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Consultation with Preschool Teachers: Supporting Treatment Integrity to Improve Effectiveness

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CONSULTATION WITH PRESCHOOL TEACHERS:

SUPPORTING TREATMENT INTEGRITY TO IMPROVE EFFECTIVENESS

by

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ABSTRACT
CONSULTATION WITH PRESCHOOL TEACHERS:
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The primary purpose of this study was to determine whether preschool teachers with the help of a consultant would conduct a functional behavior assessment and implement a positive behavior support plan (PBSP) with integrity. Further, the current study investigated: would the PBSP improve student behavior, would performance feedback improve teacher treatment integrity, and would greater treatment integrity be associated with improved child outcomes? Participants included two consultants, two preschool teachers, two target students, and one control student. The target and control students were all four years old and African American; two were male and one female. A noncurrent multiple baseline design across subjects was used. Measures used were the Classroom Competence Observation Form, Treatment Integrity Observation Form designed for this study, and Social Competence Performance Checklist (Functional Assessment and Intervention System; Stoiber, 2004). Findings indicated teachers were able to implement the PBSP with low-moderate to moderate integrity. Teacher feedback was noted to have some impact to treatment integrity but the evidence was not strong. Student behavior improved during the course of implementation of the PBSP, however maturation effects can not be ruled out as related to the positive change. Teacher rating

of student behavior indicated the control student's challenging behavior significantly increased over the course of the study while both target intervention students had no significant change in challenging behavior. These results suggest the PBSP had a protective effect for worsening behavior. Implications of the research include that children with challenging behavior can benefit from PBSPs, school psychologists should conduct consultations aimed at improving preschool
students' behavior part of their regular practice ,and they should attempt to provide feedback to the teachers on treatment integrity whenever possible as it can improve teacher adherence to the PBSP.

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CHAPTER 1: INTRODUCTION

One might hypothesize that very few if any preschool teachers expect his or her students to always listen and follow directions. However, teachers should expect reasonable behavior so as to be able to teach effectively. Problem behaviors emerge as a concern faced by many preschool teachers, especially those working in low-income, urban settings (Anthony, Anthony, Morrel, & Acosta, 2005; Gilliam, 2005; Qi & Kaiser, 2003). The extent of problem behaviors in preschool classrooms is reflected in the rates of expulsions across the country at this age. Gilliam (2005) found that the national rate of expulsion is 6.6 per 1,000 preschool students, which is 3.2 times higher than the kindergarten through twelfth grade rate. The expulsion rate for preschool children is even higher for African American students (two times more likely to be expelled than European American students) and for males (4.5 times more likely than females). Additionally, studies on students enrolled in Head Start programs report higher rates of externalizing behaviors in lower socioeconomic (SES) populations than higher SES populations; the rates for lower SES ranged from 16-30% while the range for those preschools with a wider range of SES had rates of 3-6% (Qi & Kaiser, 2003). Finally, 16% of African American preschool students in Head Start were rated with clinical levels of externalizing behaviors compared to only ten percent of the standardization samples of rating scales with clinical levels (Anthony et al., 2005).

There are questions related to whether these problem behaviors are truly problems in the aforementioned minority and lower SES populations. Anthony and colleagues (2005) found that there were significant classroom effects in their study of behavior problems in urban African American preschoolers. Teachers ranged in reporting of

aggression in their classrooms from 0-60%. The authors hypothesized this may be due to either different teacher standards or an accurate representation of the classrooms, favoring the former. Unfortunately the authors did not report on the ethnicities of the teachers in this study. Rimm-Kaufman, Pianta, and Cox (2000) found European American teachers in schools with a high proportion of minority students reported that students had difficulty following directions, disorganized home environments, little preschool experience, and immaturity at much higher rates than European American teachers in schools with a lower proportion of minority students. Ethnic minority teachers, however, reported rates in those categories similarly across the schools regardless of the proportion of minority students. Addressing these potential inconsistent ideas and beliefs in teachers is one reason for providing professional development and support to teachers reporting problem behaviors in their classroom.

Another reason for professional development and support in addressing problem behaviors is that kindergarten teachers typically expect their incoming students to have developed certain social and behavioral skills. Lin, Lawrence, and Gorrel (2003) surveyed 3,305 kindergarten teachers and found that many social skills are actually a higher priority than academic skills. More specifically, the teachers in this study felt students need to be able to tell their wants and needs, not be disruptive to the class, follow directions, and take turns and share to be successful in kindergarten. Academic skills such as being able to count to 20 were rated with much lower importance than the social skills previously mentioned. Furthermore, behavioral regulation in preschools has been shown to be related to achievement in kindergarten (McClelland et al., 2007). Because prior achievement has been demonstrated to be significantly predictive of later

achievement (Howse, Lange, Farran, & Boyles, 2003) and ethnic minority kindergarten students as well as those kindergarten students with risk factors such as lower SES, have lower reading and math skills (West et al., 2000), this connection between behavior and achievement provides additional rationale for addressing problem behavior in preschool classrooms.

To improve the behavior of students in preschool classrooms, teachers need to implement effective behavior management strategies. There are many examples in the literature to support the need for further training of teachers regarding behavior management. Kindergarten teachers surveyed by Martin, Linfoot, and Stephenson (1999) who experience higher rates of misbehavior in their classroom describe having lower confidence in their ability to manage the behavior and report a need for more information. The teachers with higher rates of misbehavior in their classroom are more likely to engage in punishment strategies than positively focused strategies to manage the behavior. Elementary school teachers observed by Clunies-Ross, Little, and Kienhuis (2008) would respond much more negatively to social behaviors (as opposed to academic behaviors) of the students than positively to appropriate social behaviors. More specifically, these researchers found that teachers engaged in negative reactions to social behaviors 35% of the time compared to positive reactions only 12% of the time (e.g., praising good behavior). Preschool teachers observed by Qi, Kaiser, and Milan (2006) praised boys with higher language abilities at a much higher rate than boys with lower language abilities during teacher directed activities. Additionally, although the boys with lower language abilities had the highest rates of disruptive behavior they were criticized at a much higher rate. Finally, elementary school teachers observed by Jack and

colleagues (1996) interacting with a student in their class with high rates of disruptive behaviors were engaged in negative interactions at a much higher rate than positive interactions. The teacher-student dyads were engaged in negative interactions over 20% of the time compared to positive interactions only 5% of the time. Thus, research suggests preschool teachers need additional support in implementing behavior management strategies in the classroom.

There are two questions that arise regarding this task of training teachers in behavior management strategies. First, what is the most effective and efficient method to educate preschool teachers working in an urban setting in behavior management strategies? There are numerous studies that have been conducted on effective teacher training (Rose & Church, 1998; Shernoff & Kratochwill, 2007; Sterling-Turner, Watson, & Moore, 2002). Consultation has been demonstrated to be an effective method of training teachers (Lepage, Kratochwill, & Elliot, 2004; Perry, Dunne, McFadden, & Campbell, 2008). Second, what interventions and strategies for improving behavior in a preschool classroom produce the best results for children with challenging behavior? Many of the studies on consultation cannot answer this question as the intervention details are not specified in the study (e.g., large group studies such as Lepage et al. (2004) and Williford and Shelton (2008)). Other studies cannot adequately answer this question as details on treatment integrity were not provided (Hundert, 2007; Ray 2007). Treatment integrity is the degree to which the treatment or intervention is adhered to in its implementation. Treatment integrity has been shown to be related to the effectiveness of interventions (Wilder, Atwell, & Wine, 2006). However, in the research on consultation effectiveness, the relation between treatment integrity and effectiveness is

not always clear (DiGennaro, Martens, & Kleinmann, 2007; DiGennaro, Martens, & McIntyre, 2005).

The purpose of the current study is to more specifically investigate the effects of teacher consultation in function-linked assessment incorporating treatment integrity feedback methods on classroom environment and child outcomes. Research on the best ways to improve treatment integrity will be reviewed. Additionally, because teacher consultation alone is not considered an evidence-based practice, the present study will incorporate behavior management approaches that have been shown by prior researchers as evidence-based strategies (Gettinger & Stoiber, 2006; Stoiber, 2004). A literature review of specific strategies and methods of behavior management will be used to select behavioral intervention strategies shown to be effective with preschool age children.

The main goal of the current study is to examine which intervention strategies teachers implement successfully and with good integrity when provided with consultation as a form of teacher training. More specifically, preschool teachers who serve students ages three to four years were provided with consultation that emphasizes functional behavior assessment (FBA) as a method to determine interventions. Visual feedback on the implementation and effectiveness of the interventions based on observations in the classroom was given periodically to the teachers. This method has shown to be highly effective to increase treatment integrity (Hagermoser Sanetti, Luiselli, and Handler, 2007; Noell et al., 2005; Reinke, Lewis-Palmer, & Merrell, 2008). The hypothesis is that increased treatment integrity will lead to increased effectiveness of the interventions. The study contributes to the literature in three ways: (a) replicate the effective use of FBA with preschool children with high incidence problem behaviors in an urban

environment, (b) demonstrate performance feedback on interventions with preschool teachers, and (c) provide a clearer, descriptive understanding of the relation between treatment integrity and intervention effectiveness.

CHAPTER 2: LITERATURE REVIEW

This literature review will address four main areas. First, types of teacher training and effectiveness of the types of training will be reviewed. Second, the theory and effectiveness of consultation will be presented. Third, the research on treatment integrity in consultation will be reviewed. Finally, effectiveness of behavioral intervention strategies in preschool classrooms will be presented.

Teacher Training

The provision of professional development that emphasizes teachers' knowledge and use of behavioral intervention strategies is an important initiative for addressing problem behaviors in classrooms and teachers. Poulou and Norwich's (2000) study demonstrated that many teachers already have a good understanding of the environmental causes of problem behaviors. The nearly 400 elementary teachers surveyed by Poulou and Norwich attributed problem behavior to school and teacher factors, such as the teacher using an inappropriate approach towards the child, the teacher's personality, a lack of services in the school, or irrelevant curricula more often than to child or family factors. Overall, these teachers described a desire to help students and had feelings of responsibility to help. However, teachers in the Poulou and Norwich study also demonstrated the importance of supporting teachers as they also report feeling irritated and frustrated at students with behavioral difficulties.

To change the ways teachers believe, plan for, and react to problem behaviors, some type of additional teaching or training seems needed. Rose and Church (1998) investigated what types of training have proven to be effective in the literature. They included research articles that defined and observed a teaching skill and had operational

descriptions of the training methods used. Forty-nine articles were found and they included both practicing (38 articles) and preservice teachers (11 articles). Most of the training methods did improve or increase the teaching skill. However, some of the methods were more successful than others. The authors found that minicourse or protocol teaching (e.g., read descriptions of a skill, identify skill in transcripts and/or video, videotape using the skill, and reviewing with a peer) had weak and inconsistent effects as did didactic training (e.g., workshops or manuals.). Three studies looked at didactic training that used only written materials and no changes in the teaching skill occurred. The studies that used modeling or cues also had inconsistent effects. The studies that used role-play or practice with feedback all produced change in the teaching skill. The authors suggested that practice with feedback may be a necessary component to teacher training.

Slider, Noell, and Williams (2006) investigated a video modeling training method to improve teachers' instruction-giving, use of praise, and time out procedures. The videotapes modeled the steps for each of these procedures and demonstrated role plays. The three teachers were observed to have varying performance in the three areas during the baseline before watching the videos; rates of correct performance ranged from 8% to 75% (most over 50%). After the training, the rates of correct performance ranged from 83% to 97%; performance during the follow up several days later ranged from 88% to 100%.

Shernoff and Kratochwill (2007) took the method of video training and added additional consultation. Eight teachers participated in watching videotapes and reading manuals based on the Incredible Years Classroom Management Program. There were

seven videotapes that the teachers watched over the course of five weeks. The program focused on building positive relationships and using praise effectively with students, using incentives to motivate students, preventing/decreasing behavior problems, and family outreach. Four of the teachers additionally had three telephone consultation sessions that followed the three phases of the behavioral consultation model (BC; discussed later in the review) and focused on one or two students in the teacher's class exhibiting behavioral problems. For all classrooms, the students with initially elevated problem behaviors significantly improved. However, the mean effect size for the consultation group was significantly larger than the video only group, 2.86 compared to 1.29. In addition, the consultation group demonstrated a greater increase in the use of proactive strategies in the classroom.

Sterling-Turner and colleagues (2002) compared didactic training in the form of consultation to additional rehearsal and feedback. Four teachers completed consultations focused on a student in their class (ages 6, 13, 16, and 6). The teachers had a variety of concerns such as inappropriate vocalizations, not completing independent work, leaving the area, and noncompliance. Phases included in the training were consultation, didactic training, and rehearsal/feedback training. The researchers (consultants) completed consultations to first identify and analyze the problem. Next, the consultant trained the teacher on the intervention plan didactically through verbal information. Finally, the consultant directly trained the teacher in the classroom using modeling, role-playing, and feedback. Three of the four teachers had low treatment integrity on the intervention plan after the didactic training (7%, 11%, and 47%) and showed an immediate increase after direct training (average of 94%, 81%, and 59%). The fourth teacher had good treatment

integrity (70%) after the didactic training and increased to 97% after direct training. All students increased in their appropriate behaviors. Two of the students had better results when the teachers had better treatment integrity while one did not. Since one teacher had good treatment integrity after the first phase, the analysis of treatment integrity and effectiveness was not as clear; the student had low problem behaviors after didactic training. These studies suggest that more effective teacher instruction requires more than just didactic training. Additional practice and feedback is an important element.

Gettinger and Stoiber (2006) used consultation with school problem solving teams to teach them to use a specific process to address teacher concerns regarding problem behavior in their classroom. The researchers taught the process of conducting a functional behavior assessment (FBA), establishing goals and benchmarks, developing a behavior support plan (BSP), implementing the plan and monitoring the progress, and evaluating the outcomes. The teams attended several hours of professional development that involved didactic training, modeling, and feedback. The consultants assisted the team in going through the process with 25 students (each in a different classroom) and then the teams went through the process with a second student in 22 of the same classrooms. The classrooms that participated were pre-kindergarten through first grade. After the process had been completed, target students in the experimental classrooms demonstrated significantly more positive behaviors and fewer negative behaviors than the control students. In addition, at the end of the intervention phase, the experimental target students who had been identified with challenging behaviors demonstrated behaviors similar to typically behaving students in the classrooms. The teams were able to complete the process on their own; however, Gettinger and Stoiber reported that the

integrity to the function-linked to interventions process with the help of the consultants was 76% whereas the integrity to the process without the consultants was 60%. There was a moderately strong association between integrity to the process and improvement in the students. Specific information on the interventions that were done with the individual students was not included.

Stoiber and Gettinger (2011) trained another group of teachers/teams to complete FBA and implement BSP using the same process as described above. The teams went through the process and implemented a BSP with a target child with the help of consultants and then did the same process with another child (generalization) on their own. Implementation of the process for target children was 76% (included help from the consultants). The teams implemented the process on their own with 60% treatment integrity. The target and generalization students both significantly improved in behaviors over the control and did not differ significantly between their groups on improvement.

Consultation

In both Shernoff and Kratochwill's (2007) and Sterling and colleagues' (2002) studies, individual consultation was used with the teachers to improve an aspect of behavior management. It is clear that individual consultation can allow for individualized training that other forms of training like an inservice or a video cannot obtain. Consultation is usually only one aspect of a school psychologist's job, but there does appear to be growing demand. Gilman and Gabriel (2004) surveyed 1,710 school psychologists, teachers, and administrators to explore the desired for levels of involvement of school psychologists in different job functions including consultation. Sixty percent of the administrators and teachers wanted school psychologists to be more

involved in consultation. In addition, forty percent of school psychologists wanted to more involved in consultation. Stoiber and Vanderwood (2008) surveyed 86 school psychologists in urban schools and found that although they reported spending more time and having more training in traditional assessment, consultation was rated as the most valued practice. Additionally, as the field moves towards Response to Intervention (RtI), consultation will play an even larger role (Barnett, VanDerHeyden, & Witt, 2007). Regular education teachers will need support and training in evidence based interventions for students who need the individualized attention of the third tier of intervention. If school psychologists are to expand their involvement with consultation, it would be prudent to learn more about the theory and effectiveness of it.

Theoretical models of consultation. Consultation is a broad term that does not always mean the same thing. Two well known models are mental health consultation (MHC) and behavioral consultation (BC). Caplan (1970) wrote of mental health professionals spreading their knowledge to other professionals through MHC to prevent greater problems in a client. A main point of difference he discussed from other definitions of consultation was that the relationship between the consultant and the consultee is nonhierarchical, there is no power differential. Additionally, the goal of consultation is to not only address the concerns related to the specific client or program, but also to increase the consultee's ability to deal with future similar situations on their own. Caplan described four types of consultation: client-centered case consultation, consultee-centered case consultation, program-centered administrative consultation, and consultee-centered administrative consultation. The administrative consultations are focused on specific programs and policies while case consultations are focused on

specific clients and cases. Client-centered is focused specifically on developing a plan for that client and consultee-centered is focused on the consultee's knowledge and skills.

BC as described by Bergan and Kratochwill (as cited in Brown, Pryzwansky, & Schulte, 2006) is based upon operant learning theory and involves much more control of the process by the consultant. The role of the consultant is known by the consultee and it is to provide psychological information and teach behavioral principles. They both work together through the phases of problem identification, analysis, and treatment evaluation phases, which are completed through structured interviews.

Collaboration. Within the models of consultation, collaboration is viewed differently and also defined differently. Schulte and Osborne (2003) reviewed six definitions of collaboration found in the consultation literature. They referred to the types of collaboration as: equal but different, peer facilitator, unique service delivery, consultant-structured consultee participation, shared assent, and equal value/equal power. In the equal but different model, the consultant is responsible for the process of consultation and does not share responsibility with the consultee for the decision making. The consultant does not directly or overtly try to change the consultee's behaviors or beliefs. Caplan's model of consultation is most like peer facilitator which means the consultant is mainly there to provide support and encouragement. The consultant indirectly influences the consultee using role modeling and questioning. Caplan, however, did not call this collaboration. Caplan's definition of collaboration is more in terms of unique service delivery, which Schulte and Osborne say is seen by many as not the same as consultation because the consultant is directly involved in plan implementation. The consultant has joint responsibility with the consultee over the

outcomes of the consultation and thus may need to override the consultee in decision making because of this responsibility. Behavioral consultation is collaborative in the sense of the consultant-structured consultee participation model. Although there is control by the consultant, input is sought from the consultee throughout the process. In the shared assent model, the consultant is seen to have special knowledge that the consultee does not have and the involvement of the consultee in the plan development is not emphasized. Finally, in the equal value/equal power model, there is shared responsibility between the consultant and consultee in the decision making and outcomes.

Kennedy, Frederickson, and Monsen (2008) conducted a qualitative study with educational psychologists (EP) conducting consultation to examine their framework and definition of consultation and how it compared to their practice. Ten EPs sent in audiotapes and questionnaires from 17 consultations. The most common theoretical models and definitions that the EPs said they followed were solution-focused, problem-solving/analysis, and systemic focus. Based on the audiotapes that were sent, all touched on problem identification (what and assets/strengths of the client). All but one EP engaged in problem analysis (influencing factors) and plan implementation (actions). Those that said they used a systemic focus did indeed question or comment during the problem analysis on systemic factors (home, school, community). Most of the EPs that said they used a solution-focused model that focused on the strengths and assets of the consultee and all focused on the strengths and assets of the client.

Review of Consultation Effectiveness

Studies such as Gilliam (2005) demonstrate the general effectiveness of consultation. Gilliam (2005) found that preschools with on-site access to a consultant

had expulsion rates of 5.6 per 1,000 students compared to 10.8 per 1,000 for sites with no access. However, more specific information regarding the method of consultation and the strategies used in the classrooms to decrease problem behaviors needs to be investigated. The electronic databases Academic Search Elite, ERIC, PsycINFO, and Urban Studies Abstracts were searched using "consultation," "preschool," "behavior," and "early childhood" as key words to find research specific to preschool teachers or including preschool teachers engaged in consultation in relation to problem behavior. Many articles were not applicable such as; parent only consultation, medical problems, and other specific problems (e.g., stuttering). Additionally, reference sections of applicable articles were reviewed for more studies.

