In response to changes in federal regulations and paradigm shifts in the field of special education beginning in the 1980s, states began to mandate pre-referral interventions with students referred for special education. With the passage of the 1997 amendments to the Individuals with Disabilities Education ACT (IDEA 1997), consultation has also become a model through which positive behavioral support services are provided for students with identified disabilities.

One of the biggest challenges facing schools providing services through a consultative service delivery model is the failure of the school staff to implement and sustain interventions developed in consultation. The problem is not that the consultation process is flawed; rather current school systems are not designed to support the consultative process (Foxx, 1996; Lewis & Newcomer, 2002). Contextual factors (e.g.

administrative priorities, time constraints, scheduling) within the school influence the effects of consultation.

When intervention is not valued by the school's leadership and resources are scarce, even the most powerful consultation procedures may not produce the desired results. If teachers are held accountable by administrators and intervention implementation is tied to evaluations or other job performance factors, they should be more likely to implement interventions. However, consultants rarely have administrative authority over the teacher (Martens & Ardoine, 2002; Noell & Witt, 1999).

'Talk', in the form of interviews, collaboration, making recommendations, and attending meetings describes what consultation typically looks like in schools. In his commentary, Witt (1997) challenges the value of 'talk' by questioning the functional relationship among three key parts: (a) what is said to the teacher during consultation, (b) whether that talk is translated in to behavior change for the teacher, (c) if the behavior change of the teacher is correlated with behavior change in the child. Witt argues that if the talk does not lead to a change in behavior by the teacher and subsequent change in behavior by the child, we are wasting time and resources on ineffective activity. In addition to the financial cost, such a system is providing a disservice to children by assuming that talk functions to afford the student a standard of care. Instead of relying merely on talk and self-report of intervention implementation, Witt advocates for accountability through training the teacher on the intervention, monitoring implementation, using direct observation or permanent products to measure treatment integrity, and measuring student performance. Since the consultation process is time consuming for both the consultant and the teacher, accountability measures should be in

place to make sure that the consultation activities lead to the desired outcomes (Foxx, 1996; Witt, 1997).

Witt (1997) refers to a functional relationship involving what the consultant says in consultation, teacher behavior change, and student behavior change, in which the teacher must implement interventions with integrity. In order for the time spent in consultation developing a behavior intervention plan to pay off, an additional investment must be made in training the teacher to implement the interventions and monitoring that it is done with a high degree of treatment integrity.

Teacher efficacy and beliefs may also be setting events or “preimplementation factors” that affect this functional relationship (Han & Weiss, 2005). The teacher must believe that he or she is capable of implementing the intervention and his or her behavior in implementation will lead to the desired change in the student. Thus, teacher efficacy and beliefs may impact the amount of time the consultant must invest in coaching the teacher in implementing the intervention with a high level of treatment integrity. Consequently, the relationship between teacher efficacy and treatment integrity warrants investigation. Likewise, the product of intervention practices should be evaluated at the teacher level, as well as the student level, as changes in the teacher’s beliefs and behavior are a necessary part of the process.

Treatment Integrity

With the passage of the No Child Left Behind Act, (U.S. Department of Education, 2002) teachers are being held accountable for their practices more now than any time in the past. This accountability is for core instruction as well as strategic and intensive interventions. When school-based interventions are designed, implementation

is too often assumed to be accurate. Treatment integrity refers the degree to which in an intervention is implemented as designed (Gresham, 1989; Gresham, Gansle, Noell, Cohen, & Rosenblum, 1993). This construct needs to be assessed instead of assumed if we are to draw accurate conclusions about intervention outcomes as teachers are not always accurate in self-reporting their level of treatment integrity (Wickstrom, Jones, LaFleur, & Witt, 1998).

Demonstrating treatment integrity represents one of the major aspects of scientific investigation and practical applications of interventions in school settings. Treatment integrity should be considered an important link between the use and effectiveness of interventions in school settings (Gresham, et al., 1993). A clear understanding of how the intervention was applied is necessary for the teacher or the other professionals to make valid educational decisions. The effectiveness of an intervention cannot be judged if the intervention is not implemented correctly (Gable, Hendrickson, & Van Aker, 2001). If the student's behavior does change, the consultant must determine if the effects are because of the interventions or due to other extraneous factors. If the desired behavior changes do not occur, it may be because of inappropriate treatment, or an inappropriately implemented intervention. Thus, knowledge of treatment integrity is necessary to make the distinction between an ineffective intervention and a potentially effective plan that was poorly implemented (Gable, et al., 2001; Sterling-Turner, Watson, Wildmon, Watkins, & Little, 2001). An additional practical consideration is that if people fail to fully and consistently implement an intervention, the target behavior will persist and is likely to become more resistant to extinction (Gable, et al., 2001).

Behavioral Consultation Model

To date, behavioral consultation has been consistently identified as the most effective and preferred model for school-based consultation (Sheridan, Welch, & Orme, 1996; Wickstrom, et al., 1998; Wilkinson, 2006). This model developed by Bergan and Kratochwill (1990) is typically described as a four-stage problem-solving process, with interviews including problem identification, problem analysis, treatment implementation, and treatment evaluation. Previous research has evaluated behavioral consultation in terms of teacher perception or acceptability; rarely has it been evaluated through measurement of intervention implementation and treatment integrity (Wickstrom, et al., 1998).

Although Bergan and Kratochwill (1990) originally emphasized verbal instruction by the consultant prior to implementation as a means of promoting treatment integrity, data suggest that teachers fail to implement or sustain treatment plans without ongoing support from the consultant (DiGennaro, Martens & McIntyre, 2005). Referred to as the ‘consult and hope’ strategy by Wilkinson (2006), this methodology impedes our ability to establish functional relationships between the treatment and the outcomes and therefore is problematic. For some time, critics have questioned the utility of the behavioral consultation model in ensuring treatment integrity. Specifically, there is lack of conclusive evidence that using behavioral consultation procedures will lead the teacher to return to the classroom and engage in the intervention procedures with a high degree of fidelity that will result in child behavior change (Witt, Gresham, & Noell, 1996).

More recently, Wilkinson (2006) described a proposed expansion of the traditional behavioral consultation process to provide consultants with a method of

assessing and monitoring treatment implementation and integrity with intervention plans. This modification includes the addition of a step to review student progress, identify barriers to implementation and modify the plan if needed. This step also includes a performance feedback session to analyze treatment integrity data with praise or feedback, determine the need for further training or support, and to reaffirm the consultee's commitment to implementing the plan.

Teacher Factors Affecting Treatment Integrity

Students arrive in the classroom with characteristics that will require different types and levels of teacher support. Similarly, teachers may also have some characteristics that will require differential types and levels of consultant support to implement an intervention with integrity. These characteristics may include skill level, motivation, or the perceived and actual effectiveness of the intervention (Lane, et al., 2004). Teacher compliance with the tasks relating to the consultation itself such as collecting data, actively participating in interviews, and implementing the intervention with integrity may also be predictive of the level of treatment integrity and potential student outcomes (Lewis & Newcomer, 2002).

Teacher efficacy refers to the teacher's judgment about his or her capabilities to bring about desired outcomes of student engagement and learning, even among those students who may be difficult or unmotivated (Bandura, 1977; Tschannen-Moran & Hoy, 2001). Teacher efficacy has been found to be related to the teacher's attitudes and behavior in the classroom and to student outcomes such as achievement and the student's own sense of efficacy (Tschannen-Moran & Hoy, 2001). Han and Weiss (2005) note that

beliefs and theoretical orientation are important because they affect the teacher's motivation and effort during implementation.

Teacher factors are also evident after the conclusion of the consultation. Studies on maintenance and generalization of behavioral interventions have produced mixed results. In general, data collected at follow-up frequently do not indicate complete maintenance of skills as treatment integrity levels frequently drop after removal of the consultant (Rose & Church, 1998). However, use of performance feedback and practice in the teacher's classroom is associated with higher levels of maintenance than other types of training. Direct research on maintenance with this strategy is mixed.

Purpose and Significance of the Study

The purpose of this research was to examine the relationship between participation in a tertiary level behavior intervention program and teacher efficacy, confidence in dealing with challenging behavior, and implementation of behavior interventions. Two studies were conducted to examine a series of research questions. Study 1 used archival data to examine the influence of teacher efficacy before participation in a tertiary level behavior intervention on the amount of coaching necessary for a teacher to implement an intervention with an acceptable level of integrity. To explore sustainability, Study 2 used a survey of teachers who had participated in a tertiary behavior intervention as well as teachers who had not, to determine if they differed on teacher efficacy, confidence in dealing with challenging behaviors, and use of recommended behavioral strategies.

A relationship between teacher efficacy and treatment integrity has multiple implications for practice. If consultants were able to identify teachers who were more

likely to implement interventions and sustain a high degree of treatment integrity, the consultant could quickly begin intervention training reducing the amount of coaching time needed. For teachers less likely to implement interventions correctly and sustain integrity, consultants could use some consultation time early in the process addressing “preimplementation factors” and programming for successful implementation (Han & Weiss, 2005). The sooner the teacher correctly implements the intervention, the sooner student outcomes can improve. In either case scenario, the student receives a correctly implemented intervention more efficiently, freeing up more valuable time for the consultant to engage in consultation with more teachers and students. Additionally, if a link between teacher efficacy and treatment integrity were found, schools could choose to use a systems approach in to address teacher efficacy in addition to targeting individual students (Meijer & Foster, 1988). In general, schools and consultants could use this information to maximize the effectiveness and efficiency of consultation in schools and to improve outcomes for students.

Chapter 2

Review of Literature

This literature review will begin with a discussion of school-based consultation and the accompanying challenges this service delivery model poses for consultants. Next, the history of treatment integrity in school-based consultation is presented. Advantages and limitations of different methods to assess treatment integrity are highlighted next. Then, literature regarding strategies the consultant may use to increase treatment integrity is discussed. Consultee variables, including teacher efficacy, which also may affect treatment integrity are presented next. The review closes with a discussion of sustainability of interventions.

Consultation in Schools

Due to the recent paradigm shifts and legislation designed to educate more students in general education settings, many services provided by specialists such as school psychologists and behavior specialists are being handled through consultation. Though specialists may assist in developing intervention plans, consultation is a service delivery model in which the teacher is the primary treatment agent. Likewise, as consultation is a service delivery model, it is not a procedure which has been tested and proven through a body of empirical evidence (Lewis & Newcomer, 2002). When measuring the effectiveness of school consultation, it is important to measure three areas: (a) changes in the teacher's knowledge and or attitudes, (b) changes in the teacher's

classroom behavior, and (c) changes in the student's behavior in the classroom (Witt, 1997).

In order for the student to benefit from the educational consultation, the teacher must change his or her behavior as a function of the consultation contact. Thus, intervention implementation is a crucial challenge for consultants working in schools. Treatment integrity is the degree to which an intervention is implemented as designed (Gresham, 1989; Gresham, et al., 1993). Though progress is being made, research to date has indicated that relatively little is known about the extent to which teachers implement the interventions following consultation.

History of Treatment Integrity Literature

It appears acceptable to reason that poorly implemented interventions are less likely to be effective (Han & Weiss, 2005). Although an intuitive relation exists between treatment integrity and treatment outcomes, research examining this phenomenon is limited (Noell, et al., 2005). This section will present a series of meta-analyses that chronicle the history of treatment integrity and outcome research in consultation.

A meta-analysis was conducted specifically examining treatment integrity in school-based consultation (Gresham, et al., 1993). This article reviewed 181 experimental intervention studies which took place in school settings published from a sample of behavioral journals between 1980 and 1990. Treatment integrity was coded into one of three categories. A study was assigned to the *Yes* category if it assessed treatment integrity expressed as a percentage, *No* if the study made no mention of treatment integrity checks, and *Monitored* if it mentioned treatment integrity but provided no numerical index. Only 14.9% (27 studies) systematically measured and reported

levels of treatment integrity for the interventions implemented. An additional 9.9% (18 studies) monitored treatment integrity but did not provide data on it. The remaining three-quarters of studies (135 studies) did not address treatment integrity. Of those studies reporting treatment integrity data, mean integrity levels ranged from 75% to 100% with a mean of 96.92% considered to be consistent with previous studies. Data indicated that higher treatment integrity was associated with larger effect sizes.

The work of Gresham (1993) was recently extended by fifteen years to review studies published in the *Journal of Applied Behavior Analysis* (*JABA*) between 1991 and 2005 (McIntyre, Gresham, DiGennaro, & Reed, 2007). A total of 152 studies in 142 articles were reviewed. Treatment integrity data was provided in the form of percentage of implementation in 30% of the studies (46 studies) with an additional 9% (13 studies) reporting monitoring of treatment integrity. Neither treatment integrity levels nor monitoring of treatment integrity were reported in 61% (93 studies). Though the percentage of studies reporting treatment integrity data was somewhat higher in this review (30%) as compared to the previous sample of studies in this series (20%), treatment integrity reporting has generally remained stable over the years.

Sheridan and colleagues (1996) examined the literature on school-based consultation research from 1985 to 1995. The purposes of this meta-analysis were to determine how much empirical literature had been produced, what common methodological features were present, and to examine conclusions regarding outcome research. Forty-six studies met inclusion criteria. School consultation proved at least partially effective in about three-fourths of studies. Many studies reviewed how the consultation services were delivered; however, few monitored the integrity with which

the intervention was implemented. Treatment integrity was assessed in only 26% of the studies.

Gansle (2005) focused specifically on studies of school-based anger intervention programs and used a coding scheme similar to the study by Gresham and colleagues (1993) mentioned above for integrity. Of the 20 articles reviewed, only two articles measured integrity, one by self-report and another by a combination of measurement types. For these two studies, the mean integrity was 92.5%. Six studies mentioned the importance of treatment integrity, while 60% (12 studies) did not mention or address treatment integrity. The overall mean difference effect size was .31 indicating a difference of .31 standard deviations between treatment and control groups or pre-and post-intervention. These outcomes were similar to outcomes of other studies involving anger interventions.

Cochrane and Laux (2008) recently conducted a survey of 806 professionals holding the Nationally Certified School Psychologist (NCSP) credential regarding the measurement of treatment integrity and its importance. In this survey, 11.3% indicated that they always measured treatment integrity and 41.6% said they “sometimes” measured treatment integrity. Of those indicating they always or sometimes measured treatment integrity, direct observation was reported to be used 25.3% of the time with interviewing as the majority used 60.6% of the time. The author noted in the discussion that in her experience, interviewing meant only “asking the teacher at the team meeting if he or she implemented the intervention as it was written in the intervention plan” (p. 504).

Despite the fact that 33.5% of those surveyed indicated they never measured treatment integrity, 56.2% stated they strongly agreed that treatment integrity is a key factor to consider in evaluating the success of an intervention and 97.6% agreed or strongly agreed that it was critical to include treatment integrity information when determining special education eligibility. Seventy percent of the participants chose to answer an optional open-ended question at the end of the survey to explain their opinion regarding the importance of treatment integrity in school-based interventions.

