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Increasing Parents' Treatment Integrity to a Homework Intervention Through Conjoint Behavioral Consultation and Performance Feedback

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Increasing Parents’ Treatment Integrity to a Homework Intervention
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Melissa Annette Collier-Meek, PhD
University of Connecticut, 2013

Assessing treatment integrity is vital to ensure an intervention is implemented as planned and to appropriately evaluate student outcomes. Performance feedback, an empirically supported method to increase low treatment integrity levels, has been evaluated primarily with school personnel. Homework is a widely used and effective school practice, which some students struggle to complete with accuracy. These students may benefit from interventions that necessitate implementation by parents. To date, no study has systematically assessed (a) parent treatment integrity levels, (b) the delivery of performance feedback to parents, and (c) the agreement between parent self-report and permanent product data. To begin the process of answering these questions, this dissertation assessed parents’ implementation within a randomized multiple baseline design. To improve fifth-grade students’ homework completion and accuracy, parents and teachers participated in Conjoint Behavioral Consultation to individualize a parent-implemented homework intervention. Parents’ treatment integrity was below the criterion, though specific level and variability differed across participants. Following the receipt of performance feedback, parents’ implementation briefly increased, but attrition issues preclude drawing conclusions about causality. In addition, (a) the effectiveness of the homework intervention, (b) the relationship between the homework intervention and treatment integrity data, and (c) acceptability and social validity of the intervention were evaluated.
Increasing Parents’ Treatment Integrity to a Homework Intervention
Through Conjoint Behavioral Consultation and Performance Feedback

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B.S., University of Connecticut, 2008
M.A., University of Connecticut, 2009

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Doctor of Philosophy Dissertation

Increasing Parents’ Treatment Integrity to a Homework Intervention Through Conjoint Behavioral Consultation and Performance Feedback

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Chapter I: Introduction

Implementation of evidence-based practice requires adequate treatment integrity (Kratochwill et al., 2010; Peterson, Homer, & Wonderlich, 1982; Sanetti & Kratochwill, 2009a). Treatment integrity is conceptualized as a multidimensional construct (e.g., Power et al., 2005), but simply defined, it is the degree to which an intervention is implemented as planned (Gresham, 1989; Sanetti & Kratochwill, 2009a). In general, low levels of treatment integrity have been associated with poorer intervention outcomes (e.g., Gansle & McMahon, 1997). High levels of treatment integrity typically sustain for only a brief period following intervention training, and support is often required to increase these levels (Noell, Witt, Gilbertson, Ranier, & Freeland, 1997; Noell et al., 2005). Performance feedback, an empirically supported method of promoting high levels of treatment integrity for school-based interventions, involves a brief meeting during which the intervention and implementation data are reviewed (Burns, Peter, & Noell, 2008; Noell, 2010; Sanetti, Luiselli, & Handler, 2007). For evidence-based practice to be fully realized in the field of education, educators must assess treatment integrity and apply strategies, such as performance feedback, to promote high levels of treatment integrity.

Homework, a widely used task assigned by school personnel intended to be completed during non-school hours, is considered to be an effective academic practice (Cooper, 1989; Cooper, Civey Robinson, & Patall, 2006). Some students struggle with homework completion and accuracy, which may decrease the potential benefits of homework such as increased retention, understanding of content, and study skills (Bryan & Burnstein, 2004; Cooper & Valentine, 2001). Typical interventions to increase homework completion or accuracy may include school, parent, and self-management components (Jenson et al., 1994). Such
interventions, implemented by parents, have been effective in increasing students’ homework completion and accuracy (e.g., Weiner, Sheridan, & Jenson, 1998).

Indeed, the proper administration of many student interventions requires implementation by parents, in addition to school staff. Further, research has demonstrated the importance and positive outcomes associated with family-school partnerships (Hoover-Dempsey & Sandler, 1995; Hoover-Dempsey et al., 2001). To facilitate and structure this collaboration, Conjoint Behavioral Consultation (CBC) was developed (Sheridan, 1997; Sheridan, Kratochwill, & Bergan, 1996). In CBC, a consultant leads a series of meetings during which parents and teachers (a) discuss a student problem, (b) collect baseline data, (c) design an intervention, (d) implement the intervention with continued data collection, and (e) discuss intervention effectiveness. Research consistently supports CBC as an effective method of collaboration and improving student outcomes (e.g., Garbacz et al., 2008; Weiner et al., 1998). Recent studies have begun to examine treatment integrity in reference to CBC (Sheridan et al., 2009; Swanger-Gagne, Garbacz, & Sheridan, 2009).

As treatment integrity begins to be assessed in relation to CBC, researchers will have to grapple with (a) how to systematically assess parental treatment integrity, and (b) what appropriate and evidence-based strategies can be used when parents’ levels of treatment integrity are low. As of yet, no such strategies have been identified. Although performance feedback has consistently been shown to increase the treatment integrity of school staff (e.g., Noell et al., 1997, 2005), only two studies have attempted to examine the effect of performance feedback on parents’ treatment integrity, and varying design flaws preclude drawing conclusions (Bonar, 2007; Connell, 2009). As such, this dissertation was designed and implemented to
systematically examine parents’ treatment integrity and assesses the effectiveness of performance feedback on low parent treatment integrity.