General effectiveness studies. Both large group design and small single case design studies support the use of consultation. The effects of MHC on expulsion rates and problem behaviors were investigated by Perry, Dunne, McFadden, and Campbell (2008). Researchers completed consultations with teachers of 192 children ranging from ten months to seven years of age (mean 4.4 years). Seventy-eight percent of the children were male and 77% European American. The process involved the consultant observing the child between five and ten times for one to two hours, during which the consultant would suggest or model strategies to the teacher. Following this phase, the consultant presented and discussed a report, which included behavioral strategies to address the issues with the teacher and parents. The consultant continued to follow the child for approximately one month to make adjustments to the intervention strategies as needed. Of 150 children with follow-up data, 9% were dismissed from their child care placement. Fifty-one students had pre and post data available on problem behaviors; 84% of these

students had a significant decrease in their ratings. Limitations of this study were the low number of student with complete data and neither the specific strategies implemented in the classrooms were investigated nor the integrity of the consultation process. Further, the amount of collaboration between consultant and consultee as described in the article appears to be minimal.

Another group design study was completed by Alkon, Ramler, and MacLennan (2003) on MHC. Twenty-three urban child care centers participated in a two year implementation study of MHC. One hundred teachers and 23 directors completed surveys regarding the types and frequency of activities and their opinion on mental health consultation. The teachers were majority female and from diverse backgrounds (39% Asian, 24% African American, 19% European American, 12% Latino, and 6% other). Demographic information of the consultants was not provided. The most common consultant activities were observing children, consulting with the director and individual teachers, meeting with families, and participating in staff meetings. Teachers felt they improved on their understanding of children's behavior and social/emotional development and also thought they could work more effectively with parents as a result of these activities. The frequency of MHC was associated with lower staff turnover and the longer MHC was in place, the higher the child care center quality was.

Lepage, Kratochwill, and Elliot (2004) studied BC with preschool teachers. Parents were involved in some of the cases in collecting data and implementing interventions (conjoint consultation). The ethnicities of the consultants and consultees were not reported. Ethnicity was reported for only 17 of the 39 participants: seven European American, six African American, three biracial, and one Hmong. The

consultants used standardized interviews for each phase and also had training in behavioral concepts applied to children. The mean effect size for the ten conjoint consultation cases was .24 with a median of .35 (based on consultant observations of behavior). The consultation cases with just the teacher had a mean effect size of .62. Based on previous research, the authors were surprised that the teacher-only cases were higher than the conjoint cases. The authors hypothesized that the difference between the teacher-only and conjoint cases were due to the fact the study was not randomized. The teachers completed goal attainment scaling forms each week and 57% of the cases were viewed by the teacher as having improved behavior. The correlation between the consultant observations and the teacher goal attainment scaling was .48. Interventions for each case were given, but specifics on the implementation of those interventions were not reported such as how well the teachers followed the intervention plans in the classroom, i.e., the treatment integrity. If more information was given on how the interventions were implemented, that may have also given more insight into why the conjoint consultations had a lower ES than the teacher-only consultations.

To get more detailed information about the implementation of interventions through consultation and their effectiveness, the single case studies tend to be much more detailed. Duda and colleagues (2004) presented two case studies of implementing positive behavior support through consultation. Both students were three year old girls and experiencing difficulties in social interactions and disrupting the class. The consultations for both students included parents, teachers, the director and assistant director of the preschool, and the consultants. The procedure of consultation began with a team meeting where they went over the process, exchanged information, and developed

goals. Next the consultants conducted functional assessments on the students. The team met to go over the assessment and develop hypotheses and intervention strategies. Observers saw that teachers implemented the different strategies with varying levels of treatment integrity; the strategies were implemented correctly between 57-100% of the time. Both girls experienced higher rates of engagement and lower rates of problem behaviors during the two intervention phases; however, the amount of change from baseline was only moderate.

Hundert (2007) conducted a single-case study with four preschool teachers to help them implement the individual education plans for eight children with disabilities and increase their level of inclusion with the classroom activities. The students had a variety of disabilities such as developmental delay, communication disorder, cerebral palsy, and autism. Compared to other students in the classes, these participants had significantly less interactions with their peers and less on-task behaviors. Teachers were given a written manual to guide them in accommodating the children with disabilities and then the teachers developed a specific plan. Consultants provided feedback on the plan and two weeks into implementation observed and provided additional feedback. All four teachers increased the amount of time they were focused on inclusive groups of children (average of 3.3% of the time during baseline and average of 21.7% during intervention) and maintained this at the three month follow up (average of 28%). Three of the eight children had slight increases in their interactive play and all had slight to moderate increases for on-task behavior. At the three month follow up, the average time in interactive play for the participants was 33.8% compared to 41.8% for the other students in the class and for on-task behavior was 72% for the participants and 91.8% for other

students. There was no information provided regarding the implementation integrity of the interventions.

Comparison studies. Although general effectiveness studies are useful in guiding practice, stronger evidence is found in studies with a comparison group. Williford and Shelton (2008) compared 59 preschool students whose teachers participated in consultation to 37 students whose caregivers were provided with resources for mental health services. The students participating were majority African American (86% intervention group and 92% comparison group), their mean age was 4.5, majority male (72% intervention and 68% comparison), and largely from single parent homes. The teachers participated in weekly consultations for four months which were focused on effective classroom management, effective discipline, positive attention, and teacher-child relationships. Parents were encouraged to participate in parent training (35% attended at least 50% of the sessions). For the intervention group, disruptive behavior remained stable while the comparison group became more disruptive based on teacher rating. However, a larger percentage of children in the intervention group had significant improvement in their behavior than the comparison group. Teachers in the intervention group also reported greater use of effective strategies than the comparison teachers. Generally, the parents in the two groups did not differ in their ratings of their child's behavior, but those that did participate in the parent training had decreased verbosity and increased knowledge of behaviorally based strategies. No direct observations of the children were done and no discussion of intervention integrity was present.

Another study set up the control group by providing a teacher aide to some classes while others had a consultant present. Raver, Jones, Li-Grining, Metzger, Champion, and

Sardin (2008) conducted MHC with preschool teachers in their classrooms and provided staff support to maintain adult-child ratio in the control classrooms. The consultation involved five 6 hour group trainings of a new curriculum and then the consultant spent an average of 4.5 hours in each classroom weekly from September to March. Teacher aides spent an average of 5.18 hours in the control classrooms during that same period. A total of 90 teachers and 509 children participated. When controlling for the level of positive environment in the fall, the treatment group had significantly higher levels of positive environment in the spring than the control (ES = .89). The levels of negative climate were significantly lower (ES = .64). In the control classrooms, classroom quality deteriorated from the fall to the spring. Individual child behaviors were not looked at in this study.

A more time intensive play therapy was compared to consultation by Ray (2007). Three schools had 93 students from age four to eleven participate in either play therapy, consultation, or both. Play therapy consisted of 16, thirty minute sessions over eight weeks and consultation was eight, 10 minute sessions over that same time period. The play therapists and consultants were not the same people thus the consultants did not have direct contact with the students and the play therapists did not discuss sessions with the teachers. There was a main effect of time for overall teacher stress but no group effect; all three conditions had significant decline for stress with an effect size (ES) of .18. The domains within the teacher stress measure all decreased over time regardless of condition. Teachers had less stress related to child behaviors associated with Attention Deficit Hyperactivity Disorder (ES = .21), student temperament and behaviors (ES = .17), and teacher self-perception and expectation regarding teaching (ES = .13). There

was no discussion regarding the strategies that were implemented in the classroom as a result of consultation.

Farmer-Dougan, Viechtbauer, and French (1999) compared general consultation to consultation that was directly related to a social skills program presented to the teachers. Two teachers participated in the study; for one, the consultation involved modeling and supporting the social skills curriculum. For the other, consultation sessions were focused on discussing individual children and interventions that could be done with them. Consultations occurred approximately two times a week from mid-October to mid-April. Students were chosen at random to be observed. The students in the social skills consultation class increased their social skills significantly and the general consultation class students did not. Neither class had significant change in problem behavior; however, problem behaviors were initially low.

Implementation factors of consultation. Researchers have also looked closer at the elements of consultation to see if there are aspects of the process that can be improved to increase effectiveness. Busse, Kratochwill, and Elliot (1999) examined the verbal interactions between the consultant and the consultee that occurred during behavioral consultation. Thirty-seven consultations were conducted by 25 consultants with 26 teachers who were audio taped and the conversations coded for source, content, process, and control. The ages of the children in this study ranged from age three to thirteen years; eight of the teachers were in Head Start classrooms. The overall effect size for the effectiveness of the consultations was a mean of .96 and the consultees rated the effectiveness as a mean of 1.0, which meant teachers generally believed the behavioral goals were partially met. Over the three standardized interviews, the consultants'

statements accounted for 37-45% of the verbalizations. Although they accounted for less of the statements, the consultants were making more controlling statements than the consultees. None of the control types of verbal interactions significantly predicted the outcomes of the intervention. Greater amounts of behavior specification emitters (providing information) and plan specification elicitors (requesting information) within the consultation predicted negative outcomes. The authors hypothesize that this may be a function of more difficult cases requiring more of these types of statements or perhaps greater outcomes occur when the consultant is more efficient.

A different aspect of verbal interactions within consultation were studied by Cautilli, Tillman, Axelrod, Dziewolska, and Hineland (2006). These researchers set up an analog situation with four school psychology students and two teachers. The teachers were confederates of the study and attended between 12 and 14 consultations with the graduate students. They met weekly for five to twenty minutes and discussed a fictional student. The teacher alternated between compliant and resistant verbal behavior. The consultants' therapeutic behavior (that is, requests or suggestions to solve a problem) during each session and their perceptions of the teacher and themselves was assessed. For all the participants, their therapeutic behavior was significantly lower in the resistance phases. As an example, for the first participant, the rate of therapeutic behavior during the first baseline (compliance) was 26.6, first resistance phase 2.33, second baseline 29.75, and second resistance phase 1.66. Overall the participant's perceptions of the teacher and themselves were lower during the resistance phases. Additionally, the first resistance phase appeared to affect the subsequent phases as well. Although these were fictional situations and no interventions were actually implemented

by the teachers, consultants should be cognizant of how teacher behavior may impact their own behavior.

Green, Everhart, Gordon, and Gettman (2006) conducted a survey study to determine whether characteristics or activities of consultations and consultation relationships were related to perceived effectiveness. Teachers, assistant teachers, family advocates, the program director, and consultants from 74 Head Start centers completed surveys for a total of 655 surveys. The sample consisted of 51% European American, 27% African American, 11% Latina, and 8% other. The consultants were 74% European American, 6% African American, 9% Latina, and 11% other. The entire sample was 96% female, and the consultant participants were 72% female. The only characteristic of the consultants found to be significantly related to perceived effectiveness was whether the consultant was in private practice. Other characteristics such as level of training, ethnicity, and amount of time with Head Start were not related to perceived effectiveness. The more often the consultants engaged in individual or program level activities, such as assessment, intervention, and training, the more effective they were perceived to be by staff. Also, the higher the quality of relationship, the higher perceived effectiveness. However, when all these elements were put together, the authors determined that the frequency of activities was mediated by the quality of relationships.

Although practitioners are unable to change their race, ethnicity, or cultural background, the cultural backgrounds of the consultant, consultee, and clients are important to consider. Ingraham (2000) discussed the possible issues, constructs, and processes that occur within multicultural consultation. She provides a framework for addressing the different perspectives that can arise when people involved in the

consultation are from different backgrounds. Unfortunately, as she points out, empirical research on multicultural consultation is limited. Two analog studies completed by Naumman, Gutkin, and Sandoval (1996) and Rogers (1998) were completed to see if race affects ratings of competence, multicultural sensitivity, and intervention acceptability. Both involved undergraduate students in an education program who watched or listened to consultations and completed different rating forms. The first study looked at consultant and client (child) race and the second looked at consultant, consultee, and participant race.

Naumman and colleagues (1996) had 71 undergraduate students listen to audiotapes and were given background information and pictures of the consultee, consultant, and client. The majority female (67%) and European American (95%) participants rated the intervention acceptability and consultant credibility. All tapes were the same except for consultant or child race combinations (both European American, both African American, consultant European American/student African American, and vice versa). The case involved a boy who did not talk enough in class. There were no main effects for consultant or child race and no interaction effects for either acceptability or credibility. The authors point out that the third party aspect of the study and the lack of difference in the tapes (e.g., dress and language) may have contributed to the non significant results and does not mean race and cultural background does not affect intervention acceptability and consultant credibility.

Rogers (1998) had 165 undergraduate students watch videotaped consultations that involved consultants and consultees of different racial combinations (European American and African American). Additionally the participant race was also taken into

consideration. The participants were all female, 47% African American and 53% European American. The consultants answered/responded with either race sensitive or race blind verbal behaviors. Consultants were seen as more multiculturally sensitive and competent by participants regardless of race if they were using race sensitive verbal behaviors. However, there were differences between African American and European American participants. The European American participants rated the consultants' competence and multicultural sensitivity as greater than African American participants in the race sensitive condition. In the race blind condition the African American participants rated the consultants' multicultural sensitivity as higher than European American participants. Again, the third party and analog structure of this study makes it difficult to know how this information affects implementation of interventions with clients. Additionally, we do not know the experiences and contexts of the participants to fully understand why they rated the videos as they did.

Conclusion of consultation effectiveness. Generally speaking, consultation has been proven to be an effective method of improving problem behaviors in preschool classrooms. Whether it is a MCH model or a BC model, significant decreases in problem behaviors have been seen (Lepage et al., 2004; Perry et al., 2008). Single case design studies provide further detailed information about the effectiveness of consultation (Duda et al., 2004; Hundert 2007). Consultation has also been shown to be more effective than a variety of comparison groups such as providing information on mental health resources to the caregiver or providing staff support in the form of an aide (Raver et al., 2008; Williford & Shelton, 2008). When compared to play therapy, there was no difference in effectiveness but consultation took significantly less time (Ray, 2007). Factors such as

controlling statements have not been shown to be related to effectiveness while the overall relationship between the consultant and consultee does affect the perceived effectiveness of consultation (Busse et al., 1999; Green et al., 2006). Researchers conducting analog studies regarding resistance and cultural background and how these affect consultation outcomes suggest these are areas to be aware of and study further (Cautilli et al., 2006; Naumman et al., 1996; Rogers, 1998). While these studies give us a good overview of the effectiveness of consultation, many failed to explore one important aspect of consultation, treatment integrity.

Review of Treatment Integrity in Consultation

An important aspect regarding consultation is the treatment integrity, that is, the degree to which the teacher implements the interventions determined in the consultation process as they are intended. The effectiveness of consultation is hinged upon what is actually occurring in the classroom. Only one of the studies presented here so far has observed the teacher to do an integrity or fidelity check (Duda et al., 2004), the majority do not. Gresham, Ganle, and Noell (1993) found that only 16% of studies published in the *Journal of Applied Behavior Analysis* between the years 1980 and 1990 measured and reported levels of treatment integrity. This was based on 158 studies that were experimental studies on the effect of a treatment on behavior with participants under the age of 19. The rates of treatment integrity ranged from 54% to 100% with a mean of 94%. McIntyre, Gresham, DiGennaro, and Reed (2007) conducted the same review of studies in the *Journal of Applied Behavior Analysis* for the years 1991 to 2005. Of the 142 articles that fit the criteria, 30% provided treatment integrity data. The mean rate of

treatment integrity was 93%. Although the rate of reporting increased from the previous review, the reporting did not differ significantly by year in the second review.

Because treatment integrity is rarely reported, readers may not think it is important. Cochrane and Laux (2008) surveyed members of the National Association of School Psychologists (NASP) to uncover their thoughts about treatment integrity and how they measure it. Approximately 800 school psychologists returned the surveys. Eleven percent said they always measure treatment integrity, while 34% said they never measure it. Only 2% said their school-based problem solving teams measured treatment integrity. To measure treatment integrity, interviewing the teacher was the method used the most (64.4%), followed by teacher self-report (45%), direct observation (26%), and observer post ratings (19%). A little over half strongly agreed that treatment integrity is a key factor to consider when evaluating the success of an intervention and 42% agreed. In an open ended question, the members responded that lack of time, lack of administrative support, and lack of understanding by staff were common reasons that treatment integrity is not measured.

The one article in the previous section on the general effectiveness of consultation that presented treatment integrity information (Duda et al., 2004) found poor integrity to the intervention components. During the opening circle time in the classroom, the teacher correctly implemented the structural components (e.g., seating arrangement and schedule posted) of the intervention during the first phase approximately 80% of the time and approximately 50% of the time during the second phase. The interaction components during this circle time were implemented much less consistently. During the group time later in the morning, there was poor implementation for both the structural and interaction

components. For this intervention, the effects were moderate to large for the first participant and moderate for the second. The question that arises is could the effects have been large for both the participants if the intervention had been implemented with high integrity. When deciding if this intervention is effective, the answer has to be qualified by stating it wasn't properly implemented.

Wilder, Atwell, and Wine (2006) investigated whether different rates of integrity in the implementation of an intervention would affect the outcomes of the intervention. Two four year old students and their teachers participated. The teachers were given a three step process they were to follow when the student was not being compliant. This process was completed in three different contexts with the students: asking for a snack item, asking them to put away toys, and asking them to come to them on the playground. The teachers were to implement the process either 100% of the time, 50% of the time, or not at all (0%). During the baseline, both students had low rates of compliance (6% of the time). When the intervention was implemented with 100% integrity, their compliance was 91% and 79%. When it was implemented with 50% integrity, their compliance was 54% and 41%. When the integrity was 0% their compliance did not change from baseline.

With information like this, it is clear that increasing treatment integrity is crucial to having interventions be as successful as possible. A second search on the electronic databases Academic Search Elite, ERIC, PsycINFO, and Urban Studies Abstracts using the key words "consultation and treatment integrity" and "consultation and treatment fidelity" was conducted. Additionally, reference sections of applicable articles were reviewed for more studies. Unfortunately, the research on this topic has not been done on

the population of interest for this literature review (preschool teachers). The following articles are primarily concerning elementary age teachers.

Collaboration. Some research has been done to determine if the level of collaboration between the teacher and consultant will impact the level of treatment integrity. Wickstrom, Jones, LaFleur, and Witt (1998) compared BC that followed a prescriptive model with a more collaborative model. The prescriptive consultants did not give any prompts to the teacher for input and provided fewer than five supportive statements. The collaborative consultants asked for teacher input on the majority of the questions in the problem identification and problem analysis interviews and provided at least five supportive statements. Treatment integrity was monitored in three ways: teacher report, presence of stimulus products, and observation. Based on teacher report, treatment integrity was an average of 54% for all the teachers. Based on the stimulus product, integrity was 62%. Observations, however, confirmed only an average of 4% integrity. There was no significant difference between the types of consultation. Despite these low levels of integrity, student misbehavior did decrease from 21% to 16%.

Kelleher, Riley-Tillman, and Power (2008) did find a difference in the level of integrity based on levels of collaboration. They conducted consultations with seven community partner tutors to improve their effectiveness at tutoring kindergarten students with reading difficulties. The consultations involved an expert-driven phase where the consultee was told what to do in the tutoring sessions. They also involved a feedback phase after the expert-driven phase where the consultant provided praise and/or corrective feedback to the consultee. The final phase was a partnership-based model of consultation where the consultee helped determine the goals for the student. For two of

the consultees that began with the expert phase, their integrity increased from expert to partnership phases (around 50% integrity in expert and 90% in partnership). Consultee 1 had an effect size (ES) of 1.05 from expert to the feedback phase and .68 from the feedback to the partnership. Consultee 2 initially decreased from expert to feedback (ES = -2.48) but greatly improved from feedback to partnership (ES = 27.28). One consultee only participated in the expert phase and had a decreasing trend in integrity with an average of 59%. Three consultees began with the partnership phase and had a decreasing trend of integrity following this phase. They ranged from 79% to 94% integrity in the partnership phase, 57% to 67% in expert, and 0% to 43% in feedback phase (one consultee refused to tutor during the feedback phase). Effect sizes ranged from medium to large. One consultee only participated in the partnership phase and had stable integrity with a mean of 86%. The effectiveness of the intervention was not measured in this study.