Participants indicated that lack of time, training, administrative support, and teacher resistance to measurement as the reasons that treatment integrity is not measured.

Authors of this study note as a limitation that the use of the NCSP database as a convenience sample and that the results of those holding this credential may differ from non-NCSP school psychologists. Likewise, the response rate was 11.6% and it is possible that those who chose not to participate did not understand treatment integrity or believe that it is important.

In summary, the literature examining treatment integrity from the past two decades indicates a lack of significant attention to this important topic. Only about one-fourth of studies have assessed and measured treatment integrity with slightly more discussing its importance. The majority of studies of school-based consultation have not addressed treatment integrity. Though school psychologists, indicate that treatment integrity is important, measurement is still low. Consultation services have yielded at least partially effective outcomes for students with higher degrees of treatment integrity being associated with larger effect sizes.

Measuring Treatment Integrity

Assuring plan implementation in consultation and behavior therapy may frequently be more challenging than the development of the treatment plans (Foxx, 1996; Noell, et al., 2005). As noted in the above section, intervention implementation in the early literature was not a primary focus of investigation in consultation. This assumption can be supported by the lack of direct measurement of treatment integrity with reliance instead on satisfaction ratings and informant reports to assess treatment integrity (Gable, et al., 2001; Noell & Witt, 1999). Satisfaction reports provide evidence of the consultee's perception of the consultation process, not what they actually did as a result of the consultation. While teacher satisfaction is desirable, it does not demonstrate that the consultation led to effective delivery of the intervention targeted for the student.

There are several different methods which consultants can use to document the degree of treatment integrity (Wilkinson, 2006). Systematic observation of intervention implementation is the most direct means of assessing treatment integrity. Less direct methods include consultee self-reports and permanent products. Each method of integrity measurement has advantages and disadvantages.

Observation is the most direct means of assessing treatment integrity and thus provides the most accurate account of intervention implementation (Noell & Witt, 1999; Wickstrom et al., 1998). The limitations of this method are that it can be labor intensive and not feasible with real world time constraints. This procedure is also vulnerable to reactivity effects as the consultee knows they are being observed.

Self-reports include measures such as Likert-type scales or checklists for the consultee to complete to indicate if the steps of the intervention were followed. Though

these reports save time for the consultant, they may produce inaccurate reports and overestimate the level of treatment fidelity. With permanent product assessment, a product is generated that is the result of the intervention and evaluated to determine the extent to which the corresponding intervention was implemented. While this method of assessing treatment integrity also saves time and reduces reactivity, limitations have been expressed because it is possible to have some permanent products even though the intervention may not have been implemented correctly (Noell, et al., 2002).

Limitations of self-report measure of treatment integrity have been documented by multiple studies. Robbins and Gutkin (1994) conducted a multiple-baseline across subjects design study with three second grade teachers. In post-treatment interviews with the consultant, all three teachers self-reported that they implemented the planned intervention (positive verbalizations). However, observational data did not support this conclusion. None of the three teachers evidenced any substantial increase in the use of positive teacher verbalizations directed toward the target child despite very low levels during baseline. Authors concluded that consultee's self-reports of treatment implementation may not be adequate for measures of actual behavior.

Wickstrom, and colleagues (1998) investigated differences in treatment integrity measures with 29 elementary teachers with students with disruptive behaviors. All treatment plans were developed to include an observable component to enable direct measurement of integrity. The mean integrity of record keeping or self report was 54%. The presence of intervention products was observed in 62% of cases. When measured by direct observation, teachers only implemented the programmed consequence to problem

behavior in 4% of instances. These results further reduce the credibility of measuring treatment integrity through self-report or through permanent product.

In summary, research has not supported the use of indirect measures of treatment integrity including self-report or permanent products. Noell and Witt (1999) argue that due to the lack of correspondence between what teachers say and do and poor agreement between teacher-reported levels of implementation and what is observed, it is inappropriate to accept an indirect indicator for something that can be measured directly.

Consultant Factors Influencing Treatment Integrity

Skill in consultation. Some factors affecting efficacy of school-based consultation are related to the consultant including consultant style and consultation model used. The consultant can mitigate these factors by possessing a level of skill in both content of the problem and in consultation skill (Lewis & Newcomer, 2002). Recent literature suggests that the consultant be an active participant not only in the development of the intervention, but also in training teachers on how to use the intervention and in monitoring implementation.

Treatment acceptability and the behavior support plan. Identifying an effective treatment is a necessary but not sufficient step for child behavior change. Factors related to the intervention itself, such as complexity, and the behavior support plans also may influence compliance with the intervention strategies and treatment integrity (Weigle & Scotti, 2000). When selecting the intervention, the consultant should take treatment acceptability into consideration. If the teacher does not like the selected intervention, he or she will be less likely to implement it correctly. Intervention complexity, the time and

materials required for implementation, and the requirement of extra personnel affect treatment acceptability (Lane, Bocian, MacMillan & Gresham, 2004).

Intervention training procedures. Because teachers may not have the requisite skills or knowledge needed to implement the intervention as prescribed, the consultant is often needed to train others on how to implement the behavior management intervention (Sterling-Turner, et al., 2001). Consultants typically underestimate the amount of training and support that will be required to successfully change the behavior of the teachers, resulting in the desired student behavior (Martens & Ardoine, 2002). Many strategies to train teachers to implement interventions and to provide follow up or monitor intervention implementation have been suggested. Some examples include social influence strategies, setting goals for teacher behavior, modeling, coaching, performance feedback, and use of implementation protocols. Other suggestions include precisely delineating who is responsible for each part of the plan and describing what conditions the plan should be used under (Gable, et al., 2001). Scripting out each component of the plan and rehearsing the roles also is believed to increase the accuracy of implementation.

In a clinical study, researchers manipulated the type of training procedures used to measure the effect on treatment integrity (Sterling-Turner, et al., 2001). Participants were 64 undergraduate students informed that they would be trained to implement a treatment protocol with a client with a facial tic (actually a confederate of the study). Participants were randomly assigned to one of three experimental conditions. In the didactic training condition, the treatment procedures were verbally explained to the participant along with demonstration of targeted behaviors. In the modeling condition, participants watched a

videotape of a treatment session with verbal explanations. In the rehearsal feedback condition, the participant received training with the experimenter and the confederate including verbal prompts, correcting of mistakes, and contingent praise. Regardless of condition, all training sessions lasted five minutes.

Participants who received the most direct training (rehearsal feedback condition), implemented 84% of treatment components correctly, higher than participants trained using indirect procedures. Participants in the modeling condition achieved a mean of 70% of treatment components implemented correctly, while the didactic condition achieved an average of 51%. The authors suggest that failure to achieve the desired student goals during consultation may be a result of inadequate training of the consultee by the consultant.

Similar results were found by Rose and Church (1998) in a meta-analysis involving 49 studies that used direct observation to provide data on the effects of procedures to change teaching behaviors. All studies that used role play with peers produced change in teacher behavior. Practice with feedback was consistently found to produce the strongest effects. No evidence was found to suggest that didactic instruction alone will produce changes in teacher behavior.

Performance feedback. Researchers have noted the importance of performance feedback noting that the strongest effects of training are found when classroom practice is combined with performance feedback (Han & Weiss, 2005). Noell and colleagues conducted a program of research investigating the effects of different types of follow-up strategies to be used in behavioral consultation (Noell, et al., 1999; Noell, et al., 2000; Noell, et al., 2002; Noell & Witt, 2005; Witt, et al., 1997), primarily, performance

feedback. Performance feedback consists of monitoring a behavior that is the focus of concern and providing feedback to the individual. Goal setting, performance contingencies, and graphic displays have been found to enhance the efficacy of performance feedback (Noell, et al., 2005).

The research team reported on the implementation of a behavior management intervention by four general education teachers for eight students with disruptive and challenging behavior (Noell, et al., 2002). The study examined implementation of a whole school day behavioral intervention. Teachers were involved in the development of the plan, trained in the intervention, and provided with materials including a reward box. All students' intervention plans included monitoring target behaviors, recording their occurrence of target behaviors, goal setting, and rewards for meeting goals. The behavior monitoring records required the teacher to record the student's target behavior occurrences for kindergarten students or indicate whether she agreed with the student's self-monitoring for older students. The teacher also recorded whether or not the student had earned a reward for each eligible period of the day. Plan implementation was assessed by permanent products as a research assistant collected the students' behavior monitoring records at the end of the day. The percentage of steps implemented each day was calculated and divided by the total steps possible for that day to get a treatment integrity score.

A multiple baseline design was used to evaluate the impact of the consultation procedures on the teachers. In the first phase, data review, the consultant initiated 3-5 minute review meetings each morning before school with the teacher to review the

behavior monitoring record from the previous day. The frequency of the meetings was gradually faded to every other day.

Next, a performance feedback phase was initiated for teachers whose implementation did not stabilize enough to fade during data review. Performance feedback modified the data review procedure by focusing the meeting on two graphs prepared by the consultant. The first graph depicted the number of stars the student earned on the behavior monitoring record while the second graph depicted the percentage of treatment steps implemented by the teacher each day. Performance feedback, in which the consultant provided plan implementation data, was associated with high and stable intervention implementation.

In this study, teachers did not maintain accurate implementation in the absence of programmed follow-up. Data review was only clearly effective for one of the four teachers, thus was not associated with significant improvements in implementation. In the performance feedback phase, the consultants noted that the teachers focused on the student performance and gave less consideration to how the records reflected on implementation of the plan. The use of permanent products to assess intervention implementation was regarded as a limitation by the authors because it is possible for the teacher to complete the behavior monitoring record without implementing the intervention.

Social influence. The Noell team investigation of treatment integrity was extended to compare three follow up strategies (Noell, et al., 2005). The purpose of the study was to examine how follow-up and social influence moderate implementation of intervention plans, and how that, in turn, moderates student outcome. The participants in

the study were 45 teachers of general education students in kindergarten through fifth grades at six urban elementary schools in the Southeast. The schools' populations were majority African-American (96%) and low socioeconomic status (90% of students received free or reduced lunch). Consultation services were provided by seven doctoral students. Participation was initiated when the teachers referred students to a school based team that provided consultative psychological services and intervention planning for students with academic or behavioral difficulties.

Teachers were randomly assigned to one of the three treatment conditions: weekly follow-up, social influence, and performance feedback. Weekly follow-up consisted of a brief meeting that was structured as a Plan Evaluation Interview (PEI). In this condition, the consultant asked about the extent to which the plan was implemented and only reviewed materials when the teacher asked the consultant to examine them. No treatment integrity information was shared with the teacher. In the commitment emphasis condition, all elements of weekly follow-up were included in addition to a social influence procedure. In the final meeting prior to intervention implementation, the social influence procedure was used, which included reviewing five specific points designed to enhance the connection between their commitment to implement the intervention and actual implementation. The performance feedback procedure consisted of meeting briefly with the teacher to review intervention plan permanent products, graphing student behavior, and graphing intervention implementation. The performance feedback in this study used a rapid thinning procedure which allowed for an average of 5.2 contacts during the three week intervention period.

Treatment integrity was assessed by permanent products of the interventions. Consultants devised a permanent product checklist to permit scoring integrity. All the intervention materials were collected at the end of the three-week intervention trial and scored by the consultant using the checklist. A direct measure of students' outcomes were collected prior to and at the conclusion of the intervention. Academic outcomes were measured by standardized conditions such as Curriculum-Based Measurement. Behavioral concerns were assessed by a 30 minute direct observation in the classroom. A Student Behavior Change Index (SCBI) was developed to allow both types of assessment data to be summarized on a common metric.

An Analysis of Variance (ANOVA) was conducted to examine the effects of time, treatment conditions, and the interaction of the two variables. Results indicated a significant main effect for condition [$F(2,42) = 9.0, p = .001$] wherein performance feedback was associated with a significantly higher level of treatment integrity than the other two conditions. It also was noted that treatment integrity also was somewhat higher in the first week of plan implementation across all conditions. With regard to student outcomes, the performance feedback group exhibited substantially greater student behavior change than either of the other groups as measured by the SBCI. The correlation between treatment integrity and child outcomes was in the moderate range.

The authors concluded from this study that performance feedback was superior to the other two consultation procedures examined, thus, review of implementation data and relevant feedback appears to be a critical factor in maintaining intervention implementation. Results of this study were consistent with previous research in that

implementation was frequently poor and deteriorated over time in the absence of performance feedback.

Negative reinforcement. As previously mentioned, Noell and colleagues support the use of performance feedback for improving treatment integrity. DiGennaro, Martens, and McIntyre (2005) studied the effect of combining performance feedback with a directed rehearsal procedure (negative reinforcement) on treatment integrity for four elementary school teachers who had sought assistance to address problem behaviors for a single student. Specifically, teachers were able to avoid meeting with the consultant for directed rehearsal (i.e. practice of the missed steps of the intervention) by implementing the procedure with 100% integrity. Performance feedback was thinned from once daily to every two weeks.

Treatment integrity and student off-task behavior were both assessed through direct observation of the consultee by a trained observer. A five-phase multiple-baseline design was used across teacher-student dyads. In the training phase, consultees were required to have two sessions with 100% accuracy of implementation. In the next phase, Implementation Baseline, the consultant removed assistance and the observer continued direct observation. All four consultees dropped to between 20% and 30% treatment integrity with the removal of consultant support. Next, performance feedback/negative reinforcement was initiated in which consultees received daily written feedback and graphs of their progress. Implementation accuracy in the performance feedback/negative reinforcement phase ranged from accuracy of 70% to 97%. Treatment integrity increased for all four teachers, and the gains were maintained over time with a progressive schedule thinning procedure. Three of four students decreased in off-task behavior.

Several limitations to this study that may limit generalizability of these results were mentioned. First, interventions were only implemented for ten minutes per day. Also, reactivity to being monitored may have contributed increased rates of treatment integrity. Student outcomes for this study should be interpreted with caution, as two of the four students began psychotropic medication during the study. Also, the intervention was not sufficiently matched to the function of the off-task behavior so that it could be controlled in the study. Despite the limitations, results of this study do have several implications for school based consultation. The results of this study indicate that like student behavior, consultee behavior (or plan implementation) is subject to contingencies of reinforcement. Performance feedback can be effective to enhance treatment integrity and enhances research demonstrating that daily meetings may not be necessary. As an extension to previous research, high levels of treatment integrity may be maintained through progressive thinning of the performance feedback/negative reinforcement schedule.

Summarization of consultant factors influencing treatment integrity. In summary, different aspects of the consultation process have been manipulated to investigate their affects on treatment integrity. The studies presented here indicate that ensuring high levels of treatment integrity should begin with direct training of the teacher before beginning implementation. Once intervention implementation begins, the teacher will need support from the consultant to reach and maintain acceptable levels of treatment integrity. Performance feedback and negative reinforcement have been shown to produce high and stable levels of treatment integrity. Progressive thinning and fading schedules have been used to sustain intervention implementation. As noted above, several training

techniques have been associated with desirable changes in teacher behavior (Han & Weiss, 2005; Rose & Church, 1998). The consultant is charged with training the teacher to accept and implement the technology with sufficient fidelity to ensure success (Scott & Nelson, 1999).