**Statement of the Problem**

To promote student outcomes, evidence-based interventions should be implemented with a high degree of treatment integrity (Sanetti & Kratochwill, 2009a). However, school personnel’s treatment integrity levels typically decrease following implementation training, and support is needed to sustain acceptable levels of treatment integrity (e.g., Noell et al., 1997). Performance feedback is an empirically based method to increase school personnel’s treatment integrity (e.g., Noell et al., 1997, 2005; Solomon, Klein, & Politylo, 2012). Homework is a widely used and effective educational practice (Cooper et al., 2006), which many student struggle to complete with accuracy (Bryan & Burnstein, 2004). Interventions to improve homework completion and accuracy often include parent involvement (Jenson et al., 1994). Furthermore, family-school collaboration has been shown to be beneficial for student outcomes (Christenson & Reschly, 2010; Sheridan et al., 2012). CBC is an evidence-based framework for designing and implementing interventions with teachers and parents (Sheridan et al., 1996), but supporting research does not typically include systematic treatment integrity data (Collier-Meek & Sanetti, 2012; Sheridan et al., 2009; Swanger-Gange et al., 2009). In fact, appropriate methods for assessing and increasing parent treatment integrity have not been identified, despite the need for acceptable levels of treatment integrity during student intervention implementation, regardless of treatment agents (e.g., teachers, parents). This dissertation was developed to address these gaps in the literature through the application of assessment and promotion methods successfully used in the school setting to parents’ treatment integrity.
PARENTS’ TREATMENT INTEGRITY

Chapter II: Review of the Literature

Recent education movements have highlighted the importance of utilizing evidence-based practice to promote improved student outcomes (Kazdin, 2004; Kratochwill, 2007; Kratochwill, Albers, & Steele-Shernoff, 2004). Evidence-based practice involves employing scientific methods within school practice, utilizing high-quality research to inform intervention choice and implementation decisions, and evaluating the effectiveness of implemented interventions (Drake, Latimer, Leff, McHugo, Burns, 2004; Kratochwill et al., 2004). Evidence-based interventions must be implemented with a high level of treatment integrity to optimize positive student outcomes (Kratochwill et al., 2010; Sanetti & Kratochwill, 2009a, Walker, 2004). Therefore, as evidence-based practices are promoted in schools, strategies to increase the treatment integrity of diverse treatment agents (e.g., school personnel, parents) must be considered and assessed.

Treatment Integrity

Treatment integrity (also known as treatment fidelity, procedural reliability, or intervention implementation) can be considered the degree to which an intervention is implemented as planned (Gresham, 1989; Sanetti & Kratochwill, 2009a). Though a critical construct in intervention research, adequate levels of treatment integrity are often assumed, rather than assessed (Dane & Schneider, 1998; Dusenbury, Brannigan, Falco, & Hansen, 2003; Gresham, Gansle, Noell, Cohen, & Rosenblum, 2003; Hill, King, Lemons, & Partanen, 2012; McIntyre, Gresham, DiGennaro, & Reed, 2007; Naleppa & Cagle, 2010; Peterson et al., 1982; Sanetti, Gritter, & Dobey, 2009). However, without implementation data, experimental validity may be affected and study conclusions may be flawed. Only more recently has psychological and
educational research attended to treatment integrity, including studies that evaluate the relationship to student outcomes (e.g., DiGennaro Reed, Reed, Baez, & Maguire, 2011, Zvoch, 2012), proper measurement of treatment integrity (McKenna, Rosenfield, & Gravois, 2009; Sheriden et al., 2009), and promotion of treatment integrity when low (Noell et al., 1997, 2005; Sanetti, Kratochwill, Long, Byron, & Collier-Meek, 2013; Solomon et al., 2012). Findings from these investigations have supported the importance of treatment integrity and, as such, educational and psychological professional associations and recommendations have begun to attend to treatment integrity (American Psychological Association, 2002; McGivern & Walter, in press; National Association of School Psychologists [NASP], 2010). This evolution of the construct of treatment integrity in education is reviewed in the following paragraphs as related to (a) the early study of treatment integrity, including an acknowledgement of treatment integrity as related to experimental validity; (b) conceptualizations of treatment integrity, including early conceptualizations and current hypothesized dimensions of the construct; (c) present practice-based research and professional recommendations, including the relationship between treatment integrity and student outcomes; and (d) measurement methods and related findings.

**Early study of treatment integrity.** Early studies in psychology failed to explicitly define the treatment itself or include data related to its application (VandenBos & Pino, 1980). This limited specification made it impossible to accurately replicate or assess the treatments under investigation. However, in 1952, Hans Eysenck remarked on this pattern of limited specification in treatment research and called for increased accountability in the field. Subsequent studies began to include increased detail of treatments and evaluation or monitoring of treatment integrity (e.g., Rogers & Dymond, 1954). That said, the change in inclusion of treatment integrity data or sophistication of these analyses was not instantaneous. Almost 30
years later, in 1981, Yeaton and Sechrest called attention to three “dimensions of treatment” (p. 156), including strength, integrity, and effectiveness, and extolled the necessity of evaluation and consideration of these areas, which were not regularly included in the literature. Even recently, researchers have called the present levels of rigorous treatment integrity evaluation in psychological research inadequate (Perepletchikova, Treat, & Kazdin, 2007).