Feedback. The feedback phase of the previous study had inconsistent results. But providing teachers feedback can be done in a variety of ways such as verbal feedback, visual feedback, feedback on student performance, or feedback on teacher performance and some may be better than others at increasing integrity. Noell and colleagues (2005) looked at how performance feedback on permanent products produced by following the intervention would increase fidelity compared to weekly follow-up session and a commitment emphasis. Forty-five teachers, grades kindergarten through fifth, participated in consultations regarding a student in their class. The students presented with a variety of behavior or academic concerns. Researchers assessed treatment integrity from permanent products (e.g., tutoring work sheets, student self-

monitoring records, teacher monitoring records). Teachers were randomly assigned to the three conditions. The first condition was a weekly follow-up session, which was an abbreviated plan evaluation interview. The permanent products were not reviewed and no treatment integrity information was discussed. The second condition was the weekly follow-up session, plus a commitment emphasis. The consultant would discuss points such as implementation representing a commitment to the student, how there would be loss of credibility if they didn't implement, and the importance of implementation for evaluating effectiveness. The final condition was performance feedback which involved the consultant meeting with the teacher to review the permanent products, and to review the graph of student behavior, and to review the graph of intervention implementation. There were significant main effects for both time and condition. The performance feedback condition had significantly better implementation than the other two and for all conditions treatment integrity was higher the first week than the second and third. Student behavior change was significantly better in the performance feedback than the other two conditions. The correlation between integrity and student behavior was moderate (.44).

The previous study included both feedback on teacher performance and student performance. DiGennaro, Martens, and Kleinmann (2007) compared these two types of feedback to see which affected integrity better. Four special education teacher and student dyads participated in consultation and received different types of performance feedback. The primary concerns of the teachers were the off-task behavior, work refusal, and disruptive verbalizations of the students. The students were ages 9, 13, 14, and 21 years. Teachers initially received training in the classroom on the strategies, and then

received either feedback on student performance or their performance. Treatment integrity was measured during daily 15 minute observations. During training, the teachers all reached 100% integrity. Once the modeling, coaching, and immediate corrective feedback of training was stopped, all teachers dropped significantly in their implementation; three of the four had little to no use of the strategies. Two of the teachers began receiving student performance feedback (daily written feedback with line graphs of student behavior) and didn't show much improvement in implementation. When teacher performance feedback began (daily written feedback with line graphs of teacher and student performance), they improved significantly. The other two teachers had teacher performance feedback first and reached 74% and 97% integrity within five sessions. When feedback was changed to only student performance, both teachers dropped in their implementation (67% and 63%). Teacher integrity and effectiveness of the intervention was significantly correlated for three of the four teachers (-.45, -.66, -.78, and .02).

The previous two studies provided written feedback to the teachers (the first study also included verbal). Hagermoser Sanetti and colleagues (2007) wanted to find out how verbal performance feedback alone worked to increase implementation integrity compared to and verbal performance with visual feedback added. A second grade teacher was provided performance feedback on her implementation of a behavior support plan for a student. The behavior support plan had been created and first implemented when the student was in first grade. The plan consisted of 27 components and was still considered applicable in his second grade classroom. The components addressed noncompliance, inappropriate verbalizations, tantrums, and leaving activities without permission. A one

hour observation was done every six days to measure treatment integrity. The first day after training the teacher had 100% integrity but continued to decrease every day, averaging 72% during baseline (phase 1). With only verbal performance feedback (phase 2), integrity did not improve. When both verbal and graphic feedback was presented (phase 3), integrity improved to 91%. When the graphic feedback was taken away (phase 4), integrity went down to 49%. When graphic feedback integrity was added again (phase 5), integrity improved to 87%. The student engaged in more appropriate behavior with the combination of verbal and graphic feedback than just verbal feedback. During baseline his appropriate behavior was 71% of the time. During the two verbal feedback phases his appropriate behavior was 78% and 84%. During the two visual feedback phases (with verbal feedback) it was 95% and 86%.

Reinke and colleagues (2008) also examined visual performance feedback but in comparison to self-monitoring. Four elementary school teachers completed consultations that were class-wide focused. During the first phase, the teachers completed self-monitoring treatment integrity checklists. No feedback was given from the consultant. The second phase, the consultant provided a visual performance feedback sheet made from daily observations. This sheet was a line graph depicting the rate of praise (the major intervention component for all teachers) and the disruptive behaviors in the classroom. There was no discussion between the consultant and teacher regarding the graph. During the baseline, all teachers had higher rates of classroom disruptions than praise. The amount of praise changed in each classroom from baseline to self-monitoring with effect sizes of .69, .25, 1.31, and 1.34. The change in praise from baseline to visual performance feedback was effect sizes of 1.73, 1.53, 2.44, and 2.73. Classrooms 1 and 3

had small to medium effect sizes in decreases of student disruptions in the self-monitoring phase (-.64 and -.38) and large effect sizes in the visual performance phase (-2.4 and -1.2). Classrooms 2 and 4 both had a decrease in disruptive behavior in the self-monitoring phase (effect sizes of -1.06 and -.38) and then a slight increase yet still lower than baseline (effect sizes of -.62 and -.30) during the visual performance phase. However, Classrooms 2 and 4 had lower mean student disruptions than Classrooms 1 and 3. Overall, the visual feedback was better than self-monitoring to increase the intervention (rates of praise), but the results on student outcomes were not as strong.

As many of these studies have shown, treatment integrity is often most effective immediately after training. Daily feedback such as in Reinke and colleagues' (2008) study may keep integrity up after that initial training, but in practice, such an approach would likely be difficult for a consultant to do. Gilbertson, Witt, Singletary, and VanDerHeyden (2007) investigated a response dependent performance feedback (verbal and visual feedback) on implementation of a math intervention. Five teachers were helped by consultants to set up a peer tutoring intervention for a student in their class. Three were first grade teachers, one a fifth grade teacher, and one a fourth grade teacher. Integrity was assessed by permanent products (math probe worksheets and score chart). All had low levels of integrity after verbal instruction of the intervention procedure. One of the students no longer was in need of the intervention after this initial phase so it was discontinued. Faded feedback was done with the use of step-by-step training, immediate feedback after the session, and then delayed feedback. To move to the next step of the faded feedback, the teacher had to reach 100% integrity. All reached the third level (delayed feedback) after three to eight sessions. After this, the teachers only received

immediate performance feedback when they did not have 100% integrity. Immediate performance feedback was provided within approximately five minutes, included providing a graph of teacher and student performance, and the consultant problem solved with the teacher on how to implement the intervention accurately. During this response dependent performance feedback stage, the four remaining teachers averaged integrity of 94, 92, 88, and 47%. Finally, when the teachers were regularly reaching 100% integrity they went to a maintenance phase in which no feedback was provided. The integrity during this phase was variable for all the teachers. Student performance did increase as the intervention progressed however it was not clearly associated with treatment integrity for all the teachers. For two teachers, integrity decreased as student performance increased.

DiGennaro and colleagues (2005) also had a goal of increasing treatment integrity as quickly as possible by using performance feedback and negative reinforcement. Four elementary teachers participated in consultations regarding students with off-task behavior. The consultation involved didactic instruction, modeling, coaching, and corrective feedback. This training continued until the teacher had two consecutive days of 100% integrity. The teachers then implemented on their own until integrity had decreased and stabilized. The consultants next provided daily written feedback with graphs. If the teacher did not have 100% integrity they had to attend a meeting where the missed/incorrect steps were reviewed and practiced. If teachers reached 100% integrity they did not have to attend this integrity training session. Three of the teachers reached the initial 100% integrity in three sessions and one took six sessions. When this training was done, all dropped in their treatment integrity (between 0 -25% at the end of this

phase). Integrity training sessions and written performance feedback were again instituted and all four teachers reached three consecutive days of 100% integrity within five to eight days. If teachers kept high integrity, these performance feedback and training sessions were faded to every other day, once a week, and finally every other week. Two of the teachers continued at 100% integrity during fading, one had 95% average, and the final teacher had 91% average. The level of treatment integrity and the amount of time the student was off-task was significantly correlated for two of the teachers but not for the other two.

Conclusion of treatment integrity. Although many school psychologists believe treatment integrity is important to measure and take into account when evaluating the success of an intervention (Cochrane & Laux, 2008), many report not measuring it. Additionally, based on a review of the *Journal of Applied Behavior Analysis,* many researchers are not measuring it and reporting it either (Gresham et al., 1993; McIntyre et al., 2007). In the studies presented thus far in this review of consultation effectiveness, Duda and colleagues (2004) are the only researchers that included an in-depth analysis of treatment integrity of the teacher implementing the intervention and concluded there was generally poor implementation. In order to make sure interventions facilitated by school psychologists have a chance of being effective, there needs to be a better understanding of how effectiveness is related to integrity and how to increase integrity. The levels of collaboration within the consultation have mixed results on how it affects treatment integrity (Kelleher et al., 2008; Wickstrom et al., 1998). A more important aspect may be the type of feedback given to the teacher. Visual feedback provided to the teacher on their performance has been demonstrated to be better at increasing treatment integrity

than weekly follow-ups and emphasizing commitment (Noell et al., 2005), feedback on student performance (DiGennaro et al., 2007), verbal feedback (Hagermoser Sanetti et al., 2007), and self-monitoring (Reinke et al., 2008). After initially establishing good integrity, both Gilbertson and colleagues (2007) and DiGennaro and colleagues (2005) were able to decrease the amount of feedback without greatly decreasing treatment integrity.

Increased treatment integrity should increase the effectiveness of the intervention (Wilder et al., 2006). However, not all the studies had increased effectiveness with increased integrity. For DiGennaro and colleagues (2005; 2007) treatment effectiveness was significantly correlated with treatment integrity for two out of the four teachers in the first study and three out of the four in the second. In Gilbertson and colleagues (2007), all students did increase in their target behavior over time but the effectiveness could not be clearly associated with the treatment integrity. If an intervention that is being implemented correctly by the teacher is not proving to be effective, perhaps the intervention needs to be looked at more closely.

Behavior Management Strategies

Thus far the efficacy and effectiveness of consultation, the importance of treatment integrity, and strategies to increase treatment integrity have been discussed. In order to have success with these other areas, the intervention that is being used by the teacher also needs to be based on theory and research. In some of the previously reviewed studies, integrity was not always significantly correlated with improvement in the child's behavior (e.g. DiGennaro et al., 2005). One possible reason for this is that the intervention is not appropriate for the child or situation and a better intervention could

have been used. Both theory and research can inform the strategies and techniques that a consultant and teacher decide to use in an intervention to improve behavior management in the classroom.

Social cognitive theory. Social cognitive theory (SCT) can inform the development of effective behavioral interventions. A main tenet of social cognitive theory is the reciprocal determinism of behavior, thought/personal factors, and environment (Bandura, 1989b). All three influence the others to varying degrees depending on the person and situation. Behavior influences thoughts and cognitions as a result of the effects of those actions whether they are positive or negative. If an action is performed successfully, it will cause a person to believe they have the capacity to perform that behavior and vice versa. Behaviors can also cause environment to change as the actions of a person will create situations. Bandura gave as an example an aggressive person will produce hostile environments while a friendly person will produce more welcoming environments. A major aspect of environment in this theory comes in the form of social influence. Much of what we learn and develop comes from vicarious experiences. Observing other people in the environment, receiving instruction, or being persuaded changes our thoughts and beliefs as to whether we can also perform that action. However, Bandura believes that environment usually only influences when it is activated. One of his examples is that a parent usually only gives praise in response to a praiseworthy act.

The effects of cognitions and thoughts are a more difficult area to study as a person's thoughts are not directly observable like their behavior and environment. An example of a person's cognitions affecting environment is avoiding or selecting

environments that a person believes they can or cannot cope with. The role of cognitions in causing or affecting behavior is described by Bandura as personal agency. The central aspect of personal agency is self-efficacy. Self-efficacy is described by Bandura as "people's beliefs about their capabilities to exercise control over events that affect their lives" (1989a, p. 1175). Self-efficacy works through many other motivational, cognitive, and affective processes to affect behavior. As a person predicts and anticipates the outcomes of a behavior (forethought), goals and motivation play a large role in determining effort and perseverance to obtain the wanted outcome. Another way thoughts and cognitions affect behavior is self-regulation. External factors in the environment like parents and teachers often guide a child's behavior through what they allow or reward. This can also occur internally in the form of self-demands and self-sanctions.

Interventions are then developed from the information obtained from the assessment. Behavior, environment, and thoughts are all areas that provide opportunities to intervene. Teaching new behaviors and skills and changing thoughts are areas to focus on in particular. When teaching new behaviors and skills, we know from social cognitive theory that observational learning and abstract modeling are important strategies to use. However, there are factors that could limit the success of these techniques that need to be addressed in an intervention. In order to learn, the student needs to be paying adequate attention, remember what they saw, translate what they saw into their own behavior, and be motivated to learn (Bandura, 1989b). An intervention may need to first address one of these areas or accommodate for them. As discussed earlier, self-efficacy is a central component to behavior, attitudes, and mental health. Strategies to increase self-efficacy

should be considered for a variety of concerns. Examples of increasing self-efficacy include observing other students complete a task, providing opportunities to have success, and changing how the student attributes their failures.

Naturalistic intervention. Naturalistic intervention design is a model to follow in developing behavior management interventions as described by Barnett, Carey, and Hall (1993). The theoretical foundations of this design are social cognitive theory, ecobehavioral analysis, and naturalistic inquiry. The professional using this design starts with a significant effort to understand the situations and people before beginning an intervention or imposing their own views. Behavior is seen functionally and environmentally adaptive. There may be many determinants to a particular behavior and you need to analyze many perspectives and hear many viewpoints to understand it. The steps of BC are utilized: problem identification, problem analysis, plan development, plan implementation, and evaluation. Naturally occurring intervention strategies are focused on for multiple reasons. The teachers and students may find them more acceptable, they may provide greater generalization of the behavior change, and more likely to be ethnically valid. Caregivers may already be using techniques that are in line with evidence based interventions and small aspects of their behaviors may just need to be changed.

Evidence for behavior management interventions. Although it is important to have a theoretical foundation for interventions, available research on specific techniques needs to be examined. Literature reviews of behavior management strategies are good starting points. Wilson, Lipsey, and Derzon (2003) completed a meta-analysis of school-based interventions for aggressive behavior. The studies included children in preschool

through high school. Nearly 80% of the 221 studies had either all males or a majority of males participating in the study. Most of the intervention programs were less than 20 weeks long and 20% were less than seven weeks long. Approximately half of the programs had contact with the participants one to two times per week. Thirty-seven percent of the programs reported problems with implementation. The control groups did not differ significantly from zero while the interventions groups had an effect size of .31. The preschool and high school interventions had the largest effects. The most effective interventions were classroom management interventions, behavioral programs, counseling, and academic programs. Unfortunately, only eight studies with a control group were considered routine practice programs. The mean effect size for these practice programs was .10.

A literature review focusing on preschool students was done by McGoey, Eckert, and Dupaul (2002). To be included, the study needed to be an intervention for a preschool age student diagnosed with, or at-risk for, attention deficit hyperactivity disorder. A total of 28 studies between the years 1967 and 2000 were found. Of these, 14 were for psychotropic medications, 9 were school-based behavior management interventions, four were parent-education interventions, and one was a multi-component intervention. As school-based interventions are what are most applicable to school psychologists in practice, they will be focused on here. The interventions that were the most effective were rewarding appropriate behavior, giving effective directions and requests, teaching self-control, and using consistent methods of discipline. The authors point out that many of the interventions were conducted in research settings thus limiting the generalizability of the findings. Furthermore, many of the studies had small sample

sizes, poor treatment integrity, and no follow-up. They recommend that further studies need to be conducted on all the techniques in order to draw good conclusions.

Rewards. Many of the studies done with preschool age students focus on praise and/or rewards. Filcheck, McNeil, Greco, and Bernard (2004) investigated a class-wide intervention to decrease problem behaviors in a preschool classroom using praise and rewards. The classroom had one teacher and an aide with 17 students. The mean age of the students was 2.9 years old. The teacher implemented a level system where students would move up and down on a graph depending on their behavior. The teacher would provide labeled praise when moving a shape up and provide a visual and verbal warning when moving a shape down. Two to four times a day the teacher would reward the students whose shapes were on the sunny side of the graph (good behavior). The teacher was trained in this intervention using didactic training, in-room coaching, modeling, and immediate feedback. During the baseline phase, the mean frequency of inappropriate behavior was .45 per minute. During the intervention phase the mean frequency of inappropriate behavior went down to .29. When the intervention was withdrawn, mean inappropriate behavior continued to decrease to .21. The teacher's treatment integrity ranged from 56% to 100% with a mean of 68%. The teacher indicated that she was happier with her typical classroom management strategies but did choose to use the level system at the followup.

Another intervention was studied by Daddario, Anhalt, and Barton (2007) that used differential reinforcement of other behavior to decrease disruptive behavior. A teacher in a child care center with seven students ranging in age from two years six months to three years six months implemented the intervention. One of the students

displayed the majority of the disruptive behaviors. The procedure was to deliver M&Ms along with labeled praise to students who were not exhibiting disruptive behavior when a timer went off. When disruptive behavior occurred the timer was reset and the behavior ignored. During baseline, negative behaviors were occurring at a rate of .63 per minute. During the intervention the rate was .12 per minute. The treatment integrity of this intervention was determined based on observation and the teacher averaged 66%.

A very similar technique was studied by Murphy, Theodore, Aloiso, Alric-Edwards, and Hughes (2007). A teacher with eight preschool children ages three to five implemented a group contingency intervention. During group time on the carpet, when the student did not follow the posted rules, they received a check mark. If the students earned five or fewer checks, they would receive the mystery motivator. The mystery motivator was a reward that was wrapped in a box such as being able to play bean bag toss, musical chairs, hot potato game, extra free time, etc. While not all the students had significant behavior problems, all decreased their disruptive behaviors. The student with the most disruptive behavior went from having inappropriate behavior 44.76% of the time to 4.17% of the time. Treatment integrity was measured by an implementation checklist completed by the teacher. According to her ratings, the intervention was employed with 100% accuracy.

Praise. Using rewards is not always an appropriate intervention. Martens and Hiralall (1997) used scripted sequences with a teacher to increase praise statements to the students. The teacher had 18 students in their class ages four years eight months to five years five months. Prior to the intervention the teachers interactions were primarily conversational with redirective statements and nonspecific praise. A sequence was put

together that increased specific praise to students. During the baseline phase, the students' appropriate play ranged from 47% to 58%. After the scripted sequence was implemented, appropriate play increased from 83% to 89%. When the intervention was withdrawn, appropriate play decreased to the original levels. Reintroduction of the scripted sequence brought appropriate play to 85% to 91%. The teacher was observed to be implementing the sequence with 94% integrity.

Teaching. Spague and Thomas (1997) studied a teaching and modeling technique to increase appropriate behavior with a ten year old boy with severe intellectual disabilities in a self contained classroom. The student was having significant disruptive and aggressive behaviors during instructional times. Whenever the participant's responsiveness was low and the task was difficult for him, his problem behavior averaged 48% of the time. For these situations, the teacher began using a precorrection routine by reminding the student of the rules, modeling the desired behavior, giving opportunities to practice, and providing reminders. When this routine was implemented, the student's problem behavior dropped to an average of 23%. When it was withdrawn his problem behavior went up to previous levels. The final reintroduction of the routine brought his average to 26%. An important aspect of this study is that the researchers used functional behavior assessment (FBA) to determine what situations the student had the most problem behavior. In the next section I will be going into greater detail on this technique.