Consultee Factors Influencing Treatment Integrity

As mentioned above, there is an emerging body of literature related to techniques that consultants can use to improve treatment integrity. Though there are things that the consultant can alter in the consultation relationship, the consultee also enters the consultation relationship with variables that may affect intervention implementation and treatment integrity. Just as students arrive at the situation with characteristics that will require different dosages of intervention, it stands to reason that teachers also may have some characteristics that will require differential levels of consultant support to change his or her behavior and to reach an acceptable level of treatment integrity.

In 1990, Gutkin and Hickman conducted an exploratory study to investigate consultee resistance to school-based consultation. Data were collected from 23 school psychology consultants (university practicum students). A Case Description Questionnaire and an Outcome Questionnaire were completed by the consultants for each case they had handled during the 14-week period. A factor analysis was conducted that loaded the items onto three factors: consultee characteristics, consultant characteristics, and organizational characteristics. Consultee characteristics were highly correlated with perceptions of consultee resistance and perceptions of overall consultation success (both significant at the $p < .05$ level) and accounted for the largest proportion of unique variance.

The findings of this study were consistent with previous research indicating that consultants typically attribute consultation failures to the consultee. The consultant's perception of resistance and consultation outcome success were strongly negatively correlated ($r = -.80$, $p < .01$). These results should be interpreted with caution as the consultants were school psychology practicum students and not actual practicing school psychologists. The researchers also suggest further research be conducted to discern if consultants can discern other causes for unsuccessful consultations. Still, this research supports the need for further examination of consultee variables in consultation.

Adult behavior change. Although consultation discussion heavily focuses on the student's behavior, the initial challenge facing the consultant is supporting behavior change on the part of the teacher. To change student's behavior, the adults in the environment must usually change some aspect of their behavior to implement the intervention as intended (Sterling-Turner, et al., 2001; Witt, 1997). Though the consultant will facilitate the development of the intervention plan, it will ultimately be implemented by the teacher. Thus, "teachers are frontline workers in the behavior change process" (Morin & Battalio, 2004, p. 251).

Implementation of a school-based intervention plan may have features in common with other performance management contexts in which adults may engage such as diet and exercise programs. These programs may involve behaviors that are new, effortful and require resources the person lacks (Noell, et al., 2005). Given these challenges, adult behavior change, in addition to student behavior change, must be a focus of the consultant (Noell, Duhon, Gatti, & Connell, 2002). Ensuring plan implementation is not an activity that can be overlooked. In reviewing his work in twenty years of behavior

analysis, Foxx (1996) estimated that in successful cases, 10% of effort was developing the behavior support plan while 90% was figuring out how to ensure that people implemented the plan.

Teacher beliefs. Hunzicker (2004) suggests that teachers may resist change due to lack of motivation, low levels of knowledge, or poor moral or ego development. She suggests that efforts to change teacher behavior focus on changing the teacher's beliefs. To change beliefs, the new information must be presented repeatedly over time. For training to be successful, the teacher must develop new ways of thinking about the behavior.

Han and Weiss (2005) wrote an article to discuss teacher-level factors that influence intervention implementation and sustainability. They also noted that perceptions and beliefs about a new program and the teacher's acceptance of the intervention are important. These "preimplementation" factors are important because the teachers' perceptions of the intervention will affect their motivation and effort when attempting to implement the intervention, which will in turn affect treatment integrity and sustainability.

Teacher knowledge and use of behavioral principles and interventions. Training in applied behavior analysis and functional intervention procedures is not common in the backgrounds of most teachers (Scott & Nelson, 1999). As a result, the interventions typically used by teachers to deal with challenging behaviors are ineffective because they tend to be unsystematic, negative, or both.

Weigle and Scotti (2000) surveyed 55 teachers of students with developmental disabilities and reported that teacher's knowledge of behavioral principles impacted the

teachers' ratings of acceptability and effectiveness of different interventions. These authors advocate that teacher training programs continue to teach behavioral principles and functional intervention procedures to both general and special education teachers.

Wilson and colleagues (1998) investigated the knowledge base, intervention use, and problem-solving processes through semi-structured interviews with 20 third and fourth grade teachers. Teachers were presented with a standardized vignette to read and asked to provide detailed descriptions of interventions they had used or could use with the challenging behaviors. Then, the teachers were asked to think about a student they had taught over the past three years who was ultimately identified as mildly handicapped and describe the process leading to the eligibility. Data were coded for content and specificity. For both scenarios, teachers were able to generate about nine interventions, though the level of specificity of intervention description was categorized as low for most cases.

For the actual referral case, 80% of teachers indicated that the problem emanated from the children, their parents, or a combination. Most teachers used haphazard data collection methods including mental notes, occasional journal entries, and intuition which focused on recording the negative behaviors which would confirm the need for special education. Ninety-five percent of teachers described no change in their behavior after the child was found eligible for special education.

Many teachers indicated that they had entered the pre-referral process with the intention of referring the child for special education and that the decision was typically made in four weeks or less by the team. Teachers frequently mentioned uncertainty regarding if and when to contact the school psychologist or other specialists.

The authors hypothesized that teachers' limited knowledge of behavioral interventions may have impeded brainstorming and lead to low expectations upon entering the pre-referral process. They suggest that school psychology consultants function in an educative capacity to familiarize teachers with both the intervention and the process both prior to and during the consultation.

In summary, most teachers are not trained in behavioral principles (Scott & Nelson, 1999). Knowledge of these principles is related to intervention acceptability and perceptions of effectiveness (Weigle & Scotti, 2000). Currently, teachers are unable to describe interventions for students with challenging behaviors in detail and are unfamiliar with the pre-referral process. Data collection procedures used by teachers are not systematic and are used mainly for the purpose of documenting negative behaviors (Wilson, et al., 1998).

Teacher Efficacy

Teacher efficacy beliefs refer to the teacher's judgment about his or her capabilities to bring about desired outcomes of student engagement and learning, even among those students who may be difficult or unmotivated (Bandura, 1977; Tschanne-Moran & Hoy, 2001). Teacher efficacy is an important construct because it deals with the teacher's belief system regarding students. The teacher's belief system, in turn, influences his or her behavior. Teacher behavior then affects the students' behavior and outcomes. According to Han and Weiss (2000), teachers with a strong sense of efficacy are more open to new ideas and are more willing to experiment with new methods due to increased levels of effort and persistence.

Teacher efficacy and perceptions of student outcomes. Morin and Battalio (2004) believe that the initial construal of a misbehavior is a pivotal point. The teacher's professional attitude about his or her responsibility and his or her skill in managing such episodes are related to teacher efficacy and are a part of the process of making meaning of the situation. A teacher with high teacher efficacy might look beyond the surface level behavior for the underlying cause of it (an external circumstance such as a traumatic event or frustration) as an explanation for the behavior. Recognizing the student's behavior as a part of a larger context, the teacher might be more likely to use proactive interventions which lead to more enduring outcomes. A teacher with low teacher efficacy may explain student misbehavior as intentional and deliberate acts by the student. This teacher may be more likely to use reactive interventions to temporarily combat the situation and perpetuate the cycle of misbehavior. Morin (2001) promotes helping teachers to see how they may become agents of the misbehavior they are trying to reduce.

Tournaki and Podell (2005) examined the effects of student and teacher characteristics on the teachers' perceptions of student academic social success. A sample of 384 general education teachers were asked to predict student success for case studies designed to experimentally manipulate gender, reading achievement, social behavior, and attentiveness in addition to completing a teacher efficacy scale. Results indicated that teachers adjust their predictions based on their own sense of teaching efficacy. Teachers with high efficacy tended to make less negative predictions and to adjust their predictions as the characteristics changed. Teachers with low efficacy seemed to pay attention to a single characteristic when making their predictions. For example, despite the reason, a

teacher with low efficacy responded similarly regardless of the reason that the student was not on grade level. The authors concluded that high teacher efficacy seems to “inoculate” teachers from making negative predictions about students. Though this study involved two self-report measures and did not report on actual teacher behavior, it supports the conclusion that attitudes and predictions of student success are affected by teacher efficacy.

Teacher efficacy and teacher behaviors. Just as teacher efficacy has been related to teacher attitudes as discussed above, it also has been related to teacher behaviors. Efficacy has been related to the effort teachers put forth in reaching the goals they set and their level of aspiration. Teachers with a strong sense of efficacy tend to be more willing to try new things to meet the individual needs of their students and less likely to refer to special programs (Tschannen-Moran & Hoy, 2001).

Meijer and Foster (2001) hypothesized that the teacher’s ratings of problem seriousness could be predicted by teacher’s degree of personal self-efficacy. A total of 230 teachers from schools in the Netherlands participated in the study. Teachers completed a set of questions addressing teaching characteristics and self efficacy and read case studies identifying students in terms of type of problem (learning or behavior), gender, and social background. The teachers then were asked to write a number from 0 to 100 to indicate whether the student would cause a problem and their likelihood of referring the student to special education. Higher self-efficacy scores were related to low problem ratings and referral chance. The authors predicted in the discussion that if a relationship between self efficacy and referral variables were established, intervention

strategies could also be directed towards boosting teacher self efficacy as well as intervention strategies.

In a study designed to investigate true student-teacher interactions, Jordan, Lindsay, and Stanovich (1997) sought to determine what characteristics of teacher beliefs and practices might contribute to effective instruction in inclusive settings. Participating teachers were nine elementary school teachers of third grade students. Teachers were interviewed to determine if the teacher's perspective regarding exceptionality as pathognomonic (i.e., teacher assumes that a disability is inherent in the individual student) or interventionist (i.e., teacher holds the perspective that most students can profit from the general education classroom). These scores have been shown to correlate with teacher efficacy with the interventionist perspective being associated with higher teacher efficacy.

Each of the teachers nominated six students from his or her classroom, three who were formally identified as exceptional or thought to be at risk of needing assistance and three who were functioning in the mid-average range of the classroom. Interactions between the teacher and the targeted students were recorded, transcribed, and coded. Teachers with an interventionist perspective (associated with higher teacher efficacy) interacted more frequently with the students who were exceptional or at risk and at higher levels of cognitive extension. Teachers with a pathognomonic perspective (associated with lower teacher efficacy) had low rates of interactions with exceptional or at risk students. The authors speculated that this may be because these teachers lack confidence or do not see teaching these students as their responsibility. The authors concluded from

the study that attitudes, beliefs, and efficacy appeared to affect the teachers' behavior in attempts to engage the exceptional or at risk students.

Teacher efficacy and expectancies for consultation. Hughes, Grossman, and Barker (1990) conducted a study to determine the relationship between teacher's self-efficacy and their expectations for consultation. In this study, 72 elementary school teachers completed a questionnaire of common problems experienced in elementary school classrooms. On a 5-point Likert-type scale, the teachers first indicated how difficult it would be to solve the problem without consultation. This rating represented the teachers' self-efficacy. They then were asked to indicate on the same scale, how difficult it would be to resolve the problem with the assistance of a psychological consultant. The difference of the two scores was the teachers' outcome expectancy score to represent the degree to which they thought consultation would be helpful. A statistically significant relationship was found between the two scales ($r = -0.37$, $p = .001$). Teachers with higher self-efficacy had lower expectations that consultation would help them in resolving classroom problems.

In addition to the surveys administered, 55 of the teachers in the study were in schools in which a doctoral student consultant was present. Data on teacher's evaluation of consultation were available for 27 teachers. Of those teachers who had used consultation, those with higher self-efficacy scores were less likely to report changing their performance as a result of consultation. Teachers who had positive expectations for consultation viewed the consultation as more helpful. Also, teachers were more likely to seek consultation for behavioral rather than academic problems.

In the discussion, the authors suggest that consultants emphasize that consultation is not a remedial service for weaker teachers. Also, when consulting with teachers who express a high level of confidence, the consultant should focus considerable energy on helping the teacher feel responsible for recommendations that require the teacher to change their behavior to respond to the problem.

The results of this study are in direct contrast to assumptions made by other researchers. Hughes and colleagues (1990) report that high efficacy teachers were less likely to report changing their behavior as a result of consultation, whereas others indicate that teachers with high efficacy are more willing to experiment with new methods (Han & Weiss, 2005). These conflicting results indicate a need for further study of this phenomenon. Furthermore, the authors of this study suggest future research to assess changes in efficacy and other attributions in teachers who have participated in consultation.

Sustainability and Generalization of Intervention Usage

In addition to initial implementation, sustainability of the intervention is important to the student's continued success. It is also hoped that teachers would generalize the process and skills learned through consultation to other students. Research indicates that teachers commonly do not generalize either the problem-solving process or classroom skills learned with other students presenting challenging behaviors (Riley-Tillman & Eckert, 2001). In a meta-analysis by Rose and Church (1998), only 8 of 20 studies were categorized as complete maintenance indicating that performance of the target skills was sustained at or above levels attained during training. The studies which met this criterion had several things in common including training of teachers in their

own classroom with a practice and feedback component and a behavioral analysis approach to training. The period from post-test to follow-up tended to be short with 9 of 20 studies collecting follow-up data only four weeks after post-test.

Riley-Tillman & Eckert (2001) conducted a study designed to examine the extent to which teachers generalize a behavioral intervention with a generalization prompt and generalization training. A multiple-baseline across three subjects was used with the intervention of specific praise. Results were mixed as 2 of 3 participants demonstrated at least some increase in generalizing praise to students other than the targeted student. The results do, however, suggest some promise for these strategies to promote generalization.

In a study using performance feedback, Codding and colleagues (2005) assessed the short-term maintenance effects of performance feedback on implementation of antecedent and consequence procedures for teachers in a private school for students with acquired brain injury. The researchers administered performance feedback every other week through a session approximately 12 minutes in length that occurred on the same day as the observation. Implementation was observed to be sustained at high rates during the follow-up phase for all teachers for periods of 8 to 22 weeks. Previous follow-up results for performance feedback have not produced such good results. The authors hypothesize that the latency between sessions (one observation every two weeks) made the results more sustainable.

To summarize, studies on sustainability of behavioral interventions have produced mixed results. In general, follow-up data does not indicate sustainability of skills. Results on generalization prompts and generalization training are mixed. Performance feedback has been indicated to be a strategy associated with high rates of sustainability

compared with other strategies, however direct research on sustainability with this strategy is mixed.

Purpose of the Study

There is a growing body of literature exploring consultant factors that may affect intervention implementation and treatment integrity. There is, however, less literature exploring teacher variables that may affect treatment integrity. The purpose of this research was to examine the relationship between participation in a tertiary level behavior intervention program and teacher efficacy, confidence in dealing with challenging behavior, and implementation of behavior interventions. Questions surrounding both “preimplementation factors” and sustainability were explored.