In the field of behavioral research in education, the loud call for increased treatment integrity evaluation came in the early 1980’s, with a publication by Peterson, Homer, and Wonderlich (1982) in the Journal of Applied Behavior Analysis (JABA). The authors pointed to the “curious double standard” (p. 478) wherein dependent variables are specified and rigorously evaluated, but the independent variable does not receive the same empirical attention. Without further evaluation of the independent variable, through the collection and monitoring of treatment integrity data, the conclusions about the relationship between the dependent and independent variable are suspect (see Treatment Integrity and Validity below). The authors argue that the lack of treatment integrity data may result in several types of inaccuracies, which may impact study procedures and conclusions, and discount several arguments that may be made against taking treatment integrity data, such as simply reviewing the dependent variables for potential changes in the application of the independent variable.

To underscore their point, the authors reviewed experimental studies in JABA from 1968 to 1980 to examine the presence of an operational definition of the independent variable and treatment integrity data (Peterson et al., 1982). Findings indicated that the majority of studies did not sufficiently assess the independent variable. More specifically, the authors noted that (a) most studies did not include treatment integrity data, even when the study was at high risk for inaccuracy, (b) most studies did include operational definitions when necessary, and (c) the
inclusion of an operational definition and treatment integrity data remained mostly stable across
the evaluation period, despite the increased call for the presence of these data. The authors
conclude with a strong call for the rigorous assessment of the independent variable to ensure
multiple aspects of experimental validity.

**Treatment integrity and validity.** As noted by Peterson et al. (1982), the assessment
and evaluation of treatment integrity data affects the validity of an experiment. Validity is the
“approximate truth of an inference” (Shadish et al., 2002, p. 34). More specifically, when
examining the validity of an experiment, researchers evaluate if the findings support the
inferences as true or accurate (Shadish et al., 2002). Most early calls to attend to treatment
integrity data in intervention research focused on the impact of rigorous evaluation of treatment
integrity on experimental validity (e.g., Peterson et al., 1982). More specifically, if the
independent variable is not properly implemented (as assessed through treatment integrity data),
the experimental validity may be affected, and conclusions about the study may potentially be
flawed. Attention to treatment integrity in experimental research has implications for four types
of experimental validity (Shadish et al., 2002). These types of validity are described below
alongside related treatment integrity considerations.

**Statistical conclusion validity.** Statistical conclusion validity refers to inferences about
the presence of covariation between the intervention and outcome and the strength of that
covariation (Shadish et al., 2002). If treatment integrity data are variable, this may affect the
statistical conclusion validity, as the estimated effect of the intervention may vary across
participants or may be an underestimate the full effect of the intervention.

**Internal validity.** Internal validity refers to inferences about the covariation between the
intervention and outcomes as being a causal relationship (Shadish et al., 2002). To establish
internal validity, the variables must have been manipulated or measured. Treatment integrity data are essential for evaluating internal validity (Shardish et al., 2002; Peterson et al., 1982). More specifically, if treatment integrity data are not present, it may not be possible to conclude whether the intervention was implemented as planned and, as such, whether the outcomes were related to the intervention. If treatment integrity data are present, the extent to which the intervention was implemented provides critical information for evaluating what caused the change in outcomes.

**Construct validity.** Construct validity refers to inferences from specifics in the study (e.g., intervention, outcomes) to higher-order constructs (Shadish et al., 2002). To make accurate conclusions about higher-order constructs, specifics within the study must be accurately measured. It should be clear what is, and what is not, part of each study component. Treatment integrity data help to ensure the parameters of an intervention is accurately defined and, thus, allows for appropriate inferences to be made.

**External validity.** External validity refers to inferences about the causal relationship in the study as it applies to other variables (Shadish et al., 2002). External validity can be evaluated in regards to those people, settings, intervention variables, or measurement variables included in the study as well as those people, settings, intervention variables, or measurement variables outside of the study. Treatment integrity data may inform external validity, as interventions that are not adequately defined or implemented consistently may not be able to be generalized from appropriately or replicated accurately.

**Conceptualizations of treatment integrity.** In the last 30 years, there has been increased attention to the analysis of treatment integrity as a construct that is affected by different variables and/or includes multiple dimensions. Although many theories about treatment integrity have
developed, evolved, and persisted, there are limited empirical data to support any particular view of the construct (Sanetti & Kratochwill, 2009a). The following review discusses the development of this construct from the educational and psychological fields, from a unidimensional construct influenced by outside variables to a multidimensional construct that may be impacted by external variables.