Functional behavioral assessment. The purpose of using FBA is to "identify environmental events that maintain (reinforce) problem behavior" (Harding, Wacker, Berg, Barretto, & Rankin, 2002, p. 31). With a theoretical basis of social cognitive theory, understanding the environmental events that are affecting problem behavior is an

important step to developing interventions. Taking the time to systematically determine the environmental antecedents and consequences to behavior can mean greater success with the intervention. Additionally, as Gresham, Watson, and Skinner (2001) discuss, the 1997 amendment to the Individuals with Disabilities Education Act (IDEA) state that FBA and positive behavioral supports and interventions must be used. However, the law does not specify what has to be done to complete an FBA. Gresham and colleagues state that "FBA can be defined as a collection of methods for gathering information about antecedents, behaviors, and consequences in order to determine the reason (*function)* of behavior" (p.158). They categorize the methods as indirect, direct or descriptive, and experimental. Indirect methods include things like interviews, record reviews, and rating scales. Direct or descriptive methods include observations. Experimental methods are often referred to as function analysis. Unlike the other methods, functional analysis allows you to be able to demonstrate causal relations between the environment and behavior. Typically, functional analysis is when different conditions are tested and rates of the target behavior are compared under each condition.

In the literature, FBAs are often done differently using one or more of the indirect, direct, and experimental methods. Duda and colleagues (2004) used FBA to determine the intervention that would be implemented for the two students. They used both indirect and direct methods. The consultants conducted the FBA by first interviewing several staff members to obtain descriptions of the target behavior, the antecedent events before the behavior, perceived functions of the behavior, and previously attempted strategies to change the behavior. Then the consultants conducted structured behavioral observations, reviewed records, and met with the team to develop

hypotheses from the data. The interventions they developed were directly related to the hypothesized functions of the behavior. Gettinger and Stoiber (2006) taught their participants to complete the FBA using the primarily indirect method. The team held a discussion of the target behavior, the context of the behavior, the triggers of the behavior, the functions of the behavior, previous strategies used to help change the behavior, and an alternative replacement behavior.

Harding and colleagues (2002) demonstrated a structured FBA, including functional analysis, in a research setting. The boys were ages four years nine months and six years four months with problem behaviors of aggression, throwing objects, and noncompliance. The researchers tested four conditions, free play, attention, escape, and tangible item, by providing one of those when the problem behavior occurred. Whichever condition the behavior occurred the most in, it was hypothesized that it was the function of the behavior. The researchers then did a preference assessment (allowing free access to a variety of toys) to determine what toys were the boys' favorites and a choice assessment to see if attention from their parent or playing with the toy was more important to them. For both boys, they determined that problem behavior was a function of wanting to escape from parent task instructions and also to gain tangible items (toys). The intervention they developed from this FBA was giving access to reinforcing toys when they complied with parent requests. The parents gave praise and played with them for appropriate behavior. By the end of the intervention, both boys had low levels of problem behavior and 100% completion of work.

Lane, Smither, Huseman, Guffey, and Fox (2007) conducted a FBA using indirect and direct methods in a classroom with a kindergarten student to decrease his disruptive

behavior. The researcher began by interviewing both the student and the teacher. Next, the researchers conducted ten hours of observations to determine the antecedents and consequences of behavior. The teacher also completed rating scales to determine the student's motivations and social skills. The information from all these sources was put together and it was determined that the student's behavior was maintained by positive attention from his teacher and peer. Since this was the case, the intervention they developed was meant to allow the student to gain positive attention for appropriate behaviors. The teacher was to ignore disruptive behaviors and give attention for appropriate behaviors. If he was being harmful or destructive, the teacher gave attention to the victim. The student was also doing self-monitoring by completing a chart with sad or happy faces depending on how he was behaving. At baseline, the student was academically engaged 46% of the time and engaged in problem behaviors 22% of the time. When the intervention was implemented, his engagement went up to 83% of the time and his problem behaviors went down to 7% of the time. Treatment integrity was measured by observations and was 62%.

Kamps, Ellis, Mancina, and Wyble (1995) conducted a FBA using direct and indirect methods on ten students in kindergarten or Head Start. Each student was observed four and a half hours and teacher reports on behavior were collected. Hypotheses were developed for the function of each student's behavior. For three of the students the function was determined to be to gain tangible reinforcement. For three others it was to gain attention from the teachers and also tangible reinforcement. For the final four there were multiple functions: attention from the teachers, tangible reinforcement, unclear expectations and rules, and inconsistent consequences. A variety

of strategies were put in place for the different students such as improved monitoring by assigning an area, teacher coaching and praise, visual reinforcement schedule for prosocial behaviors, and time out for aggressive behaviors. The hypothesized functions were tested by putting these different strategies into place for short amounts of time and monitoring behavior. The ability for the teachers to implement these strategies was mixed. One of the teachers felt the child's behavior was out of her control and would not put the strategies in place. Another teacher needed continued assistance to put them in place and also placed blame for the behavior on the family. Overall, seven of the students increased their compliant behavior (74% in baseline and 95% during hypothesis testing). Teacher praise remained low throughout the study but formal measures of treatment integrity were not conducted.

In the previous two studies, the amount of time that the researchers spent to conduct the FBAs and interventions was quite substantial. Lane and colleagues (2007) spent ten hours observing the student while Kamps and colleagues (1995) spent four and a half hours observing the students. For a school psychologist working in a school, this kind of time could not be spent. Boyajian, DuPaul, Handler, Eckert, and McGoey (2001) conducted FBAs including brief functional analysis with preschool students to see if successful interventions could be determined with significantly less time. Three preschool students were referred due to aggression and/or noncompliance. After a problem identification interview with the teachers to determine target behaviors, the researchers conducted brief FBAs in the classroom. In brief sessions lasting five to ten minutes, the researchers used analog conditions to determine the function of the students' problem behavior. Multiple sessions were done in a day and completed between two and

four days. Interventions were then put together for each student and tested. The most successful were then implemented for a longer period of time (11 to 18 days). For two of the three students, the researchers began the implementation of the intervention and the teacher eventually took over. For one of the students, the researcher implemented the entire intervention. For all three students, aggression was reduced to zero or near zero levels as a result of the interventions. Treatment integrity was reported as an average across all aspects of the study (FBA and intervention) and one average of 92% was given for all participants.

Dufrene, Dogget, Henington, and Watson (2007) also conducted FBA that included abbreviated functional analysis. Three 5 year old students with disruptive behavior were included in the study, two students attended Head Start classrooms and one attended a university preschool. All three students were ethnic-minorities (two African American and one Native American). The FBA began with a teacher interview, continued with structured observations (three 10 minute observations), and finished with functional analysis. The functional analyses used a single case design with an ABAB design. During the A condition the functional reinforcer was given when the target behavior occurred. During the B condition the functional reinforcer was provided only for non-occurrence of the target behavior. Interventions were then designed based on the results and completed with the same ABAB design: A condition the reinforcer was provided for the disruptive behavior and B condition the reinforcer was provided for the appropriate behavior. For two of the students all three methods (interview, observations, and functional analysis) indicated that aggressive behavior was most often followed by attention. As the function of the behavior was attention, the intervention was that the

teacher would provide attention (praise statement) after 30 seconds of appropriate behavior (no aggression). The other student's target behavior was noncompliance and all three methods of the FBA indicated escape as the primary function. The intervention was that if the student complied with an instruction, he was told he would be left alone for a short time. If he did not comply he was guided to complete the instruction and immediately given another instruction. For all three students, the disruptive target behaviors dropped significantly when the reinforcers were provided for appropriate behavior. Integrity measures were completed based on the percentage of times the target behavior was followed by the correct consequence; the mean was 94% integrity with a range of 80-100%.

Conclusion of behavior management strategies. Reviews of the literature of behavior management strategies indicate that classroom management, behavioral programs, counseling, and academic programs are the most effective (Wilson et al., 2003). More specifically, for preschool age students rewarding appropriate behavior, giving effective directions and requests, teaching self-control, and consistent methods of discipline are the most effective (McGoey et al., 2002). However, both of these reviews indicated that research in applied settings is lacking and the generalizability of the studies was questionable. In the research studies reviewed here, praise, rewards, differential reinforcement, mystery motivators, and scripted sequences were all found to be successful in decreasing problem behavior and/or increasing appropriate behavior in classrooms (Daddario et al., 2007; Filcheck et al., 2004; Martens & Hiralall, 1997; Murphy et al., 2007). Although conducted with an older student, the successful

precorrection routine used by Sprague and Thomas (1997) may also be applicable to preschool age students.

Additional strategies were found to be successful as a result of conducting FBAs. The types of FBAs seen in the literature vary in the methods used and time involved. Lane and colleagues (2007) and Kamps and colleagues (1995) used both indirect and direct methods and spent 10 hours and 4.5 hours, respectively, observing a student. Harding and colleagues (2002) and Boyajian and colleagues (2001) both used experimental methods. Regardless of methods, all had at least moderate results. Additionally, Dufrene and colleagues (2007) found that all three methods pointed to the same function of the behavior.

For many of the students, the function of the behaviors were to gain tangible reinforcement, gain attention, and/or escape task demands (Boyajian et al., 2001; Harding et al, 2002; Kamps et al., 1995; Lane et al., 2007). The strategies put in place were moderately to significantly successful. In most of the research presented here, treatment integrity was reported and for many was only moderate (Daddario et al., 2007; Filcheck et al., 2004; Lane et al., 2007).

Discussion and Future Research

The research base on preschool consultation to improve behavior in preschool settings has a promising beginning. The general effectiveness studies demonstrate significant child outcomes (Duda et al., 2004; Hundert 2007; Lepage et al., 2004; Perry et al., 2008). Research also shows that factors such as relationships, resistance, and ethnicity may be very important to providing effective consultation (Busse et al., 1999; Cautilli et al., 2006; Green et al., 2006; Naumman et al., 1996; Rogers, 1998). An

important aspect regarding consultation effectiveness is the integrity to which the teacher is implementing the interventions. The type of training the teacher receives on the intervention appears to be related to how well they will then implement the strategies in the classroom. According to Rose and Church's (1998) literature review, feedback may be a necessary aspect of teacher training. Several studies show that providing the teacher with visual feedback on their performance will increase treatment integrity (DiGennaro et al., 2007; Hagermoser Sanetti et al., 2007; Noell et al., 2005; Reinke et al., 2008).

However, there remains an important question when looking at the research on treatment integrity and effectiveness of the intervention: Why are treatment integrity and effectiveness not always strongly correlated (e.g., DiGennaro et al., 2005, 2007; Gilbertson et al., 2007)? Perhaps the interventions were not evidence based or were not "right" for the students based on the hypothesized function of the behavior of concern. FBA has been demonstrated in the research to be a successful method to determine the function of a child's behavior, which in turn informs what the intervention should focus on (Harding et al., 2002; Kamps, et al., 1995; Lane et al., 2007; Stoiber et al., 2007). Although FBA is only able to show a causal relation when functional analysis is completed (Gresham et al., 2001), the studies mentioned often have good success with using either indirect or direct methods of assessment. Additionally, in the study conducted by Dufrene and colleagues (2007), the indirect and direct methods of assessment both reached the same conclusion as the functional analysis method.

Research on FBA and behavioral management strategies suffers the same problem that research on consultation suffers: treatment integrity is not always measured and when it is, integrity is often only mediocre. Many reported levels of treatment integrity

between 65-70% (Daddario et al., 2007; Filcheck et al., 2004; Lane et al., 2007). The teacher in Murphy and colleagues' (2007) study measured treatment integrity by self report and indicated 100% integrity. But if the study conducted by Wickstrom and colleagues (2008) is any indicator, teacher self-report is not as accurate as observations of treatment integrity. The teachers in the Wickstrom et al. study reported 54% integrity while observations indicated 4% integrity.

Many of the studies on behavior management strategies and FBA were not very specific about the manner in which teachers were trained in the intervention. Filcheck and colleagues (2007) reported that their teacher was trained for a total of four hours and 30 minutes and used didactic training, in-room coaching, modeling, and immediate feedback. In studies by Martens and Hiralall (1997) and Lane and colleagues (2007) teachers appeared to receive a short didactic training. Several researchers did not specify how training was done (Daddario et al., 2007; Kamps et al., 1995; Murphy et al., 2007). An exception are studies conducted by Gettinger and Stoiber (2006) and Stoiber and Gettinger (2012). These researchers provided a minimum of 16 hours of professional development that was clearly specified and included measures of treatment integrity as a variable they examined. However, more research is needed regarding how teacher training may affect varying levels of treatment integrity. This type of research will help develop an understanding of the manner in which teacher adherence to intervention implementation affects changes in student behavior.

Research Questions and Hypotheses

The current research study poses the following questions and hypotheses.

1. What level of treatment integrity will a teacher achieve when implementing a Positive Behavior Support Plan (PBSP) when provided with consultation? In addition, to what extent does performance feedback provided by a trained consultant on the treatment integrity of the step-by-step intervention procedures improve treatment integrity? The hypothesis is that when the teacher and consultant have successfully conducted an FBA, then the teacher will implement the Positive Behavior Support Plan (PBSP) with at least moderate integrity. As was discussed earlier in the chapter, it has been demonstrated in research that consultation can lead to interventions being implemented by a teacher with at least 50% treatment integrity (e.g., Duda et al, 2004). When given performance feedback, the hypothesis is that the teachers will then improve their treatment integrity (DiGennaro et al., 2007; Hagermoser Sanetti et al., 2007; Noell et al., 2005; Reinke et al., 2008).
2. Does teacher implementation of function-linked behavioral intervention strategies (i.e., prevention, teaching competence, and altered response strategies) improve child behaviors as measured by behavioral observations and teacher ratings of child behavior when compared to a student displaying problem behavior with no specific intervention (i.e., a control child for whom outcomes are examined using same outcome measures)? The hypothesis is that the target students would improve in their positive goal behavior and also improve on a teacher rating of general behavior while the control student will not improve (Daddario et al., 2007; Filcheck et al., 2004; Martens & Hiralall, 1007; McGoey et al., 2002).

3. Is greater treatment integrity to the classroom interventions as measured by direct observation associated with improved child outcomes as indicated by direct observation? The hypothesis is that greater treatment integrity will be related to greater student goal behavior (Wilder et al., 2006).

CHAPTER THREE: METHODS

The following chapter presents details on the methods and procedures used to implement the study. This chapter is divided into five sections. The first section describes the settings and participants. The second provides information regarding the measures used. Third, the design of the study is detailed. Fourth, the specific procedures followed are outlined. Finally, a description of the data analysis is provided.

Settings and Participants

Participants included two consultants, three teachers, three target students, and one control student. At the start of the study, there were 3 participating classrooms (Classroom 1, Classroom B, Classroom C). However, subsequent to having begun the study in one of the classrooms (Classroom C), the target student's family moved away from the area and stopped attending school. Thus, data were not included in the data analysis from Teacher C and Target C as the data were incomplete. The final sample on which data analysis was conducted included two teachers, two target students, and one control student. The consultants were both doctoral school psychology graduate students who had been previously trained in consultation methods (hereby referred to as Consultant A and Consultant B [Consultant B was the primary investigator of the study]). Both consultants completed a graduate school course in consultation methods and conducted a consultation using the Functional Assessment and Intervention System (FAIS; Stoiber, 2004) protocol as part of course requirements. Consultant B provided approximately 30 minutes of training to Consultant A on the specific procedures for the current study. Informed consent was obtained from the teachers and the parents of all student participants.

The teachers and students were from Head Start preschool classrooms located in two different cities. Approval was first obtained from the administrators of the schools. The administrators then suggested possible classrooms to recruit teachers. Classroom A was located in a large urban city in the Midwest. Classroom B was in a small urban city on the East Coast. Adult to child ratios were recorded during classroom observations. The teacher participants (hereby referred to as Teacher A and Teacher B) self reported demographic information to include gender, ethnicity, years of experience, and level of education.

The students (referred to as Target A, Target B, and Control) were recruited as suggested by the teachers. Teachers identified students who were displaying significant problem behaviors in their classroom. Parents were then contacted, the study was explained, and they provided consent. Demographic information on the students was obtained from the teachers as reported in school records to include gender, ethnicity, and age.

Measures

Behavioral observations of the students were completed with the Classroom Competence Observation Form (CCOF) found in the Functional Assessment and Intervention System (FAIS; Stoiber, 2004) manual. The CCOF includes both items related to competent behavior and challenging behavior. The competent behaviors include the areas of Self-Control, Social Cooperation, Learning Behaviors, and Positive Goal Performance. Examples of items are: Calms oneself when upset; participates appropriately in large group; and keeps focused on work, play or tasks. The challenging behaviors include the areas of Aggression, Distractibility, Noncompliance, and Negative

Affect. Examples of items are: Threatens, intimidates, or bullies; fidgets with objects; and whines, cries, or complains. The CCOF uses a partial interval recording approach. The observer watches the student for 30 seconds and then during the next 30 seconds records if the behavior occurred during the previous interval. For 27% of the observations, two independent observers simultaneously observed and completed the CCOF. These inter-observer observations were done throughout the study with approximately one per phase (baseline, feedback, and no feedback). The independent observers were both school psychology graduate students. The independent observers were trained on the CCOF by Consultant A and Consultant B. The training sessions lasted approximately 15 minutes and involved presenting the CCOF and instructions from the FAIS manual. The independent observers practiced with the consultants before beginning observations for the current study in preschool classrooms. They reached at least 85% agreement within two practice observations. Inter-observer agreement was computed by using the following formula: (*agreement/(agreement + disagreement))x 100*. Total agreement between the consultants and independent observers ranged from 82% to 96% with the average agreement rate of 90%. This rate of agreement is considered to be high and satisfactory.

The Positive Goal Behavior of each target student was observed along with treatment integrity to the Positive Behavior Support Plan (PBSP). Appendix A includes the Treatment Integrity Observation Form (TIOF) and feedback form (described below) for Target A and Target B. The TIOF listed each component of the PBSP and the presence or absence of each component was documented. The percentage of presence of each component and the overall percentage were computed for each observation to

determine treatment integrity to the PBSP. The TIOF used the same partial interval recording as the CCOF. If a component of the PBSP was not applicable during an interval, it was marked NA. Inter-observer agreement was completed on 16% of the observations with the TIOF using the same method as the CCOF. Agreement ranged from 75% to 100% with the average being 92%. The achieved rate of agreement is considered to be high and satisfactory.

The Social Competence Performance (SCP Checklist; included in FAIS; Stoiber, 2004) was completed pre- and post-intervention on both the target and control students. Additionally the SCP Checklist was administered midway through the intervention. The SCP Checklist is a rating measure in which the teacher indicates the degree to which a variety of positive and challenging behaviors are displayed by a student. The SCP Checklist provided information to help prioritize concerns and identify competencies for the target students and also was used to evaluate outcomes of the intervention. The target and control students' scores were used to demonstrate clinical significance of the intervention. Stoiber (2004) reports in the FAIS manual that internal consistency for the Positive Behavior Ratings Total and the Challenging Behavior Ratings Total are high (ranging from .94-.97). Inter-rater reliability for the two scales and the overall total also were reported to be high (ranged from .90-.95). Finally, convergent validity was demonstrated by correlating the SCP Checklist with other measures of behavior and academic functioning, and these correlations also were adequate to strong.

Design

The two primary outcomes of this study were the student Positive Goal Behavior and teacher integrity to the PBSP. In order to determine if (a) the implementation of a

PBSP affected student goal behavior and (b) feedback affected teacher treatment integrity, a combined design using multi-element and nonconcurrent multiple-baseline design across teachers was used as described by Kennedy (2005).

According to the *Task Force on Evidence-Based Interventions in School Psychology* (Kratochwill & Stoiber, 2002) coding manual, this is the strongest single-participant design as both within series and between series are examined. Multiple baseline design was decided upon rather than ABAB design (A being the intervention and B being withdrawal of the intervention) as it may be unethical to remove the interventions in place and allow problem behavior to occur. Also, with behavior, withdrawal of an intervention may not show a marked reversal of behavior.