Chapter 3

Method

The purpose of this research was to examine the relationship between participation in the Prevent Teach Reinforce (PTR) behavior intervention program and teacher efficacy, confidence in dealing with challenging behavior, and implementation of behavior interventions. Two studies were conducted to examine a series of research questions. Study 1 used archival data to examine the influence of teacher efficacy, prior to participation in PTR, on the amount of coaching needed for a teacher to implement an intervention with an acceptable level of integrity. To explore sustainability, Study 2 used a survey of PTR participants and non-participants to determine if they differed on teacher efficacy, confidence in dealing with challenging behaviors, and use of recommended behavioral strategies. Procedures, participants, and instruments for both studies are discussed in this chapter.

Context of the Study

Prevent Teach Reinforce (PTR) overview. The context of this research was a larger randomized control study designed to study the efficacy of the Prevent Teach Reinforce (PTR) model for students with challenging behavior (University of South Florida & University of Colorado at Denver, 2006). PTR is a team-based model designed to decrease challenging behavior and increase appropriate behavior for students.

Procedures used in the PTR process were developed using the theoretical framework of

Positive Behavior Support (PBS) and principles of Applied Behavior Analysis (ABA). A consultant guides the team through a standardized five-step process using a treatment manual that describes the steps of the process in detail. The five steps are team building, goal setting, functional assessment, intervention development and implementation, and evaluation.

In the initial step, team building, the consultant helps the team identify appropriate membership and practices for effective teaming. In the goal setting step, the team identifies challenging behaviors to be targeted and appropriate behaviors to teach the student. Also in this stage, the consultant helps the team to develop the Behavior Rating Scale (BRS) to rate their perception of the student's behavior daily, thus beginning baseline data collection. Step three is a functional assessment of the student's challenging behavior. Through information contributed by the team members and direct observation of the environment, the consultant assists the team in determining the function of the behavior. Next (step 4) the consultant helps the team to develop a behavior intervention plan based on the function of the behavior. All behavior intervention plans developed through the PTR process include three components: prevention, teaching, and reinforcement. Once the plan is developed, the consultant coaches the team members on correct implementation in the plan. The final step (step 5) is evaluation, in which the team members evaluate the effect of the PTR process on the student's behavior and plan for continued data collection and intervention implementation.

Consultant protocol checklists and teacher self-evaluation forms were used at each step of the process to monitor adherence to the treatment process. Data collection

activities are delineated into three main phases: baseline, intervention training and coaching, and posttest. An overview of the activities and data collection specific to the current study is provided in Table 1.

Baseline phase procedures. During the baseline phase, teachers and/or teams participated in the first four steps of PTR which included team building, goal setting, functional assessment, and intervention development. Baseline assessments including the Teacher's Sense of Efficacy were completed. Further description of the Teachers' Sense of Efficacy Scale is discussed below in the instruments section of this chapter.

Intervention training and coaching procedures. After the behavior intervention plan was developed, a coaching training session was held. In this session, the teacher and/or team was trained by the consultant on how to implement the intervention with no students present. Training methods included discussion, verbal question and answer, modeling, and role play with feedback. The initial coaching session was held the first time the intervention was implemented in the classroom. In this session, the teacher implemented the intervention with the student while the consultant was available to provide coaching, modeling, or other assistance to the teacher, dependent upon teacher preference.

Beginning with the initial coaching session, up to twelve hours of coaching or technical assistance (e.g., revisions to intervention plan) was provided by the consultant. Integrity checks (see instruments section below for further description) were conducted by the consultant throughout the coaching phase. Coaching continued until the teacher reached coaching integrity (two treatment integrity scores of 80% or greater) or the twelve hours of technical assistance were exhausted. This criterion is consistent with

Table 1

Overview of PTR Activities and Data Collected by Phase

Phase	Activities	Data Collected
Baseline Phase	PTR Stages 1-4: Team-Building, goal setting, functional assessment, intervention development	Teacher's Sense of Efficacy Scale
Intervention Training and Coaching Phase	<p>1. Coaching Training Session: No Students Present</p> <p>2. Initial Coaching Session: Students Present</p> <p>3. Coaching and / or Technical Assistance: Continued until teacher coaching integrity or coaching hours were exhausted</p>	Integrity Checks
Post Test	PTR Meeting 5: Evaluation	Final Integrity Check

literature which indicates that treatment integrity needs to be achieved at an acceptable to superior level during training to ensure the intervention is implemented as intended (Han & Weiss, 2005; Rose & Church, 1998). At this point, the consultant withdrew assistance to the teacher.

Post-test phase procedures. To ensure that the intervention was still being implemented correctly after the withdrawal of the consultant, a final integrity check was conducted eight school days after coaching integrity was attained. If the final integrity score was 80% or higher, the post-test assessments (see Table 1) were conducted two days later (ten days after coaching integrity). If 80% was not attained, the consultant provided up to three additional hours of coaching and rescheduled a second final integrity check.

Study 1

The purpose of Study 1 was to examine the nature of the relationship between teacher efficacy before participation in PTR and the amount of coaching necessary for a teacher to implement a behavior intervention with integrity. A correlational design and archival data were used to determine if overall teacher efficacy or any facets of teacher efficacy (student engagement, instructional strategies, and classroom management) could be used to predict the amount of coaching necessary for a teacher to reach an acceptable level of treatment integrity.

Data Collection

Recruitment. Prior to initiation of the PTR efficacy randomized control study, permission was obtained from the university Institutional Review Board. Entry to the sites was obtained by contacting the school districts (Hillsborough, Pasco, and Pinellas Counties in Florida) and getting permission to conduct research. District level personnel chose potential schools with students grades K-8 for participation or notified schools so that they could choose to participate. At the individual school level, a brief overview meeting was held with the administrators. If the administrators agreed to participate, a

brief fifteen-minute overview was presented to the faculty to explain the study and solicit participants.

Teachers of students in grades K-8 in both general education and special education were eligible to participate. Teachers wishing to participate could nominate up to three students with challenging behaviors by completing gates one and two of the Systematic Screening for Behavior Disorders (SSBD) (Walker & Severson, 1992) and a student nomination form which solicited demographic data including age, cognition level, language development, placement (special education or general education), and disability category, if any. Students with at least five critical events indicated on the SSBD gate two were considered eligible.

Informed consent documents were reviewed with teachers, parents, and students by a member of the study staff before commencing any study related activities. These documents explained the procedures for the study, potential risks and benefits, and described the voluntary nature of the study. After signed consent was obtained from all parties, students were assigned to the treatment or waitlist control condition using a block randomization procedure considering age, cognition level, language, and placement. Teachers of students assigned to the treatment condition participated in the PTR process during that school year. Teachers of students assigned to the waitlist control condition completed assessments of student behavior, but did not participate in the PTR process. Students in the control condition were eligible to receive the intervention in the following school year if the challenging behaviors were still present and the student's teacher agreed to participate. Teachers of students randomly selected to the treatment group were

paid a \$500 stipend and teachers of control students were paid \$100 at the conclusion of the process.

Data collection procedures. Instruments completed by teachers (The Teachers' Sense of Efficacy Scales) were given to and collected from teachers by data collectors from the project staff. Instruments completed by consultants (integrity checklists and the consultant cost analysis sheets) were given to the data collectors by the consultant for entry into the database and filing. All documents were secured at the university to restrict access to only the study staff. Data were coded with an identification number to de-identify each teacher, student, and school and entered into a computer database. Twenty percent of the records for the current study were examined by visual inspection to check for data entry errors and no errors were found.

Participants

The unit of analysis for this study was data on teachers assigned to the treatment condition for the PTR randomized control study were the participants. A total of 71 records were initially examined for possible inclusion. Of these, 17 records were excluded because the teachers did not reach an integrity score of .80 during the coaching phase. An additional 18 records were excluded because there was not accompanying teacher efficacy data paired with the coaching time data. (Note: Teacher efficacy was not introduced until the second year of the three year study). Thus, 36 records were included in the analysis.

Table 2 displays the credentials and experience of the participants in Study 1. The majority held a regular teaching certificate (86%) and a Bachelor's degree (75%).

The mean number of years of experience was 7.96 and mean years at the current school was 4.69. Additionally, 34 of the 36 participants were female (94%).

Table 2

Study 1 Participant Credentials and Experience

	Percentage	Frequency
<i>Teaching License</i>		
Regular	86%	31
Probationary	14%	5
<i>Highest Degree</i>		
Master's	25%	9
Bachelor's	75%	27
<i>Years Teaching</i>		
0-5 Years	56%	20
6-10 Years	19%	7
11-15 Years	11%	4
16-20 Years	8%	3
21 or More Years	6%	2
<i>Years at this School</i>		
0-5 Years	75%	27
6-10 Years	14%	5
11-15 Years	6%	2
16-20 Years	6%	2

N=36

Teaching assignment data of participants in Study 1 is presented in Table 3.

Twenty of the participants (56%) indicated that they were a special education teacher and seventeen (47%) indicated that they were a general education teacher. The majority of teachers taught students in the primary grades. Participants were permitted to endorse multiple items, thus percentages do not total 100%.

Table 3

Study 1 Participant Teaching Assignment

	Percentage	Frequency
<i>Grade Level</i>		
Kindergarten	17%	6
Grade 1	25%	9
Grade 2	39%	14
Grade 3	28%	10
Grade 4	22%	8
Grade 5	19%	7
Grade 6	8%	3
Grade 7	11%	4
Grade 8	8%	3
<i>General / Special Education</i>		
General Education	47%	17
Special Education	56%	20

*Note: N = 36; Percentages do not total 100%

Instruments

Teachers' Sense of Efficacy Scale. The Teachers' Sense of Efficacy Scale was administered to teachers during baseline. It was developed by Tschannen-Moran and Hoy (2001) at Ohio State University. The scale contains 24 (long form) or 12 (short form) Likert-type questions (see Appendix A). The respondent is asked to indicate how much they can do in light of a variety of obstacles to teaching on a nine-point scale with '1' = Nothing, '5' = Some Influence, and '9' = A Great Deal. The short form was used in this study as the scale's authors indicate it is acceptable for use except when being used with pre-service teachers. Scores are calculated by determining the mean of the overall scale and the subscales. This scale has been used in previous research.

Tschannen-Moran and Hoy (2001) detailed three pilot studies used in the development of the scale designed to establish construct validity and to address reliability, validity, and factor analysis. Tschannen-Moran and Hoy's definition of teacher efficacy was adopted as the operational definition of teacher efficacy for use in the current research: "a teacher's efficacy belief is a judgment of his or her capabilities to bring about desired outcomes of student engagement and learning, even among those students who may be difficult or unmotivated" (p. 783). Positive correlations with other measures of teacher efficacy provide evidence of construct validity. Reliability for the overall scale is .90. In pilot testing by the scale's authors the mean score for overall efficacy range was 7.1.

The pilot studies yielded three factors: instructional strategies (ability to deliver instruction and assess learning), classroom management (ability to structure classroom expectations and routines and to respond to challenging behavior), and student

engagement (ability to motivate students). Reliabilities for the subscales range from .81 to .86. Mean scores for the subscales ranged from 6.7 to 7.3.

Integrity checklists. Treatment integrity was measured by the consultant through direct observation of intervention implementation by the teacher. Because each intervention was individualized, the consultant developed individual integrity measures for each behavior intervention plan. First, each step of the intervention was task analyzed. Next, each step was defined in terms of adherence (was the step implemented) and quality (was the step implemented correctly as planned). Two separate scores for treatment integrity were calculated. The adherence score indicated the percentage of steps implemented to a sufficient degree to demonstrate an effect (e.g., praises the student after hand raise). The quality score indicated the percentage of steps implemented to the degree necessary to achieve an optimal effect (e.g., gives specific praise for hand-raising within five seconds of the behavior). The consultant observed the implementation of the plan and rated it for both adherence and quality using the possible response of yes, no, or not applicable. Before beginning the study, the project staff designated a score of 80% on the quality dimension as the criterion for acceptable treatment integrity.

Consultant Cost Analysis Sheet. The consultant recorded the time (to the nearest five minute increment) spent in each activity by all parties involved on the cost analysis sheet. Consultant coaching time included time spent modeling the intervention procedures and / or prompting implementation by school staff. It also included time spent observing staff implementing the intervention and providing feedback on implementation.

Interobserver agreement (IOA) data were collected during a sample of six sessions. Two members of the study staff attended a coaching session together and each person recorded the number of minutes spent by each party in the session. IOA was calculated by dividing the shorter duration by the longer duration and multiplying by 100 to determine a percentage of agreement (Cooper, Heron, & Heward, 1987). The mean for agreement on consultant coaching time was 94% with a range of 77% to 100%.

Study 2

To explore the sustainability of the effects of participation in PTR, a follow-up survey was used to determine if teachers who participated in PTR differed from teachers who had not participated on level of teacher efficacy, confidence in ability to deal with challenging behavior, and in the frequency of use of recommended strategies. The following research questions were investigated:

- a) Is there a difference in teacher efficacy between teachers who have participated in the PTR intervention process, teachers who had some participation with the PTR project but did not implement interventions, and teachers who did not participate in PTR?
- b) Is there a difference in confidence in dealing with challenging behaviors between teachers who have participated in the PTR intervention process, teachers who had some participation with the PTR project but did not implement interventions, and teachers who did not participate in PTR?
- c) Is there a difference in the frequency of ABA and PBS recommended strategies used for challenging behaviors between teachers who have participated in the PTR intervention process, teachers who had some

participation with the PTR project but did not implement interventions, and teachers who did not participate in PTR?

Data Collection

Prior to initiation of the study, approval was obtained from the university Institutional Review Board (IRB) and the participating school districts to solicit participation from the schools. Participation in the study was voluntary and explained verbally at a faculty meeting overview for new participants and through an informed consent statement at the beginning of the survey. Data were collected through an online survey and participants were advised that clicking on the survey link and answering the questions implied consent to participate.

Recruitment. Participants in this study were previous PTR participants and other teachers working in schools which participated in PTR. An a priori power analysis was conducted to determine an appropriate number of participants (Stevens, 1999). With the expectation of a small effect size (at least two of the groups differing from each other by at least .50 standard deviations on at least one dependent variable) a sample size of 115 would be needed to obtain a power of .80.

To recruit previous PTR participants for the current study, a list of 159 e-mail addresses of previous PTR participants was compiled by collecting the information from study staff and review of records. To select schools from which to solicit non-volunteer comparison teachers to participate, a proportional stratified sampling procedure was used. First, the ratio of school types (elementary school, middle school, exceptional student center) was determined. Then schools were selected to match this ratio to solicit non-PTR teacher participants for the current study. Only schools participating during both

years were considered. This stipulation was in place to make sure that teachers had been exposed to a faculty overview to recruit participants (2006-2007) and that the school was still actively participating in the project (2007-2008). Fourteen elementary schools, one middle school, and three exceptional student centers had intervention teams during both school years. Participants for this study were recruited from four elementary schools, one middle school, and one exceptional student center.