_Treatment integrity as a unidimensional construct._ In 1981, Yeaton and Sechrest included treatment integrity as one of the three dimensions of successful interventions, the others being strength and effectiveness of the treatment. In the article, the authors define treatment integrity simply as “the degree to which treatment is delivered as intended” (p. 160), note the limited assessment of these data, and emphasize the importance of monitoring implementation. Further, the authors suggested a few variables may be related to treatment integrity, including (a) intervention complexity, (b) the skill of implementers, (c) the level of intervention implementation required to produce changes in outcomes, and (d) the potential degradability of an intervention. Though intervention strength and effectiveness are primarily discussed separately from treatment integrity, the authors hypothesized that these three dimensions may be interrelated.

Similarly, Gresham (1989) described treatment integrity a unidimensional construct (i.e., adherence to a prescribed intervention plan), but hypothesized that it is influenced by several factors. These factors included particulars to the intervention itself as well as perceptions of the implementers. More specifically, Gresham hypothesized that treatment complexity and effectiveness as well as the time, materials, and implementers required may influence levels of implementation. In addition, he surmised that an implementers’ motivation as well as their perception about the effectiveness may influence implementation.


**Treatment integrity as a two-dimensional construct.** In 1991, Moncher and Prinz extended their definition of treatment integrity to encompass more than one dimension. More specifically, the authors made the distinction between (a) an intervention being implemented as planned and (b) treatment differentiation, or the difference between the interventions present in different conditions of study. The importance of treatment differentiation is necessary to determine if the independent variable was manipulated as designed. The authors posit that the extent of implementation and the distinction between conditions are separate but critical components to evaluate when considering treatment integrity. Further, the authors noted precursor variables that may affect treatment integrity including the operationalization of a treatment, implementer training, intervention manuals, and supervision of treatment agents. During implementation, the authors note particular “treatment features”, such as (a) the quality and duration of sessions and (b) the frequency, quality, and durations of sessions. Notably, Moncher and Prinz describe these features as aspects of the treatments, rather than treatment integrity, a conceptualization that is distinct from later theories (see Treatment Integrity as a Multidimensional Construct below).

In the psychology literature, two other dimensions of treatment integrity were proposed, adherence and competence (Waltz, Addis, Koerner, & Jacobson, 1993). Adherence was defined as the extent to which an implementer utilizes methods proscribed by the intervention and avoids use of other methods, whereas competence referred to the skill with which an implementer delivers the intervention. The authors further described variables that may influence competence including client variables (e.g., specific issue being addressed, intensity of the problem) and stage of implementation. Per this definition, adherence is required to have competence, but competence is not necessary to have adherence (Waltz et al., 1993). The authors further specify
that competence does not refer to overall implementer competence, but rather their skill implementing a particular intervention.

Using similar definitions, but distinct wording, Power and colleagues (2005) also described treatment integrity as having two primary dimensions. More specifically, the authors differentiate between content (i.e., the extent of implementation) and process (i.e., the quality of implementation). Further, the authors describe additional dimensions suggested by other researchers (Dane & Schneider, 1998; see Treatment Integrity as a Multidimensional Construct below) as being encompassed by these two major dimensions. More specifically, the authors noted that treatment integrity content may also include adherence, exposure, and program differentiation, whereas treatment integrity process may include quality and participant responsiveness.

**Treatment integrity as a multi-dimensional construct.** Recent conceptualizations of treatment integrity include multiple dimensions (Sanetti & Kratochwill, 2009a). In their review of prevention research, Dane and Schneider (1998) described five dimensions of treatment integrity including adherence (i.e., the extent intervention components delivered matched the intervention manual), exposure (i.e., duration of implementation including number of sessions, length of sessions, or frequency of sessions), quality of delivery (i.e., qualitative intervention delivery), participant responsiveness (i.e., participant response to intervention), and program differentiation (i.e., manipulation checks to avoid treatment diffusion). Across the 162 studies included in their review, only 13% included exposure data and 11% included adherence data. The other dimensions were found in fewer than 8% of the studies.

In their review of randomized controlled trials of psychosocial interventions in psychological and psychiatric journals, Pereplechitkova et al. (2007) define three dimensions of
treatment integrity. These dimensions include therapist treatment adherence, therapist competence, and treatment differentiation. In this way, these dimensions seem to merge the dimensions proposed by Moncher and Prinz (1993) and Waltz et al. (1993). Unfortunately, the findings from their 2007 review revealed that adequate measurement of these areas were assessed in only few studies (adherence = 8.90%, competence = 1.50%, and treatment differentiation = 3.00%).

In a different conceptualization of treatment integrity, dimension of the client participants’ involvement was distinguished from the implementer’s behavior (Jones, Clarke, & Power 2008). Related to the implementer, three dimensions of implementer treatment integrity are described, including adherence, competence, and program differentiation. In addition, client participant dimensions proposed include dosage received (e.g., percentage of sessions attended), participant adherence (e.g., percentage of homework completed), and participant responsiveness (e.g., percentage of participant initiated statements).