A nonconcurrent design was decided upon due to the flexibility of the design for working within an applied setting. Historically, concurrent designs have been considered a stronger design for controlling for threats to internal validity and showing causal relations. The primary difference between concurrent and nonconcurrent multiple baselines is that the series are not tied temporally together. With nonconcurrent design, determining when participants move to the next phase of a study (i.e., manipulating the independent variable), is not based on the dependent variable. According to Christ (2007), "both concurrent and nonconcurrent MB designs are sufficiently robust to contribute meaningfully to the scientific literature" (p. 457). He continues, "a priori specifications of hypotheses, data collection durations, assessment schedules, and sufficient number of replications across data series are more critical than concurrent data collection in terms of evaluating internal validity and demonstrating experimental control" (p. 458).

The current study had three data series (Control, Target A, and Target B). According to Kennedy (2005), the minimum number of baselines for a multiple baseline design is two. The Control student had one phase (baseline) and had a specified number of observations completed throughout a subsequent 6 week non-treatment phase. Target A and Target B had three phases each over the 6 week schedule. The phases were: (a) baseline, (b) no feedback, and (c) feedback. There were specified data collection durations and schedules that were followed and they are further described in the procedures section.

Procedure

After consent was obtained from the participating teachers and parents of the student participants, the teachers completed the Referral Form included in the FAIS manual and the SCPC on each student participant (Control, Target A, and Target B). The Referral Form asked the teacher to describe the major concern that interferes with the child's functioning, the context or situations of the behavior, the reason for the behavior, and interventions that had already been done. The student Goal Behavior was determined using the referral form and clarified during the consultation sessions. In Classroom A, where there was both a target and control student, the two nominated students were randomly assigned as either the target or control participant by the primary investigator by pulling names from a hat.

Consultations were then conducted using the FAIS (Stoiber, 2004) on the two Target students. Consultant A worked with Teacher A and Consultant B worked with Teacher B. The FAIS process involves five steps: (a) identifying the concern, function, and positive alternative behavior, (b) setting a meaningful goal and benchmarks, (c)

designing the positive support plan, (d) implementing positive support plan and monitor progress, and (e) evaluating outcomes and planning next steps. The different steps were completed during different phases of the study as described below.

The consultation process was completed using the FAIS protocol and manual which ensured the two consultants were completing the consultations in the same manner; see Appendix B for a complete list of the steps of the consultation process facilitated by the protocol. Additionally, an Interview Guide found in the FAIS manual was used during the first step of identifying the concern, function, and positive alternative behavior. The use of the Interview Guide ensured that the consultants asked the same questions and obtained similar information to guide the development of the Positive Behavior Support Plan. The Interview Guide included questions to help identify the priority concern (e.g., What social or academic behaviors cause concern?), context/setting conditions (e.g., When, where, and how often does the behavior occur?), consequences or effects (e.g., What results or consequences appear to maintain or motivate the behavior of concern?), function of the behavior (e.g., What do you view as the reason or "pay-off" for the problem behavior or concern?), and competencies and positive alternatives (e.g., What do you view as strengths of the child?). See Appendix C for the complete Interview Guide.

The FAIS manual includes a Procedural Checklist as a way to measure the integrity to the process. Each consultation session was audio-taped and the primary investigator completed the Procedural Checklist from these tapes. The percentage of the steps completed was 100% for both Consultant A and Consultant B, indicating a very

high level of compliance by both consultants in following the same step-by-step consultation procedures.

Baseline. During week one, each student (Control, Target A, and Target B) was observed prior to the beginning of the consultation process using the CCOF by the consultants. They were observed for three, 20 minute sessions. After these observations, consultation sessions were completed on Target A and Target B. The first and second steps of consultation occurred using the Interview Guide (in the FAIS manual) and FAIS Record Form: (a) identifying the concern, function, and positive alternative behavior and (b) setting a meaningful goal and benchmark. Additionally, during this session, the third step was started which is (c) designing the positive behavior support plan. The first part of this step is when the consultant and teacher brainstormed positive support strategies. The second step of specifying the Positive Support Plan was completed separately by the primary investigator and a second graduate student in school psychology. The primary investigator and the second graduate student used the information obtained from the consultation session and observations to develop a PBSP separately and then they came to consensus on the final plan. Based on the FAIS method, the interventions included three types of positive support strategies (a) environmental strategies to address identified antecedents to the behavior, (b) teaching strategies to develop positive social competencies or behaviors, and (c) altered response strategies to address identified consequences to the behavior. As the consultation model involves collaboration, the teacher's input obtained from the brainstorming session was highly considered in the design of the PBSP. The treatment integrity observation form (TIOF) was also developed at this time by the consultant.

At the beginning of week two, the second consultation session was conducted to share the Positive Behavior Support Plan and the TIOF with the teacher (second half of Step C of the FAIS process). The consultant explained the aspects of the Plan and answered any questions the teacher had.

No Feedback. During this phase, following the specification of the PBSP, the teacher implemented the components in the classroom. This phase lasted from week 2 to week 4. The Consultants completed a total of five observations using the individualized TIOF (one observation also included the CCOF) on the Target students. The Consultants provided no performance feedback regarding treatment integrity to the PBSP or the Positive Goal Behavior of the student to the teacher. The Control student had two observations during this time frame using the CCOF completed by Consultant A.

Performance feedback. During weeks four through six, 5 more observations were scheduled to be completed using the TIOF (one observation also included the CCOF) by the consultants on the Target students. Teachers were provided feedback on their implementation of the intervention and student performance of their goal behavior following the observation. Feedback was provided visually using a graph depicting overall percentage of the components of the PBSP completed and the percentage of the student's goal behavior. The graph was shown to the teacher during a five to ten minute feedback session later that same day of the observation by the consultant. If treatment integrity was not 100%, the consultant discussed the specific intervention strategies that were not being implemented as planned. The Control student had three more observations using the CCOF during this time frame completed by Consultant A.

Both Consultant A and Consultant B were not able to follow the schedule of observations strictly due to student absences. Consultant A was not able to complete the final observation during the performance feedback phase as Target A was absent the rest of the week. Consultant B was not able to follow the schedule during the performance feedback phase as Target B was absent for 2 weeks due to a leg injury. All five observations were collected during this phase, but over 4.5 weeks rather than the scheduled 2.5 weeks. Table 1 represents the observation schedule for each participant.

Table 1

Number of Observations in Each Phase and Each Week

	Phase and Week						
	Baseline	No feedback			Feedback		
Participant	1	2	3	4a	4b	5	6
Control	3	1	1	1		1	1
Target A	3	2	2	1	1	2	2
Target B	3	2	2	1	1	2	2

Data Analysis

Descriptive statistics are reported in the results section, which includes gender, ethnicity, years of experience, and education level of Teacher A and Teacher B. For the students (Control, Target A, and Target B) gender, ethnicity, and age are reported. The adult to student ratio is reported for the classrooms.

As was stated above, to answer the primary research questions, a combined design using multi-element and nonconcurrent multiple-baseline design across teachers was

used. For each observation the percentage of intervals that the goal behavior occurred was graphed. Also, based on the Treatment Integrity Observation Form (TIOF), the percentage of correct implementation during a session was also graphed. The research questions are listed again for review:

1. What level of treatment integrity will a teacher achieve when implementing a Positive Behavior Support Plan (PBSP) when provided with consultation? In addition, to what extent does performance feedback provided by a trained consultant on the treatment integrity of the step-by-step intervention procedures improve treatment integrity? The hypothesis is that when the teacher and consultant have successfully conducted an FBA, then the teacher will implement the Positive Behavior Support Plan (PBSP) with at least moderate integrity. It has been demonstrated in research that consultation can lead to interventions being implemented by a teacher with at least 50% treatment integrity (e.g., Duda et al, 2004). When given performance feedback, the hypothesis is that the teachers will then improve their treatment integrity (DiGennaro et al., 2007; Hagermoser Sanetti et al., 2007; Noell et al., 2005; Reinke et al., 2008).
2. Does teacher implementation of function-linked behavioral intervention strategies (i.e., prevention, teaching competence, and altered response strategies) improve child behaviors as measured by behavioral observations and teacher ratings of child behavior when compared to a student displaying problem behavior with no specific intervention (i.e., a control child for whom outcomes are examined using same outcome measures)? The hypothesis is

that the target students would improve in their positive goal behavior and also improve on a teacher rating of general behavior while the control student will not improve (Daddario et al., 2007; Filcheck et al., 2004; Martens & Hiralall, 1007; McGoey et al., 2002).

3. Is greater treatment integrity to the classroom interventions as measured by direct observation associated with improved child outcomes as indicated by direct observation? The hypothesis is that greater treatment integrity will be related to greater student goal behavior (Wilder et al., 2006).

Research Questions One (RQ1) is answered using treatment integrity to the PBSP with Teacher A and Teacher B data. Research Question Two (RQ2) is partly answered using goal behavior with data from Control, Target A, and Target B. The graphs are visually inspected for patterns in level, trend, and variability within and between each phase as described by Kennedy (2005). Finally, the patterns both between and within are analyzed across subjects. The level is the mean of the data within a condition. Trend lines are calculated using the least-squares regression line in order to qualitatively estimate the trend of the data change as high, medium, or low. Least-squares regression lines "fit a straight line to the slope of the data set by minimizing the sum of squared deviations of the observed data from the line" (Kennedy, 2005, p. 198). Variability is a qualitative estimate of how much data points deviate from the trend line.

Additionally, the effect size is calculated using the standard mean difference (SMD) described by Olive and Franco (2008). The SMD is a non-regression analysis that is useful for data that is dependent on other data points. Olive and Franco (2008) recommended SMD over other non-regression approaches (Percentage of Non-

Overlapping Data, Percent Reduction, and Percentage Exceeding the Mean) because all data points are used in the calculation and it gives an effect size that is generally more easily understood. The SMD is the difference between the baseline and intervention means, divided by the standard deviation of all the data. The resulting number (*d*) is interpreted following Cohen's (1988) suggestion of $d = 0.2$ small, $d = 0.5$ medium, and $d = 0.8$ large.

RQ2 is also answered using the Social Competence Performance (SCP) Checklist, which was completed by the teachers three times during the study on each student (Control, Target A, and Target B). The significance of the change at each administration is calculated using the Reliable Change Index (RCI) as described by Jacobson and Truax (1991). The RCI is calculated by taking the difference between two scores (x_2-x_1) and dividing by the standard error of difference (S_{diff}). Jacobson and Truax state that this measure of RCI "tells us whether change reflects more than the fluctuations of an imprecise measuring instrument" (p. 14). The S_{diff} is calculated by squaring the standard error of measurement (S_e), multiplying by 2, and taking the square root. The S_e for the SCPC Positive Behavior is 3.28 and for the SCPC Challenging Behavior is 3.21 (Stoiber, 2004). According to Jacobson and Truax (1991) RCI greater than 1.96 indicates real change has likely occurred. The Pearson Product-Moment Correlation Coefficient is calculated between treatment integrity and goal behavior to answer RQ3 (DiGennaro et al., 2007).

CHAPTER 4: RESULTS

The results of the study are presented in this chapter. First the demographics of the sample are presented. Second, the functional behavior analysis and positive goal behavior for the students are given. Third, the positive behavior support plan (PBSP) for the target students are provided. Finally, data related to each research question are presented.

Demographics of sample

Study participants included three preschool students and their two teachers. Two of the students (Control and Target A) were enrolled in Teacher A's classroom. One student (Target B) was enrolled in Teacher B's classroom. All three students were 4 years old and African American. Target A and Control were male and Target B was female.

Both classrooms had one lead teacher and one assistant teacher. Teacher A was female and African American. She had 14 years of teaching experience and had a Bachelors degree. Teacher B was female and European American. She had 10 years of teaching experience and had a Bachelors degree.

Functional Behavior Analysis and Positive Goal Behavior

Control Student. Although a Functional Behavior Analysis (FBA) was not completed for the Control student, Teacher A completed a Referral Form and a Positive Goal Behavior was determined using this information. According to the teacher, the Control student had "a short attention span and a hard time focusing on activities." The time of day when this behavior is the most likely to occur is both during story time and during free play. She noted that if Control is engaged in an activity he is interested in he

is more likely to attend. Strategies she attempted in the classroom included removing Control from the group to focus on a particular task, moving him during story time/small group activities to sit by another child, and having a third adult in the classroom. She noted that these strategies sometimes helped but other days his attending was still a challenge. Using this information, the Positive Goal Behavior for the Control student was determined to be: "Keeps focus on work, play, or tasks."

Target A. Consultant A and Teacher A completed steps one, two, and three (part a) of FAIS (Stoiber, 2004) using information from the Referral Form, Interview Guide, and direct observations. See Appendix D for additional details of the FBA. The summary statement developed for Target A was the following: The behavior of concern of non-compliance/following directions occurs in school, home, and daycare settings in situations when an undesirable demand is placed on him. The functions of gaining control, attention, and avoiding a demand underlies the behavior. The student has the following competencies: he likes school, has good social skills, and a desire to be good. Using this information the Positive Goal Behavior was determined to be: "Follows teacher direction."

Target B. Consultant B and Teacher B completed steps one, two, and three (part a) of FAIS using information from the Referral Form, Interview Guide, and direct observations. See Appendix D for additional details of the FBA. The summary statement developed for Target B was the following: The behavior of concern of crying/outbursts occurs in school, home, and any settings in any situation. The functions of gaining attention and poor coping skills underlie the behavior. The student has the following competencies: she tries new things and talks through problems. Using this

information the Positive Goal Behavior was determined to be: Calms self when upset/remains calm. This goal behavior was further defined to be “Calms self within 30 seconds.”

Positive Behavior Support Plan

Using information from the FBA, a PBSP was agreed upon by the primary investigator and one other school psychology graduate student for each target student. Strategies were chosen from the FAIS manual Intervention Guide (Stoiber, 2004). The manual describes the Intervention Guide by stating: "Each type of strategy is based on evidence of its effectiveness in improving student performance and enhancing social competence" (p. 21). The PBSP plans for Target A and Target B are in Table 2. The components of each PBSP were then put onto a treatment integrity observation form (TIOF) and a feedback form (see Appendix A). At the second consultation session both teachers agreed to implement the PBSP as it was written.

Table 2

Positive Behavior Support Plans for Targets A and B

Strategy	Target A	Target B
Environmental	Proximity control. Teacher or other adult will stay within five feet of Target A.	Flexible planning and room arrangement. Teacher will read Target B's cues if specific peers are interfering with her coping skills and separate Target B from them. Teacher will also change Target B's seat on the carpet.
Teaching	Systematic or differential attention. Teacher will provide positive feedback/praise at least once every 5 minutes. Use brief, specific, contingent, and sincere verbal approval. Teacher will put a stick on the sticker chart at least every 20 min for Target A to work towards a reward (see behavior chart used in Appendix E).	Self-Monitoring. Teach Target B to fill in a behavior chart with smiles or frowns based on how she behaved during a specific time period during the day (see Appendix E). Provide rewards for days that are 80% smiles.
Altered Response	Response choices. Teacher will provide Target A two choices when giving directions.	Encourage coping and negotiate response choices. Teacher will use calming strategies if Target B

	is not calming on her own. Teacher will provide two choices if calming strategies do not work.

Research Question One

RQ1 asked what level of treatment integrity a teacher would achieve when implementing a PBSP following consultation and, in addition, whether and how feedback to the teacher would improve treatment integrity. Table 3 includes descriptive information regarding the observations during the PBSP implementation phase. Target A only had nine observations during the implementation of the PBSP. The average adult to student ratio in Classroom A during observations was 2:12 and the average in Classroom B was 2:15. Table 4 includes the percentage of time each component was successfully completed during an observation session. Not all the components were always applicable, especially for Target B. That is, many of her components only applied if she was upset/crying.

Figures 1 and 2 represent the percentage of treatment integrity to the PBSP components during observations by the consultant during the no feedback phase and the feedback phase. Figure 1 includes the least squares regression line in order to evaluate trend and variability. Figure 2 includes the mean of each phase to evaluate level. No data were collected on the Control student to answer this question as no FBA was conducted and no PBSP was implemented.

Table 3

Adult to student ratios and activities at each observation

	Target A		Target B	
Observation	Adult: Student	Activity	Adult: Student	Activity
1	2:17	Circle	2:14	Circle
2	2:15	Movie	2:14	Centers
3	2:13	Circle	2:17	Centers
4	2:12	Circle	2:18	Transition[a]
5	2:9	Centers	2:13	Circle
6	2:11	Movie	-[b]	Playground
7	2:10	Circle	2:12	Centers
8	2:14	Circle	2:14	Centers
9	2:11	Circle	2:16	Circle
10			2:14	Circle

Note. Centers = free play within the classroom. Circle = large group activity lead by the teacher generally consisting of songs and stories.

[a]Transition = Class was transitioning back to the classroom from the playground

[b]Dash indicates no ratio was recorded. Accurate numbers could not be obtained on the playground as multiple classrooms were present.

Table 4

Treatment integrity of PBSP components

PBSP Components	Observation										*M*[a]
	1	2	3	4	5	6	7	8	9	10	
Target A											
Teacher near A.	85	100	75	75	100	100	90	100	100		92
Verbal praise given.	100	0	50	75	50	25	100	100	100		67
Sticker on behavior chart.	100	0	100	0	0	0	0	100	100		44
Directions with 2 choices.	100	100	0	100	38	0	33	50	NA		53
M across components	*96*	*50*	*56*	*63*	*47*	*31*	*56*	*88*	*100*		*65*
Target B											
B in new spot on carpet.	0	NA	0	0	100	NA	100	100	NA	100	57
B separated from x if fighting.	NA	NA	NA	100	NA	NA	NA	NA	NA	NA	100
Behavior chart completed.	50	100	0	0	50	100	0	50	100	50	50
Calming strategy used.	NA	NA	NA	0	0	NA	NA	NA	NA	40	13
2 choices if not calming.	NA	NA	NA	0	50	NA	100	NA	NA	17	42
M across components	*25*	*100*	*0*	*20*	*50*	*100*	*66*	*75*	*100*	*52*	*59*

Note. Observations completed during the PBSP implementation phase. NA = component was not applicable during that observation.