Once the schools were identified, the researcher contacted the administration of the selected schools to confirm approval to solicit teachers for participation and to schedule a time to announce the study to the faculty. The researcher made a brief (five minute) announcement at a faculty meeting soliciting participants for the study. In the announcement, the researcher informed the teachers that participation was voluntary but appreciated, and that those who completed the survey would be entered into an incentive drawing. Seventy-two teachers provided their name and e-mail address on sign-up sheets provided at the faculty overview meetings indicating they wished to participate. One elementary school was an exception to this recruitment strategy. The principal of the school requested that instead of an announcement at a faculty meeting, she send a link to the teachers in the school through the internal e-mail system to solicit participants. An additional ten participants were recruited through this web collector.

Data collection procedures. Data for this study were collected through the Surveymonkey.com computer program (Finley, n.d) which sent e-mails to the participants, tracked response status, and recorded and stored responses. Computerized data collection was selected to eliminate data entry errors introduced by paper-based

surveys and to increase return rate by allowing teachers to complete the survey at their leisure instead of a prescribed time.

E-mail addresses for all potential participants were entered into the program which sent an e-mail on behalf of the researcher to all potential participants with a link to the online survey materials. These e-mail messages (see Appendix B) informed the potential participant that response was voluntary but appreciated and that those who completed the surveys would be entered into a drawing for one of five \$20 gift cards for a local department store (e.g., Target). If the teacher was recruited through a faculty overview meeting, the initial e-mail message was sent within two days of the meeting.

The researcher programmed Surveymonkey.com to send reminders to those who had not responded. A total of three reminders were sent at one week intervals. Of the 216 e-mails that were sent to valid e-mail addresses, there were 123 complete and 14 partial responses for a 63% response rate. Requests were sent to participants with partially completed surveys requesting them to complete the survey with some success. An additional 10 responses were collected through the web collector from the school in which the principal sent the invitation to her staff.

At the conclusion, there were 132 complete and 16 partially complete responses. The last section of the survey, demographics, was the most likely portion to be incomplete. Surveys which contained all necessary pieces of information for analysis and grouping (missing only demographics) totaled 136 and are included in this analysis.

Participants

Grouping of participants. Participants were assigned to three groups based on their level of participation in PTR including whether they had been a participant or

nominated a student for PTR. Participants were also asked to endorse PTR activities in which they had participated to further discern the level of participation for distinction between groups. Teachers who participated in the PTR process through and including implementing interventions and participating in coaching were assigned to Group 1 ($n = 49$).

Teachers who had some exposure to PTR without intervention implementation were assigned to Group 2 ($n = 37$). This group included fifteen teachers who had volunteered to participate but were assigned to the waitlist control group. Though this group of teachers may have had the intention to participate in the intensive behavior intervention program, they did not participate in the steps of the PTR process, were not exposed to the materials, did not work with a consultant, nor saw the effects of the intervention plans developed through the PTR process. Group 2 also includes five teachers who participated in some of the PTR process but did not implement interventions for some reason (e.g., student moved, teacher reassigned, dropped out), and seventeen teachers who participated in follow-up data collection for a student who had been a participant in PTR in the previous year.

Teachers in Group 3 ($n = 50$) had not participated in any PTR activities. The purpose of this third group of teachers was to determine if responses were different between teachers who volunteered to participate in a time intensive behavior intervention project and non-volunteers. Though these teachers volunteered to participate in a 20-minute survey, they did not volunteer to participate in the intensive intervention process. Further explanation of grouping procedures and questions is provided in Appendix C.

Participant demographics. Demographic information about the participants is reported in this section including data on credentials, experience, and teaching assignment. The sample was rather homogeneous with regards to teaching credentials (see Table 4). The majority of participants (89%) held a regular teaching certificate and were not teaching out of field (93%). Most held a Bachelor's degree (70%).

Table 4

Study 2 Participant Credentials

	<i>Group 1</i> (n = 48)	<i>Group 2</i> (n = 35)	<i>Group 3</i> (n = 49)	<i>Total</i> (n = 132)
<i>Teaching License</i>				
Regular	33% (44)	25% (33)	30% (40)	89% (117)
Probationary	2% (3)	1% (1)	5% (7)	8% (11)
Emergency /None	1% (1)	1% (1)	2% (2)	4% (5)
<i>Highest Degree</i>				
Doctorate	1% (1)	--	--	1% (1)
Specialist's	1% (1)	1% (1)	--	2% (2)
Master's	10% (13)	6% (8)	11% (15)	27% (36)
Bachelor's	25% (33)	20% (26)	26% (34)	70% (93)
<i>Out of Field</i>				
Not Out of Field	36% (47)	24% (32)	33% (44)	93% (123)
Out of Field	1% (1)	2% (3)	4% (5)	7% (9)

Experience levels of participants in Study 2 are detailed in Table 5. Nearly seventy percent had ten years or less of teaching experience with the largest group being teachers with 0-5 years of experience (48%). Approximately three-quarters (76%) of participants had been at their current school for five years or less.

Table 5

Study 2 Participant Experience

	<i>Group 1</i> (n = 49)	<i>Group 2</i> (n = 37)	<i>Group 3</i> (n = 50)	<i>Total</i> (n = 136)
<i>Years Teaching</i>				
0-5 Years	15% (21)	13% (17)	20% (27)	48% (65)
6-10 Years	8% (11)	5% (7)	7% (9)	20% (27)
11-15 Years	6% (8)	1% (2)	3% (4)	10% (14)
16-20 Years	1% (2)	2% (3)	3% (4)	7% (9)
21-25 Years	3% (4)	2% (3)	4% (5)	9% (12)
25 or More Years	2% (3)	4% (5)	1% (1)	7% (9)
<i>Years This School</i>				
0-5 Years	27% (37)	20% (27)	29% (40)	76% (104)
6-10 Years	4% (6)	4% (6)	2% (3)	11% (15)
11-15 Years	2% (3)	1% (2)	2% (3)	6% (8)
16-20 Years	1% (1)	1% (1)	2% (3)	4% (5)
21 or More Years	1% (2)	1% (1)	1% (1)	3% (4)

Teaching assignments of participants in Study 2 are detailed in Table 6. Most participants taught at elementary schools (67%). The most common teaching assignment was elementary school general education (41%) followed by elementary school special education (21%). No significant differences were found in any of the demographic categories between the groups with chi-square analysis.

Table 6

Study 2 Participant Teaching Assignments

	<i>Group 1</i> (n = 48)	<i>Group 2</i> (n = 35)	<i>Group 3</i> (n = 49)	<i>Total</i> (n = 132)
<i>School Type</i>				
Elementary	23% (31)	20% (26)	23% (31)	67% (88)
Middle	8% (10)	5% (6)	12% (16)	24% (32)
Exceptional Center	5% (7)	2% (3)	2% (2)	9% (12)
<i>Assignment</i>				
Pre-K or K (GE)	2% (2)	2% (2)	2% (3)	5% (7)
Elementary (GE)	14% (18)	10% (13)	17% (23)	41% (54)
Middle School (GE)	2% (2)	1% (1)	8% (11)	11% (14)
Pre-K or K (SE)	2% (3)	1% (1)	1% (1)	4% (5)
Elementary (SE)	9% (12)	9% (12)	3% (4)	21% (28)
Middle School (SE)	5% (7)	3% (4)	2% (3)	11% (14)
Specialty Area	--	--	2% (2)	2% (2)
Other	3% (4)	2% (2)	2% (2)	6% (8)

Note: General Education (GE); Special Education (SE)

Instruments

Participants were asked to complete *Teachers' Sense of Efficacy Scale* (see instruments section Study 1 and Appendix A) and selected portions of the *Questionnaire about Teachers and Challenging Behaviors* (Westling, 2006). Participants also answered a set of questions regarding previous participation in the PTR project and some demographic questions. The complete survey is presented in Appendix D. Research question 2a used the same operational definition of teacher efficacy as Study 1.

Questionnaire about Teachers and Challenging Behaviors. The *Questionnaire about Teachers and Challenging Behaviors* was designed to gather information on teacher's views and approaches when dealing with students with challenging behaviors (Westling, 2006). Teachers provide descriptive information about themselves and their students and report their perceptions on seven dimensions related to challenging behavior.

Psychometric data on this instrument were reported in a study conducted by the questionnaire's author in which 70 general and special education teachers completed the questionnaire. Content validity was established through review by a panel of 15 national experts. Test-retest reliabilities were above .70 with the exception of four items. Internal consistency reliabilities were reported for selected sections with Cronbach's alpha values ranging from .76 to .92.

Data for research question 2b included responses from the section of the questionnaire titled "Your Professional Preparation in Dealing with Challenging Behaviors" (see Appendix D). In this section, the participant rated their confidence in

applying skills in six areas of training related to applying behavior interventions on a Likert-type scale where ‘0’ = Unconfident and ‘3’ = Highly Confident.

Confidence in dealing with challenging behavior was operationalized as the participant’s perceived ability to use skills in (a) principles of applied behavior analysis, (b)functional behavior assessment, (c) classroom management, (d) individual behavioral interventions, (e) data collection and assessment, and (f) school-wide positive behavior supports. Scores on the six items were summed and possible scores ranged from 0 to 18 with higher values indicating higher confidence levels. In previous research by the author of the questionnaire, test-retest reliability of this section was .95 and internal consistency reported as Cronbach’s alpha was .83.

Data for research question 2c included responses on the section of the questionnaire titled “Current Strategies You Use for Dealing with Challenging Behaviors.” This section includes eighteen recommended ABA and PBS strategies in which the teacher indicated the frequency of use on a 5-point Likert-type scale where ‘1’ = I never use this strategy and ‘5’ = I always use this strategy.

Frequency of ABA and PBS recommended strategies used for challenging behaviors was operationalized by summing the scores on the 18 items with scores ranging from 18 to 90 with higher scores indicating more use of recommended strategies. In previous research by the author, test-retest reliability on this section was .99 and internal consistency reported as Cronbach’s alpha was .81. Few teachers reported frequently using any of the strategies often or very often.

Summary

The context of the current research was the PTR randomized control study. Study 1 examined archival records of the *Teachers' Sense of Efficacy Scale* data and consultant coaching time for thirty-six participants. A survey of 136 previous PTR participants and non-participants was conducted in Study 2. The participants completed an online survey including the *Teachers' Sense of Efficacy Scale*, *Questionnaire about Teachers and Challenging*, questions about level of PTR participation, and demographic information.

Chapter 4

Results

This chapter will describe the data analysis and results for the current research.

Regression analyses were used in Study 1 to examine the nature of the relationship between teacher efficacy and the amount of coaching time required for a teacher to implement a behavioral intervention with integrity. Study 2 used a MANOVA analysis to determine if PTR participants differed from non-participants in teacher efficacy, confidence in dealing with challenging behaviors, and reported use of recommended strategies. Data analysis, data screening, considerations of assumptions, and results for both studies are presented in this chapter.

Study 1

The purpose of Study 1 was to determine the nature of the relationship between teacher efficacy and the amount of coaching time required for a teacher to reach an acceptable level of treatment integrity in implementation of a behavioral intervention. Analyses were used to determine if teacher efficacy or any facets of it could be used to predict the amount of coaching needed. Outcome variables were the amount of consultant coaching time (as defined in Chapter 3) and the number of coaching sessions.

Data Analysis

First, regression analyses were run with overall teacher efficacy as the predictor variable. To further explore the relationship, multiple regression analyses were run with

the teacher efficacy subscales as the predictor variables. The null hypothesis was that there was no relationship between teacher efficacy and the amount of coaching necessary to reach 80% treatment integrity. The significance level was preset to $p < .05$.

Descriptive statistics. Descriptive statistics for teacher efficacy and coaching time variables are presented in Table 7. Teacher efficacy items were each rated on a scale of one to nine. The mean of overall efficacy was 6.69 while mean scores on the efficacy subscales ranged from 6.98 to 7.40. All scales were slightly negatively skewed. All measures of central tendency were within one point of each other. There were few outliers with only one each on the overall efficacy, instructional efficacy, and management efficacy scales. Kurtosis values were near zero with the exception of instructional efficacy which was slightly leptokurtic, with the mean peaking at 7.40.

Table 7

Study 1 Descriptive Statistics for Teacher Efficacy and Coaching Time Variables

	Mean	SD	Skewness	Kurtosis	Min	Max
Overall Efficacy	6.69	0.80	-0.53	0.44	4.62	8.38
Engagement Efficacy	6.98	1.06	-0.16	-0.60	4.75	9.00
Instructional Efficacy	7.40	0.98	-1.50	4.64	3.75	9.00
Management Efficacy	7.10	1.01	-0.74	0.78	4.25	9.00
Number of Sessions	4.92	2.45	-0.40	-0.85	1.00	9.00
Consultant Time	395.83	174.19	0.08	-0.08	50.00	815.00

Note N=36

The number of sessions ranged from one to nine with no outliers. The average number of sessions was five. The data were negatively skewed with a median of 5.5 and

a mode of 6. Consultant coaching time was wide ranging (50 to 815 minutes) with a fairly normal distribution.

Before the analyses were conducted, correlations among the variables were calculated and results are presented in Table 8. The correlation of management efficacy and engagement efficacy was significant at the $p < .001$ level. Correlations between instructional efficacy and each of the other two efficacy subscales were significant at the $p < .0001$ level. Neither outcome variable correlated significantly correlated with any predictor variables

Table 8

Means, Standard Deviations, and Intercorrelations among Teacher Efficacy and Coaching Time Variables

Variable	1	2	3	4	5
1. Engagement Efficacy	--				
2. Instructional Efficacy	0.62**	--			
3. Management Efficacy	0.52*	0.60**	--		
4. Number of Sessions	-0.12	0.04	0.06	--	
5. Consultant Time	-0.03	-0.15	-0.14	0.26	--
Mean	6.98	7.40	7.10	4.92	395.83
Standard Deviation	1.06	0.98	1.01	2.45	174.19

Note $N=36$, * $p < .001$, ** $p < .0001$

Data screening. Assumptions of regression analysis were reviewed prior to running the analyses. Regression is relatively robust to the assumption that the predictor

variable is fixed. The scale used to measure the predictor variables has adequate reliability levels (see Chapter 3). To avoid introducing multicollinearity, analyses were separated between overall teacher efficacy and the efficacy subscales because the subscale scores are contained in the overall efficacy scores. Variance Inflation Factors were examined and none were approaching or exceeding ten. Cook's D values of the residuals were examined and none were approaching or exceeding one indicating no influential outliers. Graphs of the data were examined for linearity and plotted residuals were examined for homoscedacity. It appeared acceptable to proceed with the analysis while interpreting with caution due to small sample size and possible measurement error.

Results. Simple regression analyses were conducted with overall efficacy as the predictor variable. When the number of coaching sessions was considered as the outcome variable results of the simple regression were not significant ($F(1,34) = 0.00, p = 0.9525$, adjusted $R^2 = -0.0293$). When the amount of coaching time was considered as the outcome variable results of the simple regression also were not significant ($F(1,34) = 0.51, p = 0.6632$, adjusted $R^2 = -0.0141$).