Through a different lens, Fixsen and colleagues (2005) also considered treatment integrity to be a multidimensional construct. Rather than simply looking at the interaction between an implementer and the client, the conceptualization of Fixsen and colleagues developed attends to treatment integrity within an organizational context. In the model, the source (i.e., best practice) is provided to the destination (e.g., practitioner, organization) through the communication link (i.e., purveyor who actively works to implement a practice in the environment) through a feedback mechanism (i.e., information flow between all levels). These factors operate within a sphere of influence, or the contextual factors that may directly or indirectly influence implementation. In this conceptualization, implementation is viewed as a process and part of the organizational system.
In summary, the current conceptualizations of treatment integrity include several hypothesized dimensions, but there is limited empirical guidance or clear consensus. Dimensions that are regularly cited include adherence (i.e., extent to which an intervention implemented as designed, Dane & Schneider, 1998; Jones et al., 2008; Waltz et al., 1993), exposure (i.e., time the participant’s engaged in the intervention; Dane & Schneider, 1998; Jones et al., 2008; Power et al., 2005), participant responsiveness (i.e., the participant’s engagement in the intervention; Dane & Schneider, 1998), participant adherence (i.e., the participant’s implementation of the intervention as planned; Jones et al., 2008), and program differentiation (i.e., the difference between the intervention and typical practice; Dane & Schneider, 1998; Jones et al., 2008).

Further, researchers seem to make a clearer distinction between treatment integrity as a construct itself and related influencing variables (see Hypothesized Influencing Variables below). That said, there is limited agreement around the specific dimensions of treatment integrity, potentially due to issues such as varied intervention foci and environmental variables and poor treatment integrity measures (Gresham, in press; Sanetti & Kratochwill, 2009a).

**Treatment integrity and related variables.** Similar to the increased attention to treatment integrity as a construct, empirical attention to potential influences or related barriers to treatment integrity has increased. These variables may act to mediate or moderate treatment integrity. To define, a mediator explains the relationship between the independent and dependent variable, whereas a moderator impacts the direction and/or strength of the relationship between the independent and dependent variable (Baron & Kenny, 1986). The identification of potential variables began with hypothesized lists of seemingly influential variables (e.g., intervention complexity; Gresham, 1989; Perepletchikova & Kazdin, 2005). More recent studies include systematic reviews (e.g., Durlak & Dupre, 2008; Fixsen et al., 2005; Greenhalgh,
Roberts, MacFarlane, Bate, & Kyriakidou, 2004; Stith et al., 2006) or employ statistical modeling to examine predictors of different levels of implementation (e.g., Bosworth, Gingiss, Potthoff, & Roberts-Gray, 1999; Henderson MacKay, & Peterson-Badali, 2006; Kam, Greenberg, & Walls, 2003). Despite the recent attention to these variables, there are few conclusions about the influence of these variables on treatment integrity in schools.

In fact, it may be useful to look to other related fields, such as prevention science and human services, to begin conceptualizing these variables and their influences within schools (Sanetti & Kratochwill, 2009a). Based on this review, variables related to treatment integrity can be organized into external environment, organization, intervention, and implementer level variables. Variables in the first level, external environment, are related to dynamics between organizations such as schools, districts, agencies, and communities (Bosworth et al., 1999; Greenhalgh et al., 2004). For instance, variables may include the coordination between stakeholders, district policies, and bureaucratic barriers (e.g., Bosworth et al., 1999; Greenhalgh et al., 2004). Organization variables are related to the support for implementation available within a specific organization (i.e., school), such as materials, funding, staff, and training (Durlak & DuPre, 2008; Kam et al., 2003; Stith et al., 2003). Intervention variables are related to characteristics of the specific intervention, practice, or innovation that might facilitate or inhibit implementation (Bosworth et al., 1999; Gresham, 1989; Fixsen et al., 2005). For example, variables may include intervention complexity or resources needed to implement it properly, including time, resources, and number of implementers. Implementer variables are related to the characteristics and perspectives of the person(s) implementing the intervention (Bosworth et al., 1999; Perepletchikova & Kazdin, 2005). These may include the implementer’s perspective on the intervention need and effectiveness, motivation, self-efficacy and skill (Henderson et al.,
The development of these four levels of variables potentially related to treatment integrity was designed to distill a large list of hypothesized variables (Sanetti & Kratochwill, 2009a). Further research is needed to empirically attest to the relevance and influences of these variables.

**Treatment integrity measurement.** To facilitate the further study of treatment integrity, related influences, and its relationship to outcomes, it is necessary to attend to the measures used to assess treatment integrity. Unfortunately, there are few psychometrically sound measures to assess implementation, and methods to accurately evaluate treatment integrity can only be considered emerging (Gresham, in press; Sanetti & Kratochwill, 2009a; Sheriden et al., 2009). To begin developing appropriate measures, a series of empirical questions must be addressed, however there are currently limited data available to do so. Therefore, to describe the present status of research, the (a) issues in treatment integrity measurement, (b) commonly used measurement methods, and (c) current best practice for treatment integrity assessment are described below.

**Issues in treatment integrity measurement.** As a part of the development of empirically sound measures of treatment integrity, several fundamental issues need to be examined and resolved. It is not clear if the answers to these issues will be similar across most student interventions or whether different decision rules will be applied to different types of interventions. Some of the issues to be resolved and related considerations are described below.