[a]Mean of component across sessions

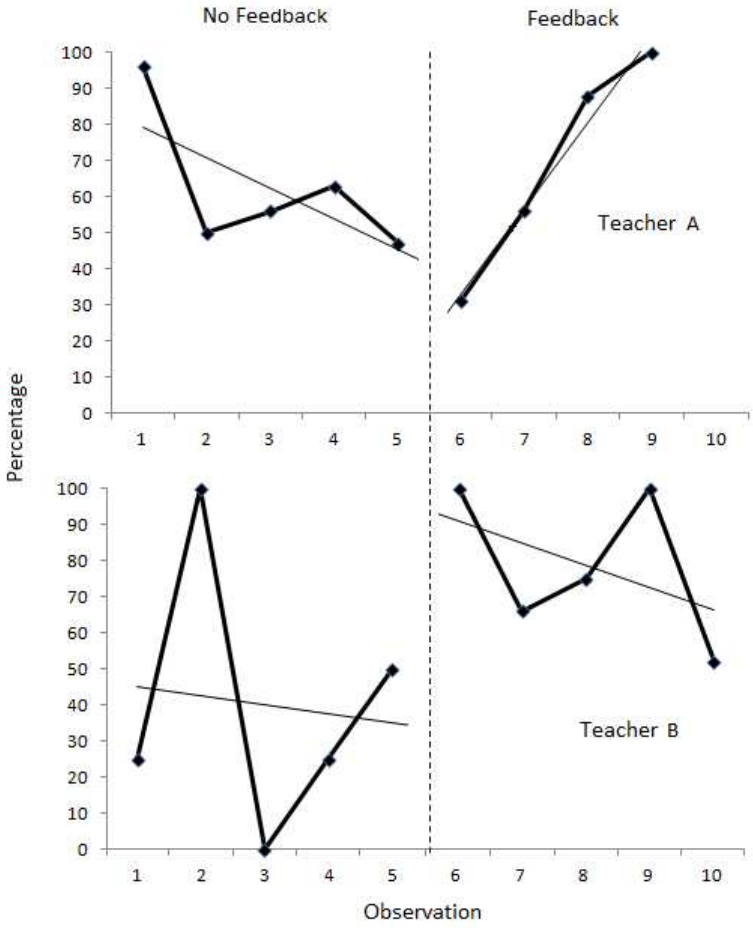

Figure 1. Treatment integrity to PBSP for Teacher A and B with Trend lines

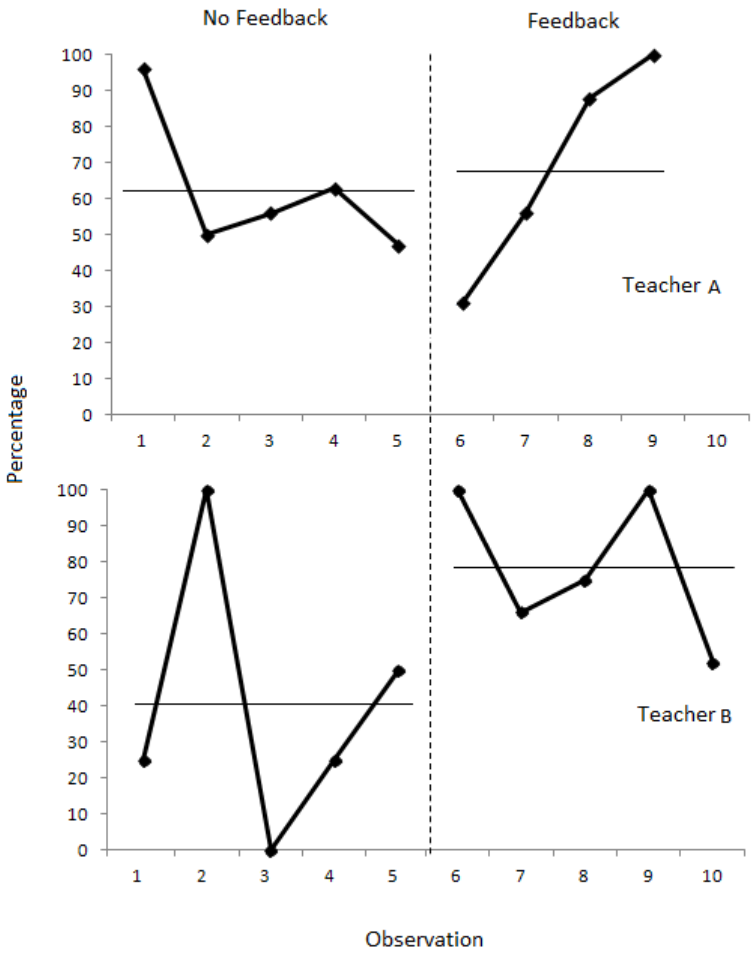

Figure 2. Treatment integrity to PBSP for Teacher A and B with mean level

Following the consultation and the implementation of the PBSP, Teacher A had a moderate negative trend with moderate variability during the no feedback phase (slope of -8.5). She ranged in her percentage of overall treatment integrity during the no feedback phase from 47% to 96% with a mean of 62%. Teacher B had a low negative trend with high variability during the no feedback phase (slope of -3.0). She ranged in her percentage of overall treatment integrity during the no feedback phase from 0% to 100% with a mean of 39%.

During the feedback phase, Teacher A had a high positive trend with low variability (slope of 23.9). Her overall treatment integrity ranged from 31% to 100% during the feedback phase with a mean of 69%. Her treatment integrity changed direction in trend (negative to positive) and had a positive change in level from no feedback phase to feedback phase. The standard mean difference (SMD) of her treatment integrity between phases was .27, which is a low positive change. Teacher B had a moderate negative trend and moderate variability (slope of -6.2). She ranged in her percentage of overall treatment integrity during the feedback phase from 52% to 100% with a mean of 79%. Her overall treatment integrity did not change direction in trend, but had a positive change in level between the two phases. The SMD of her treatment integrity between phases was 1.10, which is a high positive change.

Research Question Two

RQ2 asked if teacher implementation of the PBSP improved the target student's positive goal behavior. Data from direct observations and from teacher rating scales were used to answer this question. Figures 3 and 4 represent the percentage of time the Positive Goal Behavior was performed during observations by the consultant during baseline and during the PBSP implementation. Figure 3 includes the least squares regression line in order to evaluate trend and variability. Figure 4 includes the mean of each phase to evaluate level. The Positive Goal Behavior for the Control student was: Keeps focus on work, play, or tasks. The Positive Goal Behavior for Target A was: Follows teacher direction. Positive Goal Behavior for Target B was: Calms self when upset/remains calm.

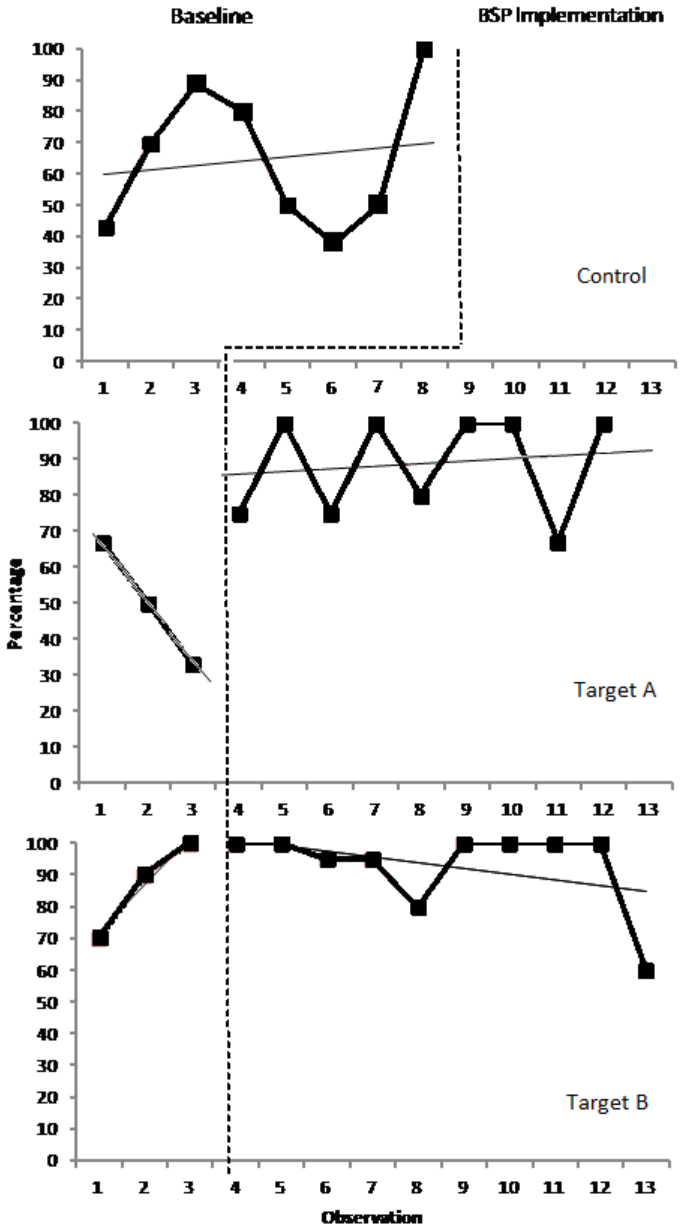

Figure 3. Percentage of Positive Goal Behavior for Control, Target A, and Target B with trend lines.

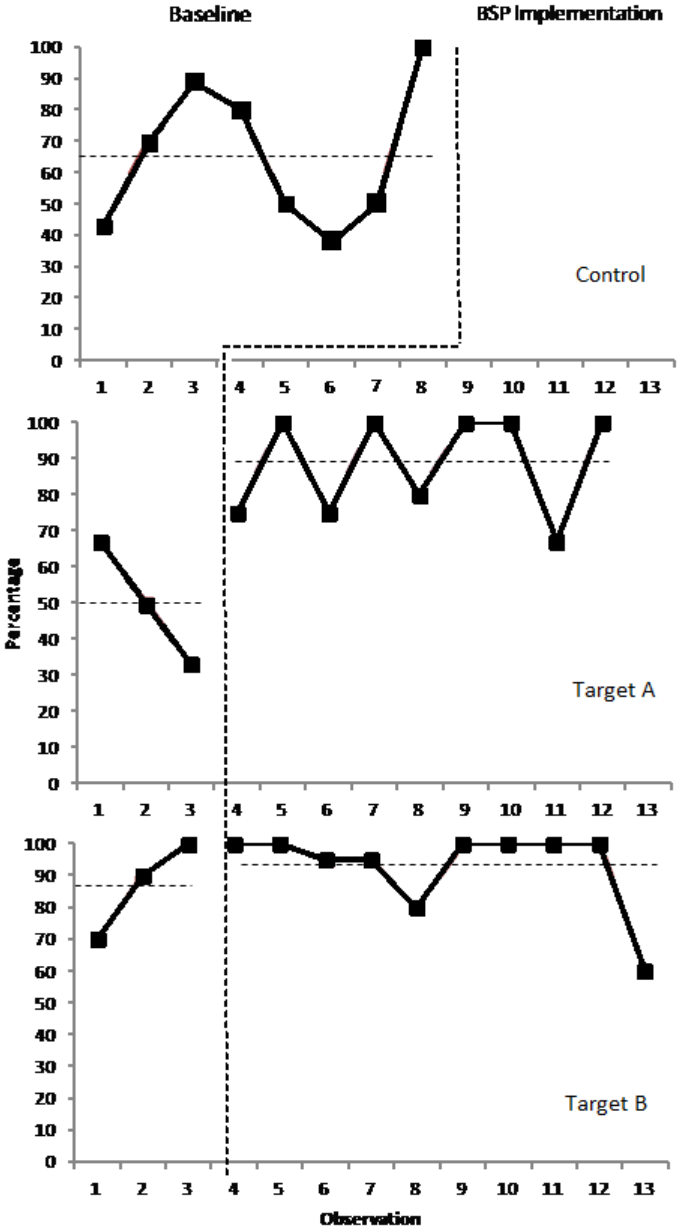

Figure 4. Percentage of Positive Goal Behavior for Control, Target A, and Target B with mean level.

The Control student had a low positive increase in his Positive Goal Behavior with moderate variability (slope of 1.38). He ranged in his percentage of Positive Goal Behavior from 38% to 100%, with a mean of 65%.

Target A had a high negative trend with low variability during baseline (slope of -17.00). He ranged in his percentage of Positive Goal Behavior during baseline from 33% to 67% with a mean of 50%. During the PBSP implementation phase Target A had a low positive trend with moderate variability (slope of 0.85). His Positive Goal Behavior ranged from 67% to 100% with a mean of 89%. His Positive Goal Behavior changed direction in trend (negative to positive) and had a positive change in level from baseline to PBSP implementation. The standard mean difference (SMD) of his baseline and PBSP implementation phase was 1.73, which is a large positive change.

Target B had a high positive trend with low variability during baseline (slope of 15.00). She ranged in her percentage of Positive Goal Behavior during baseline from 70% to 100% with a mean of 87%. During the PBSP implementation phase Target B had a low negative trend and low variability (slope of -1.82). Her Positive Goal Behavior ranged from 60% to 100% with a mean of 93%. Her Positive Goal Behavior changed direction in trend (positive to negative) and had a positive change in level from baseline to PBSP implementation. The SMD of her baseline and PBSP implementation phase was .48, which is a medium positive change.

Table 5

Relative Change Index between pre- and post- intervention SCP Checklist

	Positive Behavior			Challenging Behavior		
Student	Pre	Post	RCI[a]	Pre	Post	RCI[b]
Control	16	20	0.86	30	43	2.86*
Target A	19	17	-0.43	40	35	-1.10
Target B	26	28	0.43	31	30	-0.22

[a]Positive increase in Positive Behavior indicates improvement

[b]Positive increase in Challenging Behavior indicates decline (increased level of challenging behaviors)

*RCI> 1.96 indicates significant change

The teachers completed the SCP Checklist to determine overall behavior change that was not measured by the direct observations completed by the consultants. Table 5 provides the scores for the Positive Behavior subscale and the Challenging Behavior subscale of the SCPC and the Reliable Change Index (RCI; Jacobson & Truax, 1991) for the Control, Target A, and Target B. For RQ2, the pre- and post- scores were compared. For the Positive Behavior subscale, higher scores are better. For the Challenging Behavior subscale, lower scores are better. None of the students had a significant change in their positive behavior. The Control had a significant increase in Challenging Behavior (RCI: 2.86). Target A and B both had a decrease in challenging behavior, but not a significant change (RCI: -1.10 and -0.22, respectively).

Table 6

Relative Change Index between pre- and post- intervention SCP Checklist Subscales

	Self-Control			Learning Behaviors		
Student	Pre	Post	RCI[a]	Pre	Post	RCI[a]
Control	4	5	0.23	6	8	0.43
Target A	6	4	-0.43	7	6	-0.23
Target B	4	4	0	13	10	-0.65

[a]Positive increase indicates improvement

*RCI> 1.96 indicates significant change

Target A and the Control's positive goal behaviors were both in the subscales of Learning Behaviors on the SCP Checklist. Target B's positive goal behavior was in the subscale of Self Control on the SCP Checklist. Table 6 provides the scores each participant received on the SCP Checklist on the two subscales relevant to the positive goal behaviors. None of the students had a significant change on the subscales from pre- to post-intervention. The Control student did have a trend of improving in both subscales; the RCI on Self Control was 0.23 and on Learning Behaviors was 0.43. Target A declined in both subscales; the RCI on Self Control was -0.43 and on Learning Behaviors was -0.23. Target B had no change on Self-Control and a negative change on Learning Behaviors (RCI: -0.65).

Research Question Three

RQ3 asked if greater treatment integrity to the PBSP would be associated with improved behavior. Figure 6 represents the teacher treatment integrity for Teacher A and B and percentage of time the Positive Goal Behavior Target A and B performed during the PBSP implementation phases.

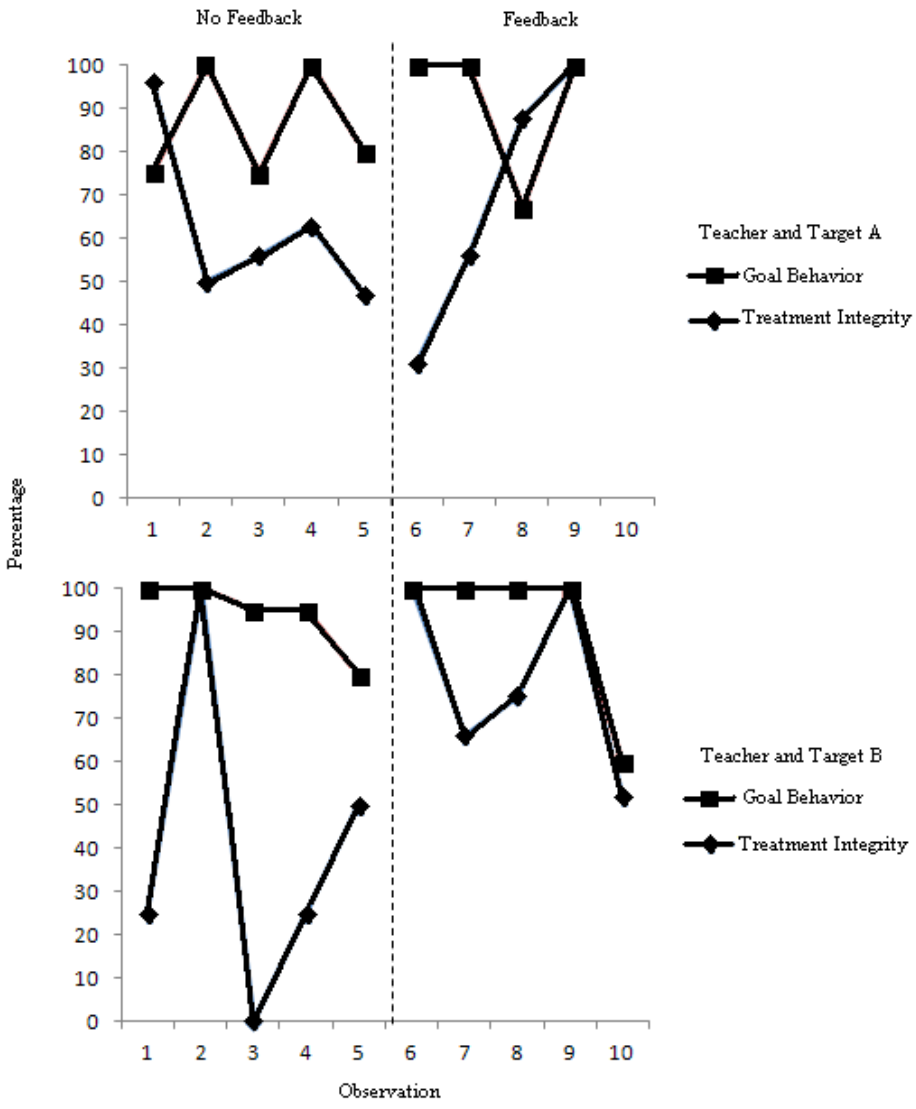

Figure 5. Positive Goal Behavior for Target A and B, Treatment integrity to PBSP for Teacher A and B.

The Pearson Product-Moment Correlation Coefficient was calculated for Target A/Teacher A and Target B/Teacher B to determine the correlation between Positive Goal Behavior and Treatment Integrity as completed by DiGennaro and colleagues (2007). Nine data points were compared for Target A and Teacher A; the correlation was *r* =

-0.34 which is a low negative correlation. Ten data points were compared for Target B and Teacher B; the correlation was $r = 0.22$ which is a low positive correlation.

CHAPTER 5: DISCUSSION

The discussion section is separated into four sections. The first section presents the interpretations of the results for each research question. Next, implications for practice are reviewed, followed by study limitations. Finally, conclusions of the study are presented.

Interpretations

Research Question One (RQ1). RQ1 asked what level of treatment integrity a teacher would achieve when implementing a PBSP and, in addition, to what extentperformance feedback would improve treatment integrity. The hypothesis was that the teacher and consultant would be able to successfully conduct an FBA using the FAIS materials and then the teacher would implement the PBSP with at least moderate integrity and that providing feedback would improve the teacher's treatment integrity (DiGennaro et al., 2007; Hagermoser Sanetti et al., 2007; Noell et al., 2005; Reinke et al., 2008). As was discussed in chapter 2, it has been demonstrated in prior research that consultation can lead to interventions being implemented by a teacher (e.g., Duda et al, 2004). However, there is often a large time commitment by the consultant/researcher to conduct the FBA and/or to implement the interventions (Boyajian et al., 2001; Kamps et al, 1995; Lane et al., 2007), which may impede teacher willingness to follow through with the positive support plan.

Following three student observations by the consultant and then the initial consultation session, Consultant A and Teacher A determined that Target A's non-compliance was a function of gaining control, attention, and avoiding a demand. Taking these functions and the primary concern into consideration, the strategies used to address

these functions/concerns were proximity control (provide attention easily for positive behavior), systematic or differential attention (provide attention for positive behaviors), and response choices (give Target A a sense of control and ability to avoid less desirable choice).

Consultant B and Teacher B determined that Target B's crying/outbursts were functions of gaining attention and poor coping skills. The strategies used to address identified concerns/ functions were flexible planning and room arrangement (in order to put less stress on her coping skills), self-monitoring plus reward (provide attention and gain awareness of her behavior), and calming strategies and choices (teaching additional coping skills and providing attention).

In examining RQ1, observations conducted by the consultant found that without receiving feedback on treatment integrity, Teacher A implemented the PBSP within a moderate level of consistency. The overall percentage of treatment integrity for Teacher A during the no feedback phase was 62%. Teacher B implemented the PBSP with a low moderate level of consistency; her overall percentage of treatment integrity during the no feedback phase was 39%. Although with all interventions, the goal is to implement a PBSP with 100% treatment integrity (DiGennaro et al., 2005), such high compliance may be very difficult to achieve in the real world of classrooms. Wilder and colleagues (2006) found highest levels of behavior improvement when a behavioral intervention was implemented with 100% integrity. However, even with 50% integrity these researchers found the student behavior improved. Similarly, the current study found a trend toward an improvement in behavior for Target A and Target B with low moderate to moderate levels of treatment integrity. The hypothesis of the first part of RSQ1 was partially met;

one teacher implemented the PBSP with moderate integrity while the other teacher implemented the PBSP with low moderate integrity.