Multiple regression analyses were conducted with the three subscales of teacher efficacy as predictor variables. The results of the regression analysis with number of coaching sessions as the outcome variable were not significant ($F(3,32) = 0.53, p = 0.6632$, adjusted $R^2 = -0.0417$) and are presented in Table 9. The results of the regression analysis with consultant time as the outcome variable were not significant ($F(3,32) = 0.41, p = 0.7458$, adjusted $R^2 = -0.0531$) and are presented in Table 10.

Table 9

Regression Results for Number of Sessions and Efficacy Subscales

Variable	Regression Coefficient	Standard Error	<i>t</i> -value	Standardized (â)	Squared Semi- partial Correlation
				Regression Coefficient	Semi- partial Correlation
Intercept	4.64808	3.55331	1.31	--	--
Student	-0.63297	.052384	-1.21	-0.27419	0.04346
Engagement					
Instructional	0.34542	0.61038	0.57	0.13753	0.00953
Strategies					
Classroom	0.29970	0.53902	0.56	0.12373	0.00920
Management					

Note $N = 36$, $R^2 = 0.0476$, $F(3,32) = 0.53$, $p = 0.6632$, adjusted $R^2 = -0.0417$

Table 10

Regression Results for Consultant Coaching Time and Efficacy Subscales

Variable	Regression Coefficient	Standard Error	<i>t</i> -value	Standardized Regression (â)	Squared Semi- partial Correlation
				Regression Coefficient	Semi- partial Correlation
Intercept	596.10698	253.83957	2.35	--	--
Student	22.40405	37.38705	0.60	0.13672	0.01080
Engagement					
Instructional	- 29.69785	43.56372	-0.68	- 0.16658	0.01398
Strategies					
Classroom	- 19.25470	38.47019	- 0.50	- 0.11199	0.00754
Management					

Note N=36, R² = 0.0371, F(3,32) = 0.41, = p = 0.7458, adjusted R² = -0.0531

A summary of the results of the two regression analyses are presented in Table 11. No relationships between predictor variables and outcome variables were statistically significant, thus the null hypothesis was not rejected. No model accounted for more than 5% of the sample's variability in the outcome.

Table 11

Summary of Results of Regression Analyses

<i>Outcome Variable</i>	<i>Predictor Variable(s)</i>	R^2 , <i>Adjusted R²</i>	<i>F-statistic,</i> <i>Probability</i>
Number of Sessions	Overall Efficacy	$R^2 = 0.0001$,	$F(1,34) = 0.00$,
	Efficacy Subscales	$Adj. R^2 = -0.0293$	$p = 0.9525$
Coaching Time	Overall Efficacy	$R^2 = 0.0476$,	$F(3,32) = 0.53$,
	Efficacy Subscales	$Adj. R^2 = -0.0417$	$p = 0.6632$
	Overall Efficacy	$R^2 = 0.0148$,	$F(1,34) = 0.51$,
	Efficacy Subscales	$Adj. R^2 = -0.0141$	$p = 0.4791$

Note N=36

Study 2

To explore the sustainability of the effects of participation in PTR, an ex post facto survey was conducted to determine if teachers differed from one another based on their level of participation with the PTR behavior intervention program. Group 1 consisted of teachers who had previously implemented behavior interventions in the PTR program. Group 2 included teachers who had some familiarity with PTR (teachers of students assigned to the control condition or as a teacher of a student in the follow-up year) but had not implemented interventions developed through PTR. Group 3 teachers were recruited from PTR schools, but had not participated in any PTR activities. The

dependent variables examined were level of teacher efficacy, confidence in ability to deal with challenging behavior, and in the frequency of use of recommended strategies.

Data Analysis

Multivariate analysis of variance (MANOVA) was selected for data analysis to determine if the groups differed significantly on the set of dependent variables. An advantage of MANOVA analysis is that it allows the researcher to gain power which may detect differences that univariate analyses alone may not detect. The null hypothesis was that there were no significant differences between the groups. The significance level was preset to $p < .05$.

Descriptive statistics. The dependent variables examined include the subscales of teacher efficacy (student engagement, instructional strategies, and classroom management), confidence in dealing with challenging behavior, and reported use of recommended strategies. Means and standard deviations of each dependent variable by group and of the whole sample ($N=136$) are presented in Table 12.

Teachers rated each teacher efficacy item on a scale of one to nine. Mean scores per group on the efficacy scales ranged from 6.90 to 7.69. Minimum scores on the scales were 4.25 for student engagement, 2.75 for instructional strategies, and 4.50 for classroom management. Each scale had actual maximum scores of 9.00. Distributions of each efficacy subscale were roughly normal, but noted by a slightly negative skew. Measures of central tendency for all scales fell within one point of each other. Three outliers were noted between the three scales.

Table 12

Study 2 Means and Standard Deviations for Dependent Variables by Group

	<u>Group 1</u> (n = 49)	<u>Group 2</u> (n = 37)	<u>Group 3</u> (n = 50)	<u>Total</u> (n = 136)
Engagement Efficacy	7.19 (1.04)	7.11 (1.08)	6.90 (1.39)	7.06 (1.19)
Instructional Efficacy	7.67 (0.88)	7.69 (0.79)	7.49 (1.33)	7.61 (1.04)
Management Efficacy	7.57 (0.86)	7.56 (1.07)	7.51 (1.12)	7.54 (1.01)
Confidence in Behavior	5.33 (2.46)	4.49 (3.17)	5.94 (2.68)	5.32 (2.79)
Recommended Strategy Use	65.67 (8.27)	65.38 (8.88)	62.48 (7.92)	64.42 (8.39)

*Note: Standard Deviations in parentheses

For the variable confidence in dealing with challenging behaviors, participants rated six items on a scale from zero to three resulting in a possible score range of 0 to 18. Actual scores ranged from 0 to 12 with group means from 4.49 to 5.94. Data were roughly normally distributed for this variable. The possible score range for the variable use of recommended strategies was 18 to 90. Actual scores ranged from 33 to 85 with group means from 62.48 to 65.67. For Group 1, the distribution was leptokurtic (kurtosis = 4.11). The other groups were roughly normally distributed.

Data screening. Before proceeding with the analysis, the data were screened to make sure they were consistent of the assumptions underlying MANOVA. Responses of each participant were independent and distributions of each variable were roughly normal with the exceptions noted above. The multivariate skewness of the residuals from the MANOVA was calculated [$b_{1,p} = 3.37$, $\sqrt{35}, N = 136 = 78.61, p < .01$] and was statistically significant. The multivariate kurtosis of the residuals of the MANOVA was [$b_{2,p} = 38.04$, $z_{upper} = 2.12$, $z_{lower} = 1.04$] with the upper bound being slightly outside the critical value of $z +/- 1.96$. Screening for multivariate outliers produced a maximum Mahalanobis distance of 24.01 [$F(5,130) = 5.68, p < .01$] which was statistically significant. However, the distance of the outlier was found to be a possible value and thus included in the analysis due to the nature of the research questions. A Box's M test revealed no statistically significant differences in the covariance matrices [$\sqrt{30}, N = 136 = 33.29, p = .31$]. Because MANOVA is relatively robust to violations of the normality assumption when sample sizes are large, the inconsistencies in the multivariate normality were noted and the analysis was conducted.

MANOVA results. The Wilk's Lambda test statistic was found to not be statistically significant [$\bar{\Lambda} = .93, F(10, 258) = .99, p < .45$] when measuring teacher efficacy using the three subscale scores. A small effect size was calculated ($f^2 = .04$). Using Cohen's approach, the statistical power of the MANOVA was calculated to be 0.54 indicating a 46% chance of failing to detect a present effect if the population effect was $f^2 = .04$. For the sake of comparison, the MANOVA was also run using overall teacher efficacy instead of the three subscales to represent the construct along with the dependent variables of confidence in dealing with challenging behavior and

recommended strategy use and the results were still not significant [$\bar{E} = .93, F(10, 258) = .99, p < .45$].

ANOVA results. Given the non-significant MANOVA, it would be expected that the ANOVA results of individual variables would also be non-significant. However, the order to answer the original research questions posed, ANOVA results are reported in Table 13. The following research questions were investigated:

- a) Is there a difference in teacher efficacy between teachers who have participated in the PTR intervention process, teachers who had some participation with the PTR project but did not implement interventions, and teachers who did not participate in PTR?
- b) Is there a difference in confidence in dealing with challenging behaviors between teachers who have participated in the PTR intervention process, teachers who had some participation with the PTR project but did not implement interventions, and teachers who did not participate in PTR?
- c) Is there a difference in the frequency of ABA and PBS recommended strategies used for challenging behaviors between teachers who have participated in the PTR intervention process, teachers who had some participation with the PTR project but did not implement interventions, and teachers who did not participate in PTR?

The significance value for these analyses was set to $p < .0167$ to maintain a conservative estimate of statistical significance with three groups. None of the ANOVA analyses were found to be statistically significant. This indicates that the groups did not

differ significantly on any of the variables explored by the research questions. For each research question, the null hypothesis was not rejected.

Table 13

Results of ANOVA for Each Dependent Variable

	Source	SS	MS	F-value	p
Engagement	Model	2.2670	1.1335	0.80	0.4499
Efficacy	Error	187.6074	1.4106		
	Corrected Total	189.6845			
Instructional	Model	1.1786	0.5893	0.54	0.5859
Efficacy	Error	146.0254	1.0979		
	Corrected Total	147.2040			
Management	Model	0.1234	0.0617	0.06	0.9424
Efficacy	Error	138.2369	1.0393		
	Corrected Total	138.3603			
Confidence in	Model	1.248	0.6240	2.98	0.0542
Behavior	Error	27.8566	0.2094		
	Corrected Total	29.1046			
Recommended	Model	299.1521	149.5760	2.16	0.1191
Strategy Use	Error	9199.9582	69.1726		
	Corrected Total	9499.1103			

Note: $df = (2, 133)$

Summary

This chapter described the data analysis, screening, and results for both studies. The null hypothesis was not rejected in either study. In the regression analyses in Study 1, neither teacher efficacy nor the teacher efficacy subscales, were found to be significantly related to the amount of coaching as measured by the consultant coaching time or the number of coaching sessions. In Study 2, previous PTR participants did not differ significantly from non-participants in teacher efficacy, confidence in dealing with challenging behavior, or use of recommended strategies.

Chapter 5

Discussion

Summary

School psychologists are increasingly using consultation as a service delivery model in schools today. Because consultation is an indirect service delivery model, interventions developed through consultation are implemented by teachers or other school staff. One of the challenges of consultation is the failure of school staff to implement and sustain interventions developed in consultation. In order for consultation to be effective in achieving desired student outcomes, the teacher must change his or her behavior as a result of the consultation. Assuring correct plan implementation should not be overlooked by the consultant. Therefore, consultants need to directly train school staff on correct implementation of the intervention, monitor implementation, and provide feedback (Han & Weiss, 2005; Noell, et al., 2005; Sterling-Turner, et al., 2001).

Legislation and paradigm shifts are increasing the need to monitor treatment integrity. Due to NCLB, teachers are being held accountable for their practice now more than ever. With the introduction of the Response to Intervention (RtI) model for special education eligibility, treatment integrity must be assessed and monitored to ensure that the intervention is being delivered as planned. Information regarding treatment integrity is crucial in determining intervention effectiveness. Ironically, treatment integrity data are frequently absent from literature on school-based behavioral interventions (Gresham,

et al., 1993; McIntyre, et al., 2007) and are rarely monitored in practice (Cochrane & Laux, 2008).

Upon entering the consultative relationship, teachers bring with them different beliefs, skill sets, efficacy levels, and other motivations. These factors may potentially affect their initial level of implementation or sustainability of an acceptable treatment integrity level. The implementation of a behavior intervention requires a behavior change by the teacher which may be skills that are new and require effort to put into practice. Most teachers are not trained in behavioral principles and the lack of knowledge may affect treatment acceptability and perceived effectiveness (Scott & Nelson, 1999; Weigle & Scotti, 2000).

Teacher efficacy is related to the teacher's belief system and has been linked to teacher perceptions of student behavior, teacher behavior, and student outcomes (Meijer & Foster, 2001; Morin & Battalio, 2004; Tschannen-Moran & Hoy, 2001). The literature regarding teacher efficacy and intervention implementation is mixed. Tschannen-Moran and Hoy (2001) posit that teachers with a strong sense of efficacy are more willing to try new things to meet the needs of students. Conversely, Hughes and colleagues (1990) found that teachers with high efficacy were less likely to change their behavior as a result of consultation. This contradiction warranted further study of the relationship between teacher efficacy and treatment integrity.

The purpose of this research was to examine the relationship between participation in the Prevent Teach Reinforce (PTR) behavior intervention program and teacher efficacy, confidence in dealing with challenging behavior, and implementation of recommended behavior interventions. Study 1 explored the nature of the relationship

between teacher efficacy and the amount of coaching needed to implement an intervention with an acceptable level of integrity. Study 2 explored sustainability of effects of participation in PTR by determining if teachers who had participated in PTR differed from non-participants in teacher efficacy, confidence in dealing with challenging behaviors, and use of recommended behavioral strategies.

Results

Study 1 used archival data collected during a larger randomized control study designed to determine the efficacy of PTR. Baseline data collected during this study included a measure of teacher efficacy. Teachers worked with a behavioral consultant to develop a behavior intervention for a student in their classroom. Data for thirty-six teachers were included in the analysis. Consultants trained the teachers and provided in-class coaching on implementation to the teachers until they reached 80% treatment integrity. The number of coaching sessions averaged five and the amount of coaching time averaged 6.6 hours.

Regression analyses were conducted to determine if overall teacher efficacy or the teacher efficacy subscales could be used to predict the amount of coaching time needed to implement the intervention with an acceptable level of treatment integrity. Neither teacher efficacy nor the subscales were found to be predictors of the number of coaching sessions or the amount of coaching time required. No model accounted for more than 5% of the variability in the outcome variable.

In Study 2, a total of 136 teachers completed a web-based survey including questions on teacher efficacy, confidence in dealing with challenging behaviors, and frequency of use of recommended strategies to explore the sustainability of the effects of

PTR. Participants were divided into three groups based on their level of participation with the PTR project. Group 1 included teachers who had participated in the PTR process through and including intervention implementation and coaching. Group 2 included teachers who had some exposure to PTR without intervention implementation. Teachers in Group 3 had not participated in PTR. A MANOVA analysis was conducted to determine if the three groups differed on the set of predictor variables (teacher efficacy, confidence in dealing with challenging behaviors, and frequency of use of recommended strategies). The groups did not differ significantly on the set of variables combined or any of the individual variables [$\bar{E} = .93$, $F(10, 258) = .99$, $p < .45$].

Comparison of Study I to Previous Research

Previous research on teacher efficacy and consultation has yielded conflicting results. In the current work, teacher efficacy was not found to be a significant predictor of the amount of coaching needed for a teacher to implement an intervention with an acceptable level of integrity. As a result, the relationship between teacher efficacy and consultation remains unclear.