**Specifying and weighting intervention steps.** To develop a treatment integrity measure, intervention steps must be specified (Gresham, 1989; Sanetti, Fallon, & Collier-Meek, 2011). It is not clear whether a more global or granular specification of intervention steps is appropriate or whether the appropriate level of specification is dependent on the particular type of step or
intervention. Whatever level of specification is employed, measures must be sensitive enough to determine adequate levels of treatment integrity from those that are inadequate. Once specified, intervention steps may not be equally as critical to the intervention and the weighting of steps may be necessary (Gresham, 1989; Noell, 2008). Gresham (1989) suggested that weighting of intervention steps may be determined by the theoretical basis of an intervention or empirical data regarding the relationship between specific “critical” steps to improved outcomes. However, Noell (2008) recommends not weighting intervention steps, as there are no data to suggest how steps should be weighted.

*Developing treatment integrity criteria.* The level of treatment integrity necessary to produce efficient, positive changes in outcomes is not yet clear. Many interventions, or particular intervention steps, may not need to be implemented with 100% treatment integrity to be effective, though for others that level of implementation may be necessary. Studies that examine the promotion of treatment integrity have specified different levels as “inadequate” treatment integrity. For example, below 100% (DiGennaro, Martens, & McIntyre, 2005; DiGennaro, Martens, & Kleinmann, 2007) or below 80% (Sanetti, Kratochwill, et al., 2013) of intervention steps fully implemented have been used as criteria. Evaluating treatment integrity alongside outcome data may be useful to further specifying appropriate criteria for implementation.

*Capturing a representative sample.* There are few guidelines for how often treatment integrity should be assessed and by what methods to ensure a representative sample of implementation is achieved. As research findings illustrate the variability of school-based implementers’ treatment integrity across time (Noell et al., 1997, 2005; Sanetti, Fallon, et al., 2013), it is likely appropriate to continually assess treatment integrity. The frequency of observations and intensity of the methods utilized may depend on the type of decisions that may
be made based on the data, similar to recommendations for student outcome observation (Sanetti et al., 2011). For instance, if data will be used to determine high-stakes decisions, such as special education eligibility, as compared to relatively low-stakes decisions, such as entering a Tier 2 phonics group, the intensity should be greater. Until better guidelines are available, it may simply be important for researchers to include the percentage of sessions sampled (Collier-Meek & Sanetti, 2013).

*Reliability of measurement.* Developing treatment integrity measures that can be used to demonstrate adequate reliability is essential (Gresham, in press; Sheridan et al., 2009). Several methods have been suggested to evaluate the reliability of these measures, including assessing inter-rater agreement through multiple methods and evaluating the internal structure of the data (Mowbray, Holter, Teague, & Bybee, 2003; Sheriden et al., 2009). In addition, the potential usefulness of Generalizability Theory has been suggested (Gresham, in press). Despite these recommendations, a recent review found that most studies that included treatment integrity data failed to include inter-rater agreement, which may be the most basic method to support the reliability of the measures (Collier-Meek & Sanetti, 2013).

*Validity of conclusions.* Consideration of validity of the conclusions derived from these measures is critical to utilizing these treatment integrity methods to form conclusions about the adequacy of implementation. Validity could be assessed by examining the convergent validity of multiple types of treatment integrity measures, or evaluating the relationship between treatment integrity and outcomes (Mowbray et al., 2003; Sheriden et al., 2009). However, both methods may, under the wrong circumstances, only promote a fallacy that the assessment of treatment integrity is designed to avoid (i.e., assuming implementation data based solely on student outcome data).
**Common measurement methods.** Several methods are commonly used to assess treatment integrity, including direct observation, permanent product review, and self-report (Gresham, 1989; Sanetti et al., 2011; Sheriden et al., 2009). The utility of these methods as well as their related strengths and weaknesses are described below.

*Direct observation.* To complete direct observation, a trained observer assesses the implementation of specific intervention steps in the actual implementation setting. Direct observation is often considered a more defensible treatment integrity method, as observers may be able to be more objective than the implementer themselves (Gresham, 1989; Sanetti, Chafouleas, Christ, & Gritter, 2009; Noell, 2008). Further, when completing an observation, it may be possible to evaluate multiple dimensions of treatment integrity. However, direct observation can be highly resource intensive, especially when intervention implementation spans a long period of time, and, as such, may not be practical. In addition, the presence of an observer may lead to reactivity by the implementer (Kazdin, 1982).

*Permanent product review.* Permanent product review involves the assessment of materials or protocols used during implementation to ascertain evidence of treatment integrity (Noell et al., 1997, 2005). In this way, many permanent products may not require implementers to complete anything in addition to implementation (Sheridan et al., 2009). Permanent products can be used to feasibly sample across multiple instances of implementation. However, some interventions or specific intervention steps do not result in permanent products and cannot be assessed in this manner (Sanetti et al., 2011). Further, it is possible in some circumstances that permanent product review may be a measure of simple paperwork completion.