Both Teacher A and Teacher B had decreasing treatment integrity during the no feedback phase (trend line slope of -8.5 and -4.5, respectively). Teacher A had a change in direction of her treatment integrity trend during the feedback phase (trend line slope 23.9) but the mean level was a low change (SMD .27). Teacher B did not change direction of the treatment integrity trend (slope -6.2) but did have a high change in mean level (SMD 1.09). Target B had several absences between the final two data points (this is described in greater detail in the discussion of RSQ2). Teacher B's treatment integrity during the final observation session was much lower than the previous three observations. The time between these observation sessions may have impacted the teacher's treatment integrity. If the final session is not included in the data analysis, her treatment integrity during the feedback phase changes from a negative slope (-6.2) to a positive slope (0.9). Additionally, the SMD increases from 1.09 to 1.21.

The data suggest some impact of feedback to the treatment integrity; however, it was not strong evidence. Teacher B had a high change in mean level and trend (without the final data point) but further inspection of the data showed that the last three data points in the no feedback phase were a positive trend. She was already improving in her integrity without receiving feedback. This finding contradicts previous research findings that suggest feedback is necessary to improve treatment integrity (DiGennaro et al., 2005; DiGennaro et al., 2007; Gilbertson et al., 2007; Noell et al, 2005).

Both teachers in the current study exhibited variability in their treatment integrity. Teacher A ranged from 31% to 100% and Teacher B ranged from 0% to 100%. This

variability could have been the result of a number of classroom context factors. One reason may be related to the number of other students in the classroom. Classroom A ranged from having 9 students present to 17 students present during the observations. Classroom B ranged from having 12 students present to 18 students present (see Table 3). Though related to academic interactions, smaller class sizes have been related to sustained interactions between a student and a teacher (Curby et al., 2011). A similar situation may have occurred with the varying number of students in the class affecting how much the teacher could focus on the target student. A second reason may relate to the varying settings and activities from one observation to another (see Table 3). The observations were not conducted at the same time and day of the week. Some days the observation was during circle time and other days during free play. In Classroom B, one observation was conducted on the playground. Depending on the situation and setting, the PBSP may have been more difficult to implement with integrity.

A third reason specific to Teacher B and Target B was that several of the PBSP components were specifically to be implemented if Target B was not performing her goal behavior of remaining calm. This effectively meant that the Teacher had fewer components to complete if she was performing her goal behavior, thus making the plan less complex to implement on a day to day basis. Generally, if an intervention is more complex, it will be more difficult to implement that intervention with good integrity (Yeaton & Sechrest, 1981).

Research Question Two (RQ2). RQ2 examined whether teacher implementation of the PBSP would improve the Target students' positive goal behavior as compared to a Control student displaying a problem behavior and receiving no specific intervention.

RQ2 was answered using both direct observation data and teacher rating scales. The hypothesis was that the target students would improve in their positive goal behavior and also improve on a teacher rating of general behavior while the control student would not improve (Daddario et al., 2007; Filcheck et al., 2004; Martens & Hiralall, 1007; McGoey et al., 2002). The Positive Goal Behavior for the control student was: Keeps focus on work, play, or tasks. The Positive Goal Behavior for Target A was: Follows teacher direction. Positive Goal Behavior for Target B was: Calms self when upset/remains calm.

Observations of the goal behavior indicated the control student improved in his goal behavior slightly over the course of the study (trend line slope of 1.38). Target A's data demonstrated change and improvement with the implementation of the PBSP. He had a large change in trend and level in his goal behavior between baseline and implementation of the PBSP. His goal behavior was decreasing (trend line slope of -17.00) during baseline, and was improving slightly (trend line slope of 0.85) during the PBSP implementation phase. His mean level of goal behavior demonstrated a large positive change from baseline to implementation phase (SMD 1.73).

Target B's data showed a moderate increase in her mean level of goal behavior from the baseline to the PBSP implementation (SMD .48); however, she had a negative change in her trend between the two phases. During the baseline phase her goal behavior was improving with a high positive trend (trend line slope of 15.00). During the PBSP implementation phase her behavior was observed to be slightly worse (trend line slope of -1.81). This finding of a slightly negative change in behavior during the PBSP phase was likely impacted by an outlier; her last data point was lower than all her other data points

including during baseline. If the last data point was not used in the calculations, Target B's trendline during the PBSP implementation phase would have been 0.25 which indicates her behavior continued to improve slightly. Additionally, her mean level of goal behavior from the baseline to the PBSP implementation would have been 1.03, which is a large positive change rather than a medium positive change.

Looking over the entire three series, the data do not fully support the hypothesis that the target students would improve in their behavior while the control student would not improve because of the Control student's improvement over time and Target B's improvement during her baseline. All three participants demonstrated improvement over time. Target A and Target B (with final data point removed) both had large positive changes in their level of goal behavior from baseline to PBSP implementation. The Control student's improvement may have been due to maturity and this developmental change cannot be ruled out as a factor in Target A's improvement as well. Target B's baseline suggests this phenomenon may also have been involved, that is, her goal behavior improved without the PBSP during baseline. Her decline during the implementation phase of the PBSP may have been related to an extinction burst; however, research suggests an extinction burst is less prevalent when there are treatment components other than extinction techniques alone (Lerman & Iwata, 1995). Additionally, the current results indicated that her goal behavior during the PBSP implementation phase slightly improved when the final data point was not calculated into the trend line. Removing this data point may better represent the results of implementing the PBSP. More data points would likely draw more accurate conclusions.

History effects may have been affecting Target B's behavior. Two big drops in her goal behavior were observed after she had missed school for a period of time. Spring break occurred between observation 7 and 8. In addition, she had several absences between observations 12 and 13.

The PBSP for Target A and Target B may have had a more overall preventative effect on their challenging behavior. The teacher rating scales of the students' overall positive behavior and overall challenging behavior before the implementation of the PBSP and after the implementation of the PBSP found only one significant but important change. The Control student's Challenging Behavior on the SCPC got significantly worse (RCI 2.86). Neither Target A or Target B had a significant change in their Challenging Behavior. A similar result was found in Williford and Shelton (2008) where the preschool students in the comparison group became more disruptive over the course of the study while the intervention group remained stable. None of the three students had a significant change in their positive behavior.

Further investigation into the subscales of the SCP Checklist found no significant changes between the pre- and post- intervention ratings. The Control student's positive goal behavior fell in the Learning Behaviors subscale. Although no intervention was put in place, the Control has a small positive change in both the Self-Control and Learning Behaviors subscales (RCI 0.23 and 0.43, respectively) which is similar to the observation data results. Target A's positive goal behavior was in the Learning Behaviors subscale. Target A had a small negative change (RCI -0.23) which is not what the observation data indicated. He also had a small negative change in the Self-Control subscale (RCI -0.43); he would not have been expected to improve in this area as the PBSP was focused on his

learning behaviors. Target B had no change in the Self-Control subscale even though her PBSP was focused on her self-control. She had a small negative change in the Learning Behaviors subscale (-0.65); she would not have been expected to improve in this area.

Overall, however, the teacher rating scales did not support the hypothesis either. The rating scales appear to almost contradict the observation data. That is, whereas the observation data indicated all three participants improved in their positive goal behavior over the course of the study, the teacher rating results indicated no significant changes in positive behaviors. One hypothesis may be that the observations were not accurately capturing the students' behavior. At least part of the function of Target A and Target B's behavior was determined to be attention. It is possible that the addition of another adult in the classroom (observer) who was watching them may have been giving them the attention they wanted and thus had less reason to engage in their problem behaviors. This increase in attention during observation sessions make it appear that the student is improving in their goal behavior when in reality they may not be when the observer is not providing that attention. Another hypothesis may be that the 20 minute observations are not giving a complete picture of the variability of behavior that can occur throughout the day. A third hypothesis is that despite actual improvement in behavior, the teachers did not see the change. Similar results were found in Reitman and colleagues (2004) study of the effectiveness of a token economy in preschool classroom. Observation data indicated improved student behavior while teacher ratings indicated little change in behavior. This is likely due to the teachers having ongoing exposure and not being sensitive to change in the student behavior.

Research Question Three (RQ3). RQ3 examined whether greater treatment integrity to the PBSP is associated with improved student goal behavior. The hypothesis was that greater treatment integrity would indeed be related to greater student goal behavior (Wilder et al., 2006). This relation has not always been clear in previous research (Gilbertson et al., 2007).

The data from the current study is unfortunately not clear either. The Pearson Product-Moment Correlation Coefficient showed that Teacher A treatment integrity and Target A goal behavior had a small negative correlation (r = -0.34); improved treatment integrity was related to decreased goal behavior. Teacher B's treatment integrity and Target B's goal behavior had a small positive correlation (r = 0.22); improved treatment integrity was related to improved goal behavior.

One reason the treatment integrity to the PBSP for Teacher A was negatively correlated to the positive goal behavior for Target A may have been that one or more aspects of the PBSP were not working. Although Target A did continue to improve in his goal behavior during the implementation phase, this may be evidence that there were other outside factors contributing to his improvement. A consultant may find that when this is the case, changes to the PBSP are likely needed. Since Target A was improving, it may have been that some parts of the PBSP were unnecessary.

Implications for practice

It is important to note that the current study was completed with urban children (Classroom A in a large urban city and Classroom B in a small urban city) and the results cannot be generalized to other settings such as rural classroom. However, the results provide important implications for improving behavior in urban classrooms.

Problem behaviors in preschool classrooms are a concern for many preschool teachers (Anthony, Anthony, Morrel, & Acosta, 2005; Gilliam, 2005; Qi & Kaiser, 2003). The current study provides additional support that consultation with a preschool teacher can successfully lead to a PBSP that is implemented with at least moderate treatment integrity. The amount of time the consultants spent with the teacher conducting the FBA and then observing in the classroom was less than the time reported in some of the other studies that researched this question. For example, Lane and colleagues (2007) spent approximately 10 hours observing a student's behavior. In the current study, the two consultation sessions were approximately 40 minutes total; the observations were a total of 260 minutes (13 observations lasting 20 minutes each). This is about 5 hours of time the consultant spent on a target student. School psychologists need to make it a part of their practice to spend time consulting with teachers to improve problem behavior.

Time is often a precious commodity for school psychologists in practice. Even 5 hours may be difficult to fit into a busy schedule. The results of the study demonstrated that providing feedback to the teachers had a positive effect on their treatment integrity, which in turn, had at least some effect on student goal behavior. Spending more time providing quality feedback to teachers from the start may bring about student behavior change faster than what was demonstrated in the current study meaning a practicing school psychologist might be able to spend less time observing and following up. Psychologists should not be conducting consultation sessions and then omit the important step of following up and providing feedback on the treatment integrity.

Psychologists also need to be cognizant of the context of the classrooms when they consult with teachers. The differences in the results found from Classroom A and

Classroom B might provide some insight into other practical implications stemming from the context of the classrooms. Classroom A had a lower teacher to child ratio (2:12) than Classroom B (2:15), which may have made it easier for Teacher A to focus on Target A and the PBSP. According to the State of Wisconsin Department of Public Instruction (2008), there are no state regulations directing teacher-child ratio for four year old kindergarten classes; rather, suggestions based on other organizations were given in the policy and information advisory document. Maximum class sizes that were listed were 20 per the National Institute on Early Education Research, 24 per state child care licensing regulations, and 20 per the National Association for the Education of Young Children. A school psychologist working in low income schools may have to be prepared to provide more time and support to teachers if they are reaching class size limits. Another classroom context factor to be aware of regards the occurrence of changes in classroom staff . For the current study, Teacher B was a new teacher in the school at the beginning of the second semester. Although she had teaching experience prior to starting at the school, starting mid-year may have impacted the students and the made it more difficult to implement the PBSP for Target B.

Additionally, psychologists need to be aware of the context of the individual students as they work with the teachers to implement the behavior plans and involve parents in the process. In the current study, Target B had a drop in her goal behavior after two extended breaks from school. First after one week of spring break, and second after a two week absence from a leg injury. These drops in behavior may have had little to do with implementation of the PBSP, but rather more to do with outside factors. If a parent component had been a part of this study, these dramatic drops of behavior may

have been reduced. Lepage and colleagues (2004) note that research generally finds consultation that includes parents (conjoint consultation) results in higher outcomes that teacher-only consultation.

The training implications for the current study are two-fold. School psychologists need to stay up-to-date on the latest research on consultation, conducting FBAs, and implementing PBSPs. Although any FBA focused interview protocol may be relatively easy to pick up and follow without specific training, aspects to the consultation process such as engaging in collaboration and making sure the teacher feels the PBSP is acceptable may not be as readily implemented. For example, psychologists need to be aware of how the classroom teacher perceives the PBSP and her willingness to implement it. In the current study, the teachers had the opportunity to voice concerns during the second consultation session; both teachers were agreeable to the plans as they were written.

The second aspect to training is that teachers need to have more general training regarding behavior management in their classrooms. However, if teachers at a school psychologist's work place are not getting the professional development they need in classroom behavior management, the psychologist can use individual consultation as an avenue to accomplish this goal. Gettinger and Stoiber (2006) were able to do this on a larger context of training teams to complete FBAs and implement PBSPs. Individual psychologists can work on a smaller scale and help teachers generalize what they learn from one FBA/BPSP to other students in their class.

Study limitations

The first major limitation to the study is that the multiple baseline design without the removal of the intervention used in the current study makes it difficult to draw conclusive causation statements regarding the PBSPs and their effect on the student goal behavior. Additionally, the nonconcurrent design with its predetermined data collection schedule did not allow the flexibility to establish stable baselines or phases. For example, Target B's behavior was already improving during baseline, which means no strong conclusions can be drawn at the introduction of the PBSP. The student's improvement may have been related to maturation or other untested or unexamined factors.

A second major limitation was the attrition of Target C. The addition of another baseline could have made it possible to draw more conclusive causation statements. Unfortunately, high student mobility is a reality of urban students who are a lower economic status. Long (1992) reports that the average number of moves a three or four year old has experienced is 1 or 2 moves. Children living in poverty and also children living in a metropolitan area raises the number of moves. To compound this problem, Heinlein and Shinn (2000) report that students with high mobility are more likely to have problems in school.

A third limitation is that no statements regarding the sustainability of the PBSP or the outcomes can be made. The study was conducted at the end of the school year and the students were leaving for summer break; thus no maintenance phase was able to be observed.

A fourth limitation is that no data was collected on the relationship between the consultant and the teacher. Green and colleagues (2006) found relationships between consultants and consultees were related to the perceived effectiveness of the consultants.

How the teacher felt about the consultant may have impacted her acceptance of feedback and her willingness to implement the PBSP. Information regarding how long the consultant and teacher have worked together, if they have worked together on another case, or how the teacher feels about the consultant would be valuable information to gather for future research. A higher quality FBA may be something that arises out of a higher quality relationship thus likely leading to a higher quality PBSA.

Another limitation is that the behaviors of concern of the Control, Target A, and Target B were all different from each other. The Control student's behavior was related to distractibility, Target A's related to noncompliance, and Target B's related to negative affect. Additionally, based on the SCP Checklist scores, the students had varying levels of severity. The more severe a behavior, the more likely it will be resistant to intervention (Gresham, 1991).

No classroom context data from the two classroom settings were collected other than the teacher/student ratio. This could have affected conclusions due to history effects such as substitute teachers, spring break, and/or student illnesses/absences. For example, as has been discussed, Target B had a drop in her positive goal behavior the observation that was done after spring break. Additionally, Target B had several absences between the last two observations and she again had a drop in her goal behavior. This drop in behavior may have been unrelated to the teacher's implementation of her PBSP and instead related to being away from school. For future research, additional classroom variables such as a measure of classroom quality would also help to clarify differences in the data that occurred between the two settings.

Finally, no data were collected regarding the feedback sessions. Although the same format of the visual graph was presented, these sessions were not audio-taped, scripted, or required to be a certain time of day. Time of day may have impacted how effective the feedback session was. For example, some feedback sessions were during nap time and some were after school. Having students present, even if during naptime, may have affected the teacher's concentration on the feedback. For future research, making more specific requirements for the feedback session as part of the study procedures would be important in helping this limitation. For the current study, the only requirement of the feedback sessions were the graph and that it occur on the same day as the observation. Additionally, audio taping the feedback sessions would also provide valuable information as to how the teacher was receiving the feedback.

Conclusions

The purpose of the study was to further investigate how school psychologists can help teachers effectively improve the behavior of their students. Consultants were able to conduct consultation sessions using the FAIS protocol (Stoiber, 2004) with good integrity. The teachers were then able to implement PBSPs with low moderate to moderate treatment integrity. When the final session was not included in Teacher B's data due to a large time gap, both teachers had a change from a negative trend in their treatment integrity to the PBSP to a positive slope when they were provided feedback on the treatment integrity and student goal performance. While the evidence that the PBSPs caused both target student's goal behavior to improve is not strong, there is evidence that the PBSPs had a preventative effect on increasing challenging behavior. Additionally, the correlation between treatment integrity and goal behavior was positive for one teacher

and student but not for the other.. This study contributed additional support for the importance of consultation with teachers and continued communication with the teacher regarding the treatment integrity and goal behavior of the student.

The mixed results between the two classrooms (i.e., large positive changes in Target A versus smaller changes in Target B) serve to remind practitioners that even when following an evidence based protocol to complete an FBA and write a PBSP, student improvement may not happen as quickly or as greatly as you would like. The negative correlation between treatment integrity and goal behavior for one of the teacher/student pairs serve as a reminder that a PBSP may need to be tweaked and changed if it is not the cause of the behavior change. Behavior is often influenced by factors that are not easily known or predicted. The study demonstrated several contextual factors that practicing school psychologists often have to think about and account for when consulting with teachers to help improve a student's behavior. There are at times factors in the classroom such as class size that cannot be controlled. There are also factors in the student's personal life that cannot be controlled such as injuries that result in absences or high mobility for their students. The continued communication that is facilitated by spending the time to observe treatment integrity and goal behavior may also play a role in keeping track of these factors and determining if additional support and changes need to be made.

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Appendix A

Student A's Treatment Integrity Observation

Student: _____ Time: _____

Teacher: _____ Setting: _____

Activity: _____ Adult/child ratio: _____

Date: _____ Directions: Observe student for 30 seconds, then during the next 30 seconds record observation. Check if present, NA if not applicable.

	30 second intervals									
Behavior Intervention Components	1	2	3	4	5	6	7	8	9	10
1. Teacher near A.										
2. Verbal praise given to A.										
3. Sticker on behavior chart.										
4. Direction given with 2 choices.										

	30 second intervals									
Goal Behavior	1	2	3	4	5	6	7	8	9	10
Follows teacher directions within 3 prompts.										

	30 second intervals									
Behavior Intervention Components	11	12	13	14	15	16	17	18	19	20
1. Teacher near A.										
2. Verbal praise given to A.										
3. Sticker on behavior chart.										
4. Direction given with 2 choices.										

	30 second intervals									
Goal Behavior	11	12	13	14	15	16	17	18	19	20
Follows teacher directions.										