In the current research, ratings on the *Teachers' Sense of Efficacy Scale* were near the ceiling of the assessment tool which may suggest that the teachers were responding to the measure in a socially desirable manner. As the ratings clustered at the high end of the scale, there was little variability in responses which may have made it more difficult to detect differences. Nonetheless, the distribution of scores was similar to that found by the authors in pilot testing. In contrast, Hughes and colleagues (1990) asked teachers to rate how difficult it would be to solve a behavior problem without the assistance of a consultant. This value represented teacher efficacy. Thus, it is possible

that the assessments used to measure the construct of teacher efficacy were responsible for the mixed results.

This study was similar to the work of Hughes and colleagues in that it measured the actual behavior of teachers in consultation. In their discussion, Hughes and colleagues refer to research indicating that less experienced teachers are more likely to seek consultation and change behavior as a result. Due to the homogeneity of the sample, differences in level of experience could not be tested in this study. The majority (56%) of the teachers in the sample had five years or less of teaching experience with 75% having ten or less years of experience.

Study 1 exclusively considered teacher efficacy as a predictor of the amount of coaching needed to implement a behavior intervention with integrity. In actuality, other variables may be significant contributors to the model. Research has shown that teachers who do not have sufficient knowledge of behavioral principles have difficulty in brainstorming appropriate interventions and in describing the interventions with sufficient specificity to ensure accurate implementation (Wilson, et al., 1998). Similarly, teachers may not have sufficient prerequisite skill in implementation of the interventions to ensure success. Other factors related to the teacher's training and experience may also be significant such as the type of credentials held or the years of teaching experience.

School psychologists note administrative support as a barrier to the measurement of treatment integrity (Cochrane & Laux, 2008). In more authentic situations, school climate factors may also affect teacher's willingness to implement interventions. Treatment integrity rates may increase when school districts and administrators value intervention, monitor implementation, and hold teachers accountable.

Influences more directly related to the presenting problem may include the severity of the student's challenging behavior, the level of treatment acceptability, or other motivating factors the teacher is facing.

As discussed in the literature review, many teachers may not have knowledge of behavioral principles (Scott & Nelson, 1999). In Study 1, behavioral consultants walked teachers through a systematic process including a functional behavioral assessment and linking the intervention to the assessment. Consistent with previous research (Wilson et al., 1998), most of the teachers had attempted some type of unmonitored or unsystematic intervention in the classroom before beginning PTR, usually without success. Using a function-based intervention was new to many teachers unfamiliar with the behavioral theoretical orientation. Though it was not the intent of PTR to teach the function-based intervention development process, it was clear that this activity was foreign to most participants. Likewise, many of the teachers implemented interventions that were not in their existing skill set. The novelty of the process and intervention implementation procedures may have extended the time necessary for the teachers to establish an acceptable level of treatment integrity.

Because teachers were so active in the process and high levels of social validity were reported, treatment acceptability is not believed to have been a major issue in this study. Though guided by the consultant, the PTR process was teacher-driven in that the teacher ultimately selected the target behaviors and interventions. When a disagreement arose between the consultant's and the teacher's selection of intervention, the teacher's selection was used as long as the intervention matched with the function of the behavior.

The severity of the behavior may have motivated some teachers to work harder to implement the intervention. Challenging behavior that was frequent, high in intensity, or very disruptive may have caused some teachers to want to work hard to implement the interventions to alleviate associated problems in the classroom. It is also possible that teachers, particularly general education, may have been less likely to use effort in implementing behavior interventions because their goal is for the student to be placed into another class (Wood, Umbreit, Liaupsin, & Gresham, 2007). In this situation, improved student outcomes would not be motivating to the teacher as they will not help the teacher to reach their ultimate goal – removal of the student.

Another potential factor influencing the motivation was the stipend. Teachers were paid a stipend for their participation, not for their successful implementation of the intervention. The consultants hypothesized that there were a few teachers who participated in the study for the stipend as they made minimal progress toward reaching an acceptable level of treatment integrity.

Limitations of Study 1

Potential for bias was introduced into the study through sampling because the participants self-selected to participate, were paid a stipend, and represented a limited geographical area. A small number of participants from the PTR efficacy study met the inclusion criteria for this study resulting in a small sample size. These participants may not be representative of the sample of all teachers across the population and caution should be used in generalizing. Participants in this study volunteered for a research study. Therefore, results may have been different if they were actually seeking consultation from a school psychologist due to their motivations and school climate

issues. Validity also was compromised due to mortality as students moved, or teachers were re-assigned and or withdrew themselves from the study.

In order to reduce a possible problem with treatment acceptability, teachers were directly involved in the development of each plan and the interventions selected were designed to fit with the classroom environment and current routines. However, because each intervention plan was individualized, the level of difficulty was not controlled. The complexity of each intervention plan varied in terms of number of steps and difficulty of implementation. The teacher's previous skill level with the selected interventions also was not controlled.

The research protocol for the PTR study did not specify the length of time between coaching sessions, thus the interval varied. Previous research investigating treatment integrity has employed a standardized schedule for performance feedback ranging from daily with progressive thinning to every other week (Codding et al, 2005; Noell et al., 2002). Therefore, it is possible that the length of time between coaching sessions contributed to variability in the amount of coaching time required for the teacher to implement the intervention with integrity.

Comparison of Study 2 to Previous Research

Study 2 continued the examination of teacher efficacy considering its possible relationship to sustainability of effects of participation in PTR. The model also included the variables of confidence in dealing with challenging behaviors and frequency of use of recommended strategies. The three groups of teachers did not differ systematically on this set of predictor variables nor on any of the individual variables.

The first research question of this study focused on teacher efficacy. As noted above in the discussion of Study 1, teacher efficacy ratings approached the ceiling of the instrument and may have been influenced by social desirability. Authors of the scale also indicate that teacher efficacy is a relatively stable construct (Tschannen-Moran & Hoy, 2001). Hunzicker (2004) suggests that information be repeated over time to get teachers to change their beliefs.

The next question focused on the teacher's confidence in dealing with challenging behaviors. For this variable the possible score range was 0 to 18. Actual scores ranged from 0 to 12 with group means ranging from 4.49 to 5.94. Though the resulting adjusted significance value was not significant, it is interesting to note that the highest mean score on this variable was for teachers in Group 3 (PTR non-participants) and the lowest was for teachers in Group 2 (limited exposure to PTR). It may be that teachers who did not have experience in systematically implementing a behavioral intervention overestimated their competency because they simply lacked the knowledge necessary for an accurate self-assessment. Anecdotal accounts support this hypothesis. For example, one participant in the PTR efficacy study expressed confidence as she told the consultant that she was knowledgeable about behavior interventions. However, this participant exhausted her coaching time without ever reaching an acceptable level of integrity.

The last question focused on the teacher's frequency of use of recommended strategies. Measurement error may also have affected this area. Teachers may have used the interventions and rated themselves highly on use of the strategy, though they were implementing it incorrectly or inconsistently. This question represents an informal attempt to investigate sustainability of intervention implementation. However, it is

difficult to discern if interventions developed by the PTR participants were still being implemented through this generic question.

Similarly to Study 1, it is possible that other variables outside of this set of predictors are responsible for more of the variance. Participant factors such as teaching experience, teaching assignment, and type of students taught were not considered. Other theoretical factors may also be influencing responses such as theoretical orientation and previous experience with consultants.

Limitations of Study 2

This study is limited by factors related to the participants recruited and the instruments used. Because the participants volunteered to participate, their responses may not reflect the population of teachers exactly. The sample was selected from a limited geographical area which may also limit generalization. Some limitations with group membership may have also been introduced because it is possible that some teachers in the non-volunteer comparison group did not volunteer to participate in PTR because they did not have any students in need of an intensive behavior intervention during that school year, though they may have done so if such a student were in their class. Teachers who previously participated in the PTR study had already completed the *Teachers' Sense of Efficacy Scale* and *Questionnaire about Teachers and Challenging Behaviors* and during their participation in the study and thus had a level of familiarity with the instruments.

Implications and Future Research

Because the results of this study were not statistically significant, we are not at this time able to use teacher efficacy to predict which teachers are more likely to quickly

implement interventions with a high level of treatment integrity. Nonetheless, teacher efficacy in conjunction with other pre-implementation factors may be useful in determining which teachers are ready to implement interventions, thus streamlining the consultation process.

With regard to sustainability, anecdotal accounts suggest that teachers overestimate their knowledge of behavioral principles. Teachers may benefit from knowledge of the scientific foundation of the interventions before implementing. Using a systems approach to provide such training to groups of teachers would be cost effective as it would reduce the amount of time needed for this activity in individual consultation. School psychologists should continue to seek ways to reduce the time needed to get a correctly implemented intervention in place for the target student. Decreasing the time needed per case would also allow the school psychologist time to do more consultation and improve outcomes for additional students.

The PTR process was teacher-driven, thus, protocols used in the current study were designed to alleviate possible problems in consultation associated with treatment acceptability and social validity. Future research may use methodology to further isolate teacher efficacy to study its effect on treatment integrity. Research could be conducted with a standardized intervention to reduce the effects of time required for implementation and complexity of the intervention. A specified monitoring schedule could be used to reduce the effects associated with variation in time interval. Due to the small variation in teacher efficacy scores and their cluster near the ceiling, additional instruments could be used to measure the construct and perhaps detect differences. The research could be repeated with a larger sample size.

Because teacher efficacy is likely not working in isolation, other models should be investigated to determine the influence of additional variables. Future research could be conducted to evaluate the effects of knowledge of behavioral principles and level of expertise in systematically implementing behavioral interventions. This construct could be examined by adding it into the current statistical model to determine its proportion of variance explained. Another way to investigate would be to experimentally manipulate this variable by providing training in behavioral principles before initiating the intervention. Such a research design would also allow accurate measure of this variable instead of relying on inflated self-appraisals. Further analyses could be conducted to examine differences related to the amount of teaching experience and the teaching assignment or type of students taught.

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Appendices

Appendix A: Teachers' Sense of Efficacy Scale

Teachers' Sense of Efficacy Scale¹ (short form)

Teacher Beliefs	How much can you do?								
	Nothing	Very Little	Some Influence	Quite A Bit	A Great Deal				
Directions: This questionnaire is designed to help us gain a better understanding of the kinds of things that create difficulties for teachers in their school activities. Please indicate your opinion about each of the statements below. Your answers are confidential.									
1. How much can you do to control disruptive behavior in the classroom?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
2. How much can you do to motivate students who show low interest in school work?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
3. How much can you do to get students to believe they can do well in school work?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
4. How much can you do to help your students value learning?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
5. To what extent can you craft good questions for your students?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
6. How much can you do to get children to follow classroom rules?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
7. How much can you do to calm a student who is disruptive or noisy?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
8. How well can you establish a classroom management system with each group of students?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
9. How much can you use a variety of assessment strategies?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
10. To what extent can you provide an alternative explanation or example when students are confused?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
11. How much can you assist families in helping their children do well in school?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
12. How well can you implement alternative strategies in your classroom?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)

Appendix B: Recruitment E-mail for Study 2

Target Audience: Previous PTR Teachers -- Initial

Subject: USF Prevent Teach Reinforce Follow-up Survey

Dear [FirstName],

My name is Brandi Tanner and I am consultant for the Prevent Teach Reinforce (PTR) project at the University of South Florida and a doctoral candidate in the School Psychology program. You are being contacted because you were previously a participant in the PTR research study. We are conducting a survey to collect follow up information about teacher efficacy in dealing with challenging behaviors, use of recommended behavioral strategies, and participation in the PTR program. Your response would be appreciated.

This is an internet-based survey which takes approximately 15 minutes to complete. I understand that your time is valuable, and your participation is truly appreciated. If you complete the survey, your name will be entered into a drawing for one of five Target gift cards in the amount of \$20.

Please Note: If you are an employee of Pinellas County Schools, monetary rewards may not be paid to school board staff. If your name is selected from the drawing, you will be notified and the award will be given to your school.

Here is a link to the survey:

[SurveyLink]

This link is uniquely tied to this survey and your email address. Please do not forward this message.

Thanks for your participation!

Brandi Tanner, Ed.S.
University of South Florida
btanner2@mail.usf.edu
813-974-3461

Please note: If you do not wish to receive further emails from us, please click the link below, and you will be automatically removed from our mailing list.

[RemoveLink]

Appendix B: (Continued)

Target Audience: Non-PTR Teachers -- Initial

Subject: USF Challenging Behavior Survey

Dear [FirstName],

My name is Brandi Tanner and I am consultant for the Prevent Teach Reinforce (PTR) project at the University of South Florida and a doctoral candidate in the School Psychology program. You are being contacted because you recently provided your name and e-mail address to participate in a survey about your confidence in dealing with challenging behaviors and use of recommended behavioral strategies.

This is an internet-based survey which takes approximately 15 minutes to complete. I understand that your time is valuable, and your participation is truly appreciated. If you complete the survey, your name will be entered into a drawing for one of five Target gift cards in the amount of \$20.

Please Note: If you are an employee of Pinellas County Schools, monetary rewards may not be paid to school board staff. If your name is selected from the drawing, you will be notified and the award will be given to your school.

Here is a link to the survey:

[SurveyLink]

This link is uniquely tied to this survey and your email address. Please do not forward this message.

Thanks for your participation!

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Please note: If you do not wish to receive further emails from us, please click the link below, and you will be automatically removed from our mailing list.

[RemoveLink]

Appendix C: Study 2 Group Assignment Guidelines

Study 2 Group Assignment Guidelines

Group 1: PTR Intervention Teachers – Includes teachers who participated in the PTR to the point of developing and/or implementing a behavior support plan

- Inclusion criteria: Participants who indicate ‘Yes’ on item 3 (were you a participant) and endorse letter ‘E’ on item 4

Group 2: PTR Volunteer Teachers – Includes teachers who volunteered to participate in PTR, but were unable to attain parental consent for the student they nominated, assigned to the waitlist/control condition, started the PTR intervention process but, for some reason, did not make it to intervention development, or their only involvement was data collection for a student during the follow-up phase.

- Inclusion criteria:
 - Participants who indicate ‘Yes’ on item 2 (did you nominate) and ‘Yes’ on item 3 (were you a participant) and endorse any or all of letters ‘A-D’ on item 4 but **NOT** item ‘E’
 - Participants who indicate ‘No’ on item 2 (did you nominate) and ‘Yes’ on item 3 (were you a participant) and endorse any or all of letters ‘A-D’ on item 4 but **NOT** item ‘E’
 - *These teachers may have become participants in PTR because a student in the study moved into their class. When approached, they did agree to participate.*
 - Participants who indicate ‘Yes’ on item 2 (did you nominate) and ‘No’ on item 3 (were you a participant)
 - *These teachers may have nominated a student indicating willingness to participate but were unable to attain consent, student moved, etc.*
- Exclusion criteria:
 - Participants who indicate ‘Yes’ on item 3 (were you a participant) and endorse item ‘E’ (participated in intervention) --> Group 1
 - Participants who indicate ‘No’ on item 2 (did you nominate) and item 3 (were you a participant) --> Group 3

Group 3: Non-PTR Teachers – Teachers who did not volunteer to participate in the PTR intervention study.