*Self-report.* For self-report, the implementer rates their perception of their adherence to specific intervention steps. As a result of this rating, a percentage of adherence may be
calculated. Some researchers have found that implementers tend to overestimate their adherence (e.g., Wickstrom, Jones, LaFleur, & Witt, 1998), though other studies found that implementers can be accurate reporters (Sanetti & Kratochwill, 2009b). Further, another study found that parents’ self-report of treatment integrity was consistently lower than treatment integrity levels per permanent products forms (Swange-Gagne et al., 2009). If treatment integrity is accurately reported, self-report can be a feasible, low-resource method to assess implementation.

*Current best practice for treatment integrity measurement.* Despite the substantial issues in treatment integrity measurement, implementation assessment should continue to occur and can be guided by several best practice recommendations. In as much as all measurement methods are somewhat flawed, use of multiple methods is recommended when feasible (Sanetti et al., 2011; Swanger-Gagne et al., 2009). Further, as the dimensions that encompass treatment integrity are not yet clear, it may be appropriate to assess multiple dimensions and evaluate how these dimensions effect intervention utility (Sanetti & Fallon, 2011; Schulte, Easton, & Parker, 2009). Sampling from intervention sessions should occur across time due the variability in implementers’ treatment integrity and the percentage of sessions sampled should be noted (Collier-Meek & Sanetti, 2013; Sanetti et al., 2011). Last, if possible, the inclusion of inter-rater data is advantageous to report (Collier-Meek & Sanetti, 2013; Sheridan et al., 2009).

*Treatment integrity in schools.* The assessment of treatment integrity is necessary for both research and practice, as it is required to make accurate inferences about student outcomes (Shadish et al., 2002; Peterson et al., 1982). However, treatment integrity is not regularly assessed (Cochrane & Laux, 2008; Sanetti et al., 2011). School psychologists report that treatment integrity data are always included in only 11.3% of their one-to-one consultation and 1.9% of their school-based problem-solving team cases (Cochrane & Laux, 2008). Increasing the
prevalence of treatment integrity assessment is critical, particularly in light of research findings related to the relationship between treatment integrity and student outcomes as well as levels of treatment integrity demonstrated by school-based implementers and need for treatment integrity promotion (Noell et al., 2005).

**Treatment integrity and student outcomes.** It is intuitive that adequate implementation of an intervention would be necessary to produce change in outcomes. Indeed, research has consistently supported a positive relationship between treatment integrity and student outcomes (e.g., Biggs, Vernberg, Twemlow, Fonagy, & Dill, 2008; DiGennaro et al., 2011; Forgatch, Patterson, & DeGarmo, 2005; Gansle & McMahon, 1997). Adequate levels of treatment integrity have been shown to make interventions more effective (e.g., Wilder, Atwell, & Wine, 2006) and efficient (e.g., Holcombe, Wolery, & Snyder, 1994). As research supports the importance of treatment integrity to student outcomes, it is critical to assess implementers’ treatment integrity and provide supports as needed.

**Treatment integrity levels by implementers.** Despite this important relationship between treatment integrity and student outcomes, studies of treatment integrity have consistently found that most typical school personnel demonstrate low and variables levels of treatment integrity across time (Noell et al., 1997, 2005; Sanetti et al., 2012). Limited levels of implementation have been noted for teachers (Mortenson & Witt, 1998; Noell et al., 2000), paraprofessionals (Bolton & Mayer, 2008; Hall, Grundon, Pope, & Romero, 2010), and school teams (Burns, Peters, & Noell, 2009). Further these low levels are present regardless of the type of intervention; teachers tend to similarly implement academic and behavior interventions for class-wide support (Codding, Livanis, Pace, & Vaca, 2008) or specific students (Noell et al., 2002). Though intervention training can provide initial increase in treatment integrity, these levels sustain high
levels of treatment integrity for only 1-10 days (DiGennaro et al., 2007; Mortenson & Witt, 1998; Noell et al., 1997; Sanetti & Kratochwill, 2009b; Witt et al., 1997). That means, without ongoing assessment and support, most school-based interventions are not consistently implemented and have little chance to benefit student outcomes.

Researchers are beginning to assess the treatment integrity of parents, as many families partner with schools to implement academic and behavioral interventions. A few studies that have examined parents’ implementation of educational interventions have found their treatment integrity to be low and variable, or generally comparable to school-based implementers (Bonar 2007; Connell, 2009). In a summary of CBC studies, Swanger-Gagne and colleagues (2009) reported parents’ self-report and permanent product treatment integrity levels. Parents were divided into two groups based on risk. Parents in the mainstream group had slightly lower average levels of treatment integrity (permanent products average = 79%, SD = 24%; self-report average = 77%, SD = 26%) than those parents in the at-risk group (permanent products average = 91%, SD = 18%; self-report average 81%, SD = 71%). Throughout this study, a variety of treatment integrity enhancement strategies were used to support parents’ implementation. In a different evaluation of parents’ implementation within a CBC model, Sheridan and colleagues (2009) found that parents reported high levels of treatment integrity (range = 81.05-95.57%). However, if parents did not return their treatment integrity form, this was not counted as non-adherence, which is different from many school-based studies (Noell et al., 1997, 2002; Sanetti, Fallon, et al., 2013). Similarly, in a recent randomized control trial of CBC (Sheridan et al., 2012), parents’ implementation, as inferred by self-report and permanent products, was in the moderate range (permanent product average = 68%, self report average = 81.64%). However, self-report forms were only collected for 50% of the cases and permanent products for only 68%
of the cases. Further, parents’ treatment integrity was substantially lower than teachers’ treatment integrity, which may have been related to student outcomes. Thus, research is necessary to clearly assess and document parents’ treatment integrity. Overall, their implementation seems to be variable and may be inadequate and have limited potential to impact student outcomes.