BIP Component:	1	2	3	4
Percentage completed:				
Goal Behavior:	1			
Percentage observed:				

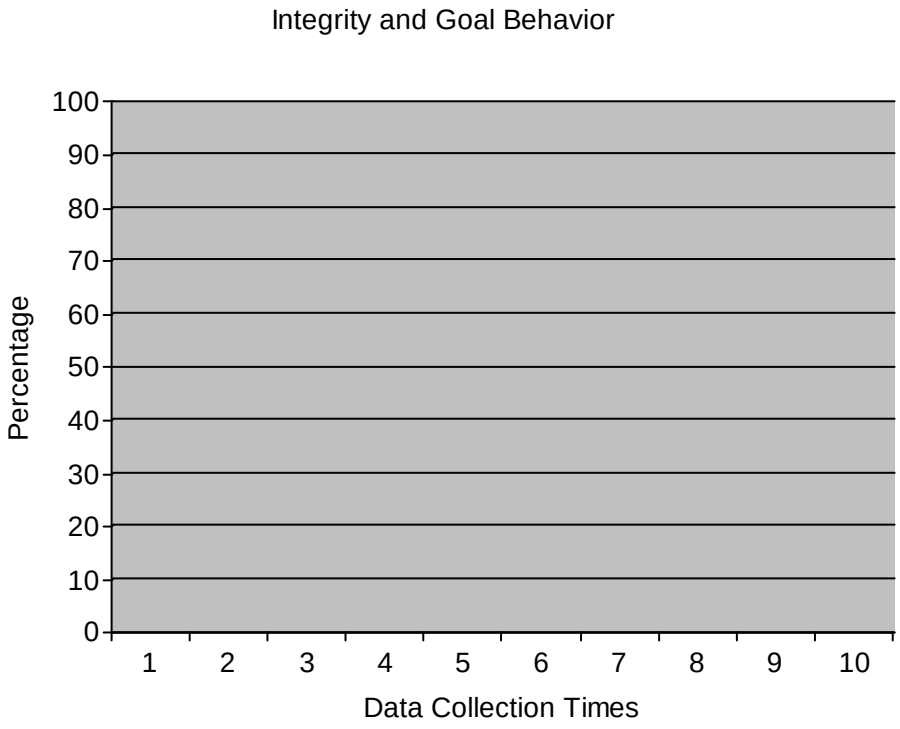
Student A's Treatment Integrity Feedback Form

Student: _____

Teacher: _____

	Behavior Intervention Plan								
BIP Components	Date:	Date:	Date:	Date:	Date:	Date:	Date:	Date:	Date:
1. Teacher near A.									
2. Verbal praise given to A.									
3. Sticker on behavior chart.									
4. Direction given with 2 choices.									
Average percentage:									

	Goal Behavior								
Goal Behavior	Date:	Date:	Date:	Date:	Date:	Date:	Date:	Date:	Date:
Follows teacher directions.									



Student B's Treatment Integrity Observation

Student: _____ Time: _____

Teacher: _____ Setting: _____

Activity: _____ Adult/child ratio: _____

Date: _____ Directions: Observe student for 30 seconds, then during the next 30 seconds record observation. Check if present, NA if not applicable.

	30 second intervals									
Behavior Intervention Components	1	2	3	4	5	6	7	8	9	10
1. B in new spot on carpet.										
2. B separated from a student if fighting.										
3. Behavior chart completed.										
4. Calming strategy used.										
5. Two choices given if not calming.										

	30 second intervals									
Goal Behavior	1	2	3	4	5	6	7	8	9	10
Remain calm/de-escalate within 30 seconds.										

	30 second intervals									
Behavior Intervention Components	11	12	13	14	15	16	17	18	19	20
1. B in new spot on carpet.										
2. B separated from a student if fighting.										
3. Behavior chart completed.										
4. Calming strategy used.										
5. Two choices given if not calming.										

	30 second intervals									
Goal Behavior	11	12	13	14	15	16	17	18	19	20
Remain calm/de-escalate within 30 seconds.										

BIP Component:	1	2	3	4	5
Percentage completed:					
Goal Behavior:	1				
Percentage observed:					

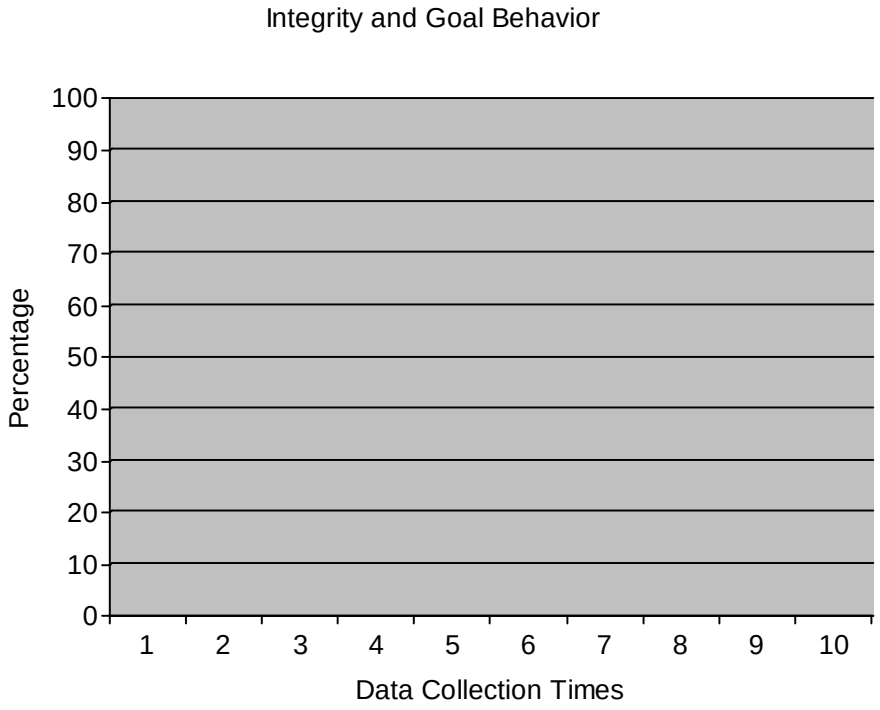
Student B's Treatment Integrity Feedback Form

Student: _____

Teacher: _____

	Behavior Intervention Plan								
BIP Components	Date:	Date:	Date:	Date:	Date:	Date:	Date:	Date:	Date:
1. B in new spot on carpet.									
2. B separated from a student if fighting.									
3. Behavior chart completed.									
4. Calming strategy used.									
5. Two choices given if not calming.									
Average percentage:									

	Goal Behavior								
Goal Behavior	Date:	Date:	Date:	Date:	Date:	Date:	Date:	Date:	Date:
Remain calm/de-escalate within 30 seconds.									



Appendix B

Functional Assessment and Function-Based Intervention Steps and Outcomes

Steps to Conducting a Functional Assessment and Developing a Function-Based Intervention	Activities or Outcomes Indicated on the Record Form
Step #1: Conduct Functional Assessment	1. Identify primary challenging behavior of concern. 2. Identify context in which the behavior occurs. 3. Identify consequences that follow and maintain the behavior. 4. Identify functions of the behavior. 5. Describe previous strategies and their effectiveness. 6. Identify student assets and school/home resources. 7. Identify alternative behaviors to strengthen. 8. Write summary statement integrating assessment information.
Step #2: Establish Goals and Benchmarks	1. Establish a target date for goal attainment. 2. Describe what the child is expected to do. 3. Describe the context for performance of goal behavior. 4. Define benchmarks for goal behavior on a 7-point scale.

	5. Collect baseline of goal behavior performance.
Step #3: Develop Function-Based Intervention	1. Develop Environmental Strategies linked to the functional assessment information. 2. Develop Altered Response Strategies. 3. Develop Teaching Competence Strategies. 4. Delineate team member roles and responsibilities. 5. Evaluate the intervention plan prior to implementation.
Step #4: Implement the Function-Based Intervention and Monitor Progress	1. Implement the function-based intervention as planned. 2. Develop progress-monitoring procedures. 3. Collect progress-monitoring data. 4. Record progress-monitoring data, including benchmark ratings on goal attainment rating chart.
Step #5: Summarize and Evaluate Outcomes	1. Review student's response to the intervention 2. Plan next steps: determine what components of the function-based intervention should be maintained, revised, or discontinued and determine any necessary revisions of goal/benchmarks. 3. Summarize and implement next steps.

Appendix C

The following is the Interview Guide from the Functional Assessment and Intervention System (FAIS; Stoiber, 2004):

1. What social or academic behaviors cause concern? Describe what most concerns you?
2. What change in the child's performance is needed for him/her to be successful (e.g., in the classroom, home, community)?
3. What concerns do the parents have?
4. When, where, and how often does the concern occur?
5. In what situations is the behavior of concern most likely to occur? Or least likely to occur?
6. What are the circumstances or events that typically precede the concern? Is there one thing that acts as a particular "trigger" in setting off the behavior of concern?
7. What results or consequences appear to maintain or motivate the behavior of concern?
8. What previous efforts to address the concern have been tried? What is the result of these intervention attempts?
9. What do you view as the reason or "pay-off" for the problem behavior or concern?
10. In general, what does the child find as rewarding or enjoyable? What does the child seem to avoid or dislike?

11. What do you view as strengths of the child? What resources are available at school and home to support this child toward positive outcomes?
12. What desirable behavior would you see as a viable positive alternative to the problem behavior? (p. 156-157)

Appendix D

Functional Behavioral Assessment Summary for Target A

A. Identify Priority Concern: Target A does not follow teacher directions even after multiple prompts. When he is redirected he is defiant by running away or engaging in anger outbursts.

B. Identify Context/Setting Conditions: classroom, hallways, playground, home, unstructured setting, noisy setting, crowded setting, large and small group, task transition, not receiving attention, adult request, negative feedback, denied something.

C. Identify Consequences or Effects: behavior ignored, request removed, reprimand warning, loss of privileges, teacher negotiation

D. Identify the Function of the Behavior: avoid demand, get desired item, gain adult or peer attention, control situation, self-expression, attentional problem

Functional Behavioral Assessment Summary for Target B

A. Identify Priority Concern: Target B exhibits crying and outbursts. She will cry over small problems; scream and kick over larger issues.

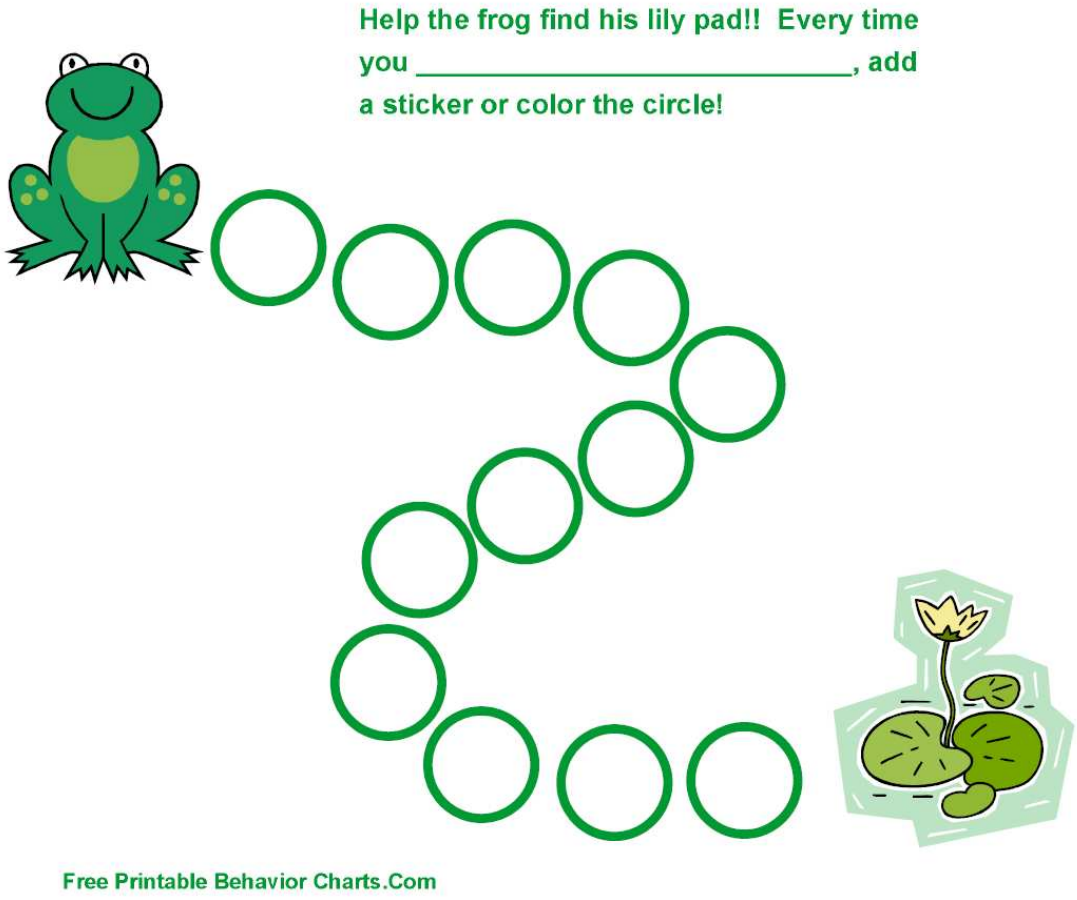
B. Identify Context/Setting Conditions: classroom, hallways, playground, home, large and small group, independent tasks, not receiving attention, adult request, unclear expectations, particular peers

C. Identify Consequences or Effects: behavior ignored, teacher negotiation, teach new behavior

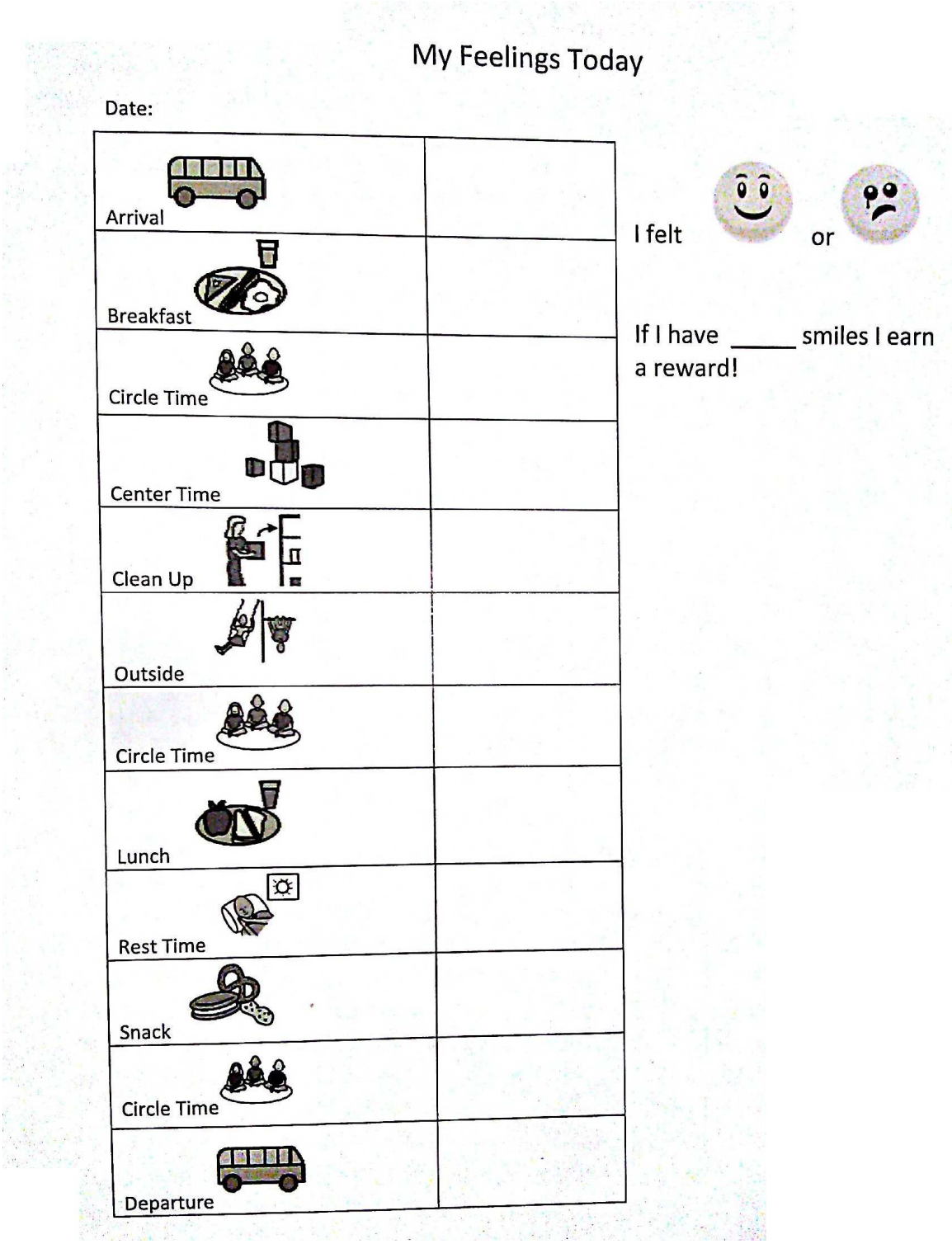
D. Identify the Function of the Behavior: get desired item, gain adult and peer attention, control situation, does not have skills, lack of security

Appendix E

Target A behavior chart



Target B behavior chart



CURRICULUM VITAE

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EDUCATION

University of Wisconsin – Milwaukee, Milwaukee, WI
Expected Doctoral degree **December 2012**
Educational Psychology
Specialization in School Psychology

Dissertation: Consultation with Preschool Teachers: Supporting Treatment Integrity to Improve Effectiveness

University of Wisconsin – Milwaukee, Milwaukee, WI
Master of Science **December 2007**
Educational Psychology
Specialization in School Psychology

Wheaton College, Wheaton, IL
Bachelor of Arts **May 2003**
Major: Psychology
Urban Studies Certificate

AWARDS

Chancellor's Graduate Student Award **2005-2007**

PROFESSIONAL EXPERIENCE

Onslow County Schools, Onslow County, NC **August 2010-Present**
NC DPI Licensed School Psychologist
Primary duties include conducting special education eligibility assessment on a wide age range of students (preschool through high school). Consult with teachers regarding academic and behavior interventions. Provide professional development to teachers and assistant teachers. Monitor paperwork and timelines for state compliance.

Louisiana School Psychology Internship Consortium (APA Accredited) **August 2009-July 2010**
Pre-Doctoral School Psychology Internship
School Psychologist in Jefferson Parish Public Schools. Participated on the Academic and Behavior Intervention team at three schools; two elementary schools and one middle school. Implemented academic and behavior interventions. Conducted special education eligibility assessments.
Supervisor: Cicily Strain, Ph.D.

University of Wisconsin – Milwaukee, Milwaukee, WI
Project Assistant **August 2006 – July 2009**
Primary duties included assessment of children and classrooms, data collection and entry, and providing feedback and results to the teachers.
Supervisor: Mary McLean, Ph.D.

Shorewood Public Schools, Shorewood, WI
Practicum Student **September 2007 –July 2008**
Conducted special education eligibility assessments, consultations with teachers, participated on IEP teams and problem solving teams, individual therapy and educational assistance. Worked both in the elementary school and middle/high school.

Supervisors: Arthur Anderson, Ph.D. and Ann Boyd, MS

Child Neuropsychology Department, Medical College of WI, Milwaukee, WI
Practicum Student **September 2006–August 2007**
Conducted neuropsychological testing with children with a variety of presenting problems such as epilepsy, ADHD, and learning disabilities.
Supervisors: Robert Newby, Ph.D. and Jennifer Koop, Ph.D.

University of Wisconsin – Milwaukee, Milwaukee, WI
Project Assistant **September 2005–August 2006**
Primary duties included assessment of children, data collection, data entry and analysis, tutoring children, and organization of Family Library.
Supervisor: Karen Stoiber, Ph.D.

PRESENTATIONS

Stoiber, K.C. & Marsh, C.J. (2011, February). *Responsive Function Linked Strategies for Children with Challenging Behavior.* Mini-Skills session presented at the meeting of the National Association of School Psychologists, San Francisco, CA.

Byerley, A.K. & Marsh, C.J. (2010, November). *Retention and social promotion in the public schools.* Paper presented at the meeting of the Louisiana School Psychology Association, Lafayette, LA.

Stoiber, K.C, Marsh, C.J., Brumm, J., & Huffman, J. (2009, February). *Impact of individual and school factors in predicting academic achievement for urban youth.* Poster presented at the meeting of the National Association of School Psychologists, Boston, MA.

Stoiber, K.C. & Marsh, C.J. (2008, February). *Important predictors of academic achievement and motivation in urban youth.* Paper presented at the meeting of the National Association of School Psychologists, New Orleans, LA.

MEMBERSHIPS

National Association of School Psychologists since 2006
Student Representative 2007-2008