- Inclusion criteria: Participants who indicate ‘No’ on item 2 (did you nominate) and item 3 (were you a participant) --> Group 3

Nominated	Participant	Group
Yes	Yes	Group 1 if endorsing ‘E’ on item 4
		Group 2 if NOT endorsing ‘E’ on item 4
Yes	No	Group 2 <i>These teachers may have nominated a student indicating willingness to participate but were unable to attain consent, student moved, etc.</i>
No	Yes	Group 2 <i>These teachers may have become participants in PTR because a student in the study moved into their class. When approached, they did agree to participate</i>
No	No	Group 3

Appendix D: Study 2 Survey

Informed Consent

Informed Consent to Participate in Research Information to Consider Before Taking Part in this Research Study

Researchers at the University of South Florida (USF) study many topics. To do this, we need the help of people who agree to take part in a research study. This page tells you about this research study. We are asking you to take part in a research study that is called:

Teachers' Sense of Efficacy and Use of Behavioral Strategies: Consultation Effects and Sustainability

Purpose of the study

The purpose of this study is to collect and analyze information about teacher efficacy, confidence in dealing with challenging behaviors, use of recommended behavioral strategies, and participation in a tertiary behavior intervention program. The principal investigator of this study, Brandi Tanner, is a doctoral candidate in School Psychology and this study is being conducted to fulfill a dissertation requirement.

Study Procedures

You are being asked to participate in this study because you are a teacher of students in grades K-8. If you take part in this study, you will be asked to respond to a set of survey questions related to your teaching beliefs and practices followed by a demographic questionnaire. The time required to participate in the study is expected to be approximately 15 minutes.

Voluntary Participation / Withdrawal

You should only take part in this study if you want to volunteer. You should not feel that there is any pressure to take part in the study, to please the investigator or the research staff. You are free to participate in this research or withdraw at any time. To do so, simply close your browser to exit the survey. There will be no penalty or loss of benefits you are entitled to receive if you stop taking part in this study. Your decision to participate or not participate will not affect your job status.

Benefits

We don't know if you will get any benefits by taking part in this study. However, information collected on this topic may be beneficial to the field of education as it can be used to train teachers to work with students with challenging behaviors. There are no known risks to those who take part in this study. We will not pay you for the time you volunteer while being in this study. However, you will be automatically entered into a drawing for one of five \$20 gift certificates to Target.

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Appendix D: (Continued)

Confidentiality

We must keep your study records confidential. Your name, e-mail address, or any other identifying information will not appear on or be otherwise connected to any of the surveys, data, final report, or any publications or presentations based on this research. The information that you provide will be analyzed in aggregate form only.

To further protect your privacy, this survey is protected by SSL encryption (commonly used for online banking sites or sites that transmit secured information). Be sure to close your browser after you have submitted your responses or if you choose to discontinue participation to prevent outside parties from viewing your responses.

However, certain people may need to see your study records. By law, anyone who looks at your records must keep them completely confidential. The only people who will be allowed to see these records are:

- The research team, including the Principal Investigator, study coordinator, and all other research staff.**
 - Certain government and university people who need to know more about the study. For example, individuals who provide oversight on this study may need to look at your records. This is done to make sure that we are doing the study in the right way. They also need to make sure that we are protecting your rights and your safety.) These include:**
 - o the University of South Florida Institutional Review Board (IRB) and the staff that work for the IRB. Other individuals who work for USF that provide other kinds of oversight may also need to look at your records.**
 - o the Department of Health and Human Services (DHHS).**
- We may publish what we learn from this study. If we do, we will not let anyone know your name. We will not publish anything else that would let people know who you are.**

Questions, concerns, or complaints

If you have any questions, concerns or complaints about this study, or if you experience an adverse event or unanticipated problem, contact Brandi Tanner at 813-974-3461 or btanner2@mail.usf.edu.

If you have questions about your rights as a participant in this study, general questions, or have complaints, concerns or issues you want to discuss with someone outside the research, call the Division of Research Integrity and Compliance of the University of South Florida at (813) 974-9343.

Please print a copy of this informed consent for your records.

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Appendix D: (Continued)

By clicking the "I Agree" button below you are giving your consent to participate in the research study.

- I Agree
 I Disagree

Teachers' Sense of Efficacy Scale

This questionnaire is designed to help us gain a better understanding of the kinds of things that create difficulties for teachers in their school activites. Please indicate your opinion about each of the statements below. Your answers are confidential.

	Nothing	Very Little	Some Influence	Quite A Bit	A Great Deal
How much can you do to control disruptive behavior in the classroom?	<input type="radio"/>				
How much can you do to motivate students who show low interest in school work?	<input type="radio"/>				
How much can you do to get students to believe they can do well in school work?	<input type="radio"/>				
How much can you do to help your students value learning?	<input type="radio"/>				
To what extent can you craft good questions for your students?	<input type="radio"/>				
How much can you do to get children to follow classroom rules?	<input type="radio"/>				
How much can you do to calm a student who is disruptive or noisy?	<input type="radio"/>				
How well can you establish a classroom management system with each group of students?	<input type="radio"/>				
How much can you use a variety of assessment strategies?	<input type="radio"/>				
To what extent can you provide an alternative explanation or example when students are confused?	<input type="radio"/>				
How much can you assist families in helping their children do well in school?	<input type="radio"/>				
How well can you implement alternative strategies in your classroom?	<input type="radio"/>				

Your Beliefs about Challenging Behavior

Page 3

Appendix D: (Continued)

Please indicate your level of agreement with each of the following statements about the challenging behaviors that occur in your classroom.

	I strongly agree	I do not agree or disagree	I strongly disagree
Many challenging behaviors are due to the person's personality	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Many challenging behavior are due to a medical or physical reason	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Many challenging behaviors are due to a person's disability	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Many challenging behaviors originate in the home or community	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Many challenging behaviors are learned	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Most challenging behaviors can be improved	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Your Students and Their Behavior

As used on this questionnaire, challenging behaviors are intense behaviors that present physical, instructional, or social concerns to the teacher. They disrupt learning, are dangerous to the student or others, cause physical pain, cause property damage, or seriously disrupt the teaching-learning process. Challenging behaviors are demonstrated frequently by a student and are difficult to manage.

How many of your students exhibit behaviors in the following categories. You can count a student more than once if the student exhibits a behavior in more than one category. If you are not sure, please use approximate numbers. If none, please enter zero.

- Defiance and non-compliance - Refusing to follow directions, e.g. not participating in required activities, challenging authority, purposefully ignoring rules, etc.
- Destruction - Damaging significant property, e.g. intentionally breaking windows, tearing up books or other material, breaking classroom equipment, etc.
- Disruption - Interfering with the normal flow of activities, e.g. interrupting instruction, group activities, etc.
- Illegal behavior - Engaging in acts that violate public laws, e.g. theft, vandalism, technology abuse, substance abuse, etc.
- Physical Aggression - Physically attacking another person, e.g. hitting, kicking, fighting, etc.
- Self-injury - Causing physical damage to oneself, e.g. self-hitting, self-biting, etc.
- Social withdrawal - Demonstrates reluctance to participate in normal activities, tends to retreat and avoid interpersonal contacts, e.g. does not like to participate in typical classroom or recreational activities with other students
- Socially inappropriate behavior - Engaging in unacceptable behavior, e.g. making inappropriate sounds, talking too loud, talking about an inappropriate subject, making offensive gestures, etc.
- Stereotypy - Engaging in repetitive acts, e.g. hand flapping, spinning, twirling, etc.

Total number of students who exhibit challenging behaviors

What is the total number of students in your class who exhibit challenging behavior as described in the above definitions? If none, please enter zero.

Your Professional Preparation for Dealing with Challenging Behaviors

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Appendix D: (Continued)

Please indicate your confidence in your ability to apply skills the following areas. Use the rating system provided for your response.				
	Unconfident	Little Confidence	Confident	Highly Confident
Principles of Applied Behavior Analysis	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Functional Behavioral Assessment	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Classroom Management	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Individual Behavioral Interventions	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Data Collection and Assessment	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
School-wide Positive Behavior Supports	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Your Confidence in Your Ability to Deal with Challenging Behaviors				
Please indicate your level of agreement with each of the following statements.				
	I strongly agree	I neither agree nor disagree	I strongly disagree	
I had adequate preservice professional training to deal with most challenging behaviors.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I had adequate inservice professional training to deal with most challenging behaviors.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Since I have been teaching, I have increased my ability to deal with most challenging behaviors.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
At this time, I have sufficient knowledge and skills to deal with most challenging behaviors.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Current Strategies You Use for Dealing with Challenging Behaviors				

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Appendix D: (Continued)

Please indicate how often you use each of the following strategies when attempting to improve challenging behavior			
	I always use this strategy	I sometimes use this strategy	I never use this strategy
I observe the student and take notes about the behavior to determine what causes the behavior to occur.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I interview and take notes from other people, like parents or other teachers, to try to determine what causes the behavior to occur.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I try to identify conditions that trigger the behavior (antecedents) so that they can be avoided.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I try to determine the purpose or function of the behavior and teach a more acceptable behavior or skill.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I try to reinforce desirable behavior and avoid accidentally reinforcing undesirable behavior.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
When I use positive reinforcement, I use social reinforcement such as praise and attention for appropriate behavior.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
When I use positive reinforcement, I use tangible reinforcement such as food, rewards, or free time for appropriate behavior.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I frequently measure the behavior (by counting it or timing it) to see if it is occurring more or less often when I try to improve it.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I try to improve out of classroom conditions that might affect the behavior (such as diet, home conditions, or other factors).	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I change my interactions with students to try to improve their behavior, e.g. by offering choices, by the way I speak.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I change the physical arrangements or conditions in my classroom to try to improve behavior.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I change my curriculum or teaching approach with some students to try to improve their behavior.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
When challenging behavior occurs, I ignore it.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
When challenging behavior occurs, I place the student in time out.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
When challenging behavior occurs, I take away a privilege or desirable activity.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
When challenging behavior occurs, I verbally reprimand the student.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
When challenging behavior occurs I send the student to the office.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Overall, I use a behavior intervention plan based on observational data and information acquired through interviews.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

The Effects of Challenging Behavior on You and Your Students			

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Appendix D: (Continued)

Please indicate your level of agreement with each of the following statements about the effect challenging behavior has on you or your students

	I strongly agree	I do not agree or disagree	I strongly disagree
Challenging behavior takes up a significant amount of my time	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Challenging behavior increases my level of stress	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Challenging behavior causes me to be a less effective teacher	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Challenging behavior makes me think about quitting teaching	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
A student with challenging behavior learns less because of the behavior	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other students learn less because of the behavior of their classmate	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Prevent Teach Reinforce Participation

Were you present at an overview provided to faculty at your school regarding the Prevent Teach Reinforce (PTR) research study by staff from the University of South Florida or otherwise approached to nominate a student to participate in the study during 2005 or 2006?

- Yes
 No

Did you complete paperwork to nominate a student to participate in the Prevent Teach Reinforce (PTR) research study with the University of South Florida?

- Yes
 No

Have you been a participant in the Prevent Teach Reinforce (PTR) research study with the University of South Florida?

- Yes
 No

Please choose the descriptions which best represent your participation in the Prevent Teach Reinforce (PTR) research study. (Please choose all that apply)

- Did not participate in any PTR data collection or intervention activities
 Participated in PTR data collection activities for a student during the follow-up phase
 Volunteered to participate in PTR intervention process and participated in waitlist/control group data collection activities
 Participated in PTR intervention process including team building, goal setting, and/or PTR (functional) assessment
 Participated in PTR intervention process including developing an intervention plan and/or implementing an intervention plan with coaching

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Appendix D: (Continued)

When was the last time that you were in contact with a PTR consultant regarding behavioral interventions for a student in your class? (Choose one)

- Never
- Within 0-3 months
- 4-6 months ago
- 7-9 months ago
- 10-12 months ago
- More than 1 year ago

You and Your Teaching Assignment

What is your gender?

- Male
- Female

How many years have you been teaching? (Enter the number of years including the current year)

What grade level(s) do you teach? (Check all that apply)

- K-1
- 2-3
- 4-5
- 6-8

What is the total number of students you teach?

Which best describes type of school where you teach?

- Elementary School
- Middle School
- Exceptional Center

How many years have you been teaching in this school? (Enter the number of years including the current year)

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Appendix D: (Continued)

What is your current teaching assignment? (Check one only)

- | | | |
|---|---|---|
| <input type="radio"/> Preschool or kindergarten | <input type="radio"/> Special education (pre-K or kindergarten) | <input type="radio"/> Specialty area teacher (art, music, PE) |
| <input type="radio"/> Elementary classroom | <input type="radio"/> Special education (elementary) | |
| <input type="radio"/> Middle school classroom | <input type="radio"/> Special education teacher (middle school) | |

Other (please specify) _____

If you are a special education teacher, in which of the following settings do you work? (Check all that apply)

- | | | |
|---|--|--|
| <input type="checkbox"/> Not applicable | <input type="checkbox"/> Resource classroom | <input type="checkbox"/> Itinerant teacher for different schools |
| <input checked="" type="checkbox"/> Pre-K or kindergarten | <input type="checkbox"/> Special classroom in a regular school | <input type="checkbox"/> Hospital/ homebound |
| <input type="checkbox"/> Regular classroom | <input type="checkbox"/> Special classroom in a special school | |

Other (please specify) _____

What type of state certificate or license do you have for your current teaching assignment? (Check one only)

- | | |
|--|--|
| <input type="radio"/> Regular, standard or advanced | |
| <input type="radio"/> Probationary, provisional or temporary | |
| <input type="radio"/> Emergency | |
| <input type="radio"/> Not certified | |

Are you currently teaching out of field?

- | |
|-------------------------------------|
| <input type="radio"/> Yes |
| <input checked="" type="radio"/> No |

What is your highest college degree? (Check one only)

- | |
|----------------------------------|
| <input type="radio"/> Doctoral |
| <input type="radio"/> Specialist |
| <input type="radio"/> Masters |
| <input type="radio"/> Bachelors |

In what field is your highest degree?

Thank you!!

Thank you very much for participating in this survey!!

If you have questions or would like to receive a summary of the results of this study please contact Brandi

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Appendix D: (Continued)

Tanner at btanner2@mail.usf.edu or 813-974-3461.

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About the Author

Brandi Tanner earned her Bachelor's Degree in Elementary Education and Master's Degree in Special Education from West Virginia University. After four years as a special education teacher, she returned to the university setting to pursue training in school psychology. Ms. Tanner holds a Master's Degree from Georgia State University and a Specialist's Degree from the University of South Florida both in School Psychology. She is a Nationally Certified School Psychologist. During doctoral training, Ms. Tanner has taught graduate and undergraduate level courses. She has also worked in a variety of settings including public schools, private practice, and in research. Ms. Tanner's research interests include behavioral interventions, consultation, and treatment integrity.