**Treatment integrity promotion.** Though acceptable levels of treatment integrity are critical to efficiently improving student outcomes, treatment integrity levels are often quite low, as described in the preceding section. To address this discrepancy, several strategies to promote implementers’ treatment integrity have emerged in the literature (Fallon, Collier-Meek, Maggin, & Sanetti, 2013; Kelleher, Riley-Tillman, & Power, 2008; Sanetti, Kratochwill, & Long, 2013; Solomon et al., 2012; Sterling-Turner et al., 2002). These promotion strategies can be organized into *proactive approaches*, strategies that target implementers prior to intervention implementation, and *reactive approaches*, strategies that are applied following the demonstration of low treatment integrity.

*Proactive treatment integrity promotion strategies.* Research suggests that high initial levels of treatment integrity may be related to higher rates of improvement in student outcomes (Vollmer, Roane, Ringdahl, & Marcus, 1999). As such, it may be beneficial to ensure high levels of treatment integrity sustain after intervention training through the use of proactive treatment integrity promotion strategies. Strategies that proactively address implementer treatment integrity with emerging research support include direct training (e.g., Sterling-Turner et al., 2002), partnership-based consultation (Kelleher et al., 2008), and implementation planning (e.g., Sanetti, Kratochwill, et al., 2013).

In direct training, the consultant provides high-quality implementation training to the consultee. Specifically, the consultant (a) verbally reviews the procedures and rationale for each
intervention component, (b) models each intervention step while the consultee acts as the student, (c) provides an opportunity for the consultee to role play the intervention, and (d) provides positive, corrective feedback (Sterling-Turner et al., 2002). In an investigation by Sterling-Turner and colleagues (2002), direct training was found to be more effective than didactic training alone in improving teachers’ treatment integrity and related student outcomes.

Partnership-based consultation is a collaborative approach to intervention development and support, in contrast to the traditional, expert-driven method of consultation (Kelleher et al., 2008). During partnership-based consultation, a consultant may (a) review potential evidence-based practices, (b) encourage the consultee to define student goals, and (c) work with the consultee to develop an intervention protocol and implementation schedule. Emerging research evidence supports the partnership-based consultation approach as a method of sustaining implementers’ treatment integrity, as compared to the expert-driven model and other approaches (Keller et al., 2008).

Implementation planning is proactive treatment integrity promotion strategy with roots in health psychology that has only recently been applied to education to support teachers’ implementation (Sanetti, Kratochwill, & Long, 2013). The strategy involves detailed logistical planning around intervention implementation (i.e., determining the who, what, where, and with what materials for each intervention step) as well as the identification of potential implementation barriers and related solutions. In a series of studies, Sanetti and colleagues (2013) found implementation planning to be effective in increasing and sustaining teachers’ treatment integrity and improving related student outcomes.

*Reactive treatment integrity promotion strategies.* Reactive treatment integrity promotion strategies are applied when an implementer’s treatment integrity levels are low. Reactive
strategies with empirical support include negative reinforcement (DiGennaro et al., 2007) and performance feedback (Noell et al., 1997).

Negative reinforcement involves meetings between a consultant and implementer wherein implementation is reviewed and practiced, however, the implementer may avoid these meetings by if acceptable treatment integrity is achieved (DiGennaro et al., 2007). As time is limited in schools, avoiding meetings was hypothesized to be highly reinforcing for teachers. Indeed, DiGennaro and colleagues (2005, 2007) demonstrated the effectiveness of negative reinforcement as a strategy to improve and sustain both general and special education teachers’ intervention implementation.

Performance feedback involves a meeting between a consultant and consultee wherein implementation is discussed and feedback is provided (e.g., Noell et al., 1997). As performance feedback has the most empirical support and was recently deemed an evidence-based practice per a review based on What Works Clearinghouse (WWC) Standards (Fallon et al., 2013), it was chosen as the appropriate treatment integrity promotion strategy for this study and is reviewed in detail below.

**Performance Feedback**

Performance feedback is a consistently supported empirical method of increasing school-based personnel’s treatment integrity (Burns et al., 2008; Codding et al., 2005; Codding et al., 2008; DiGennaro-Reed, Codding, Catania, & Maguire, 2010; Noell, Gresham, & Gansle, 2002; Noell et al., 1997; 2005; Mortenson & Witt, 1998; Witt et al., 1997; Sanetti et al., 2007; Sanetti, Fallon, et al., 2013). Many studies have demonstrated that the increase of treatment integrity subsequent to the delivery performance feedback has resulted in related improvements in student outcomes (Noell et al., 2005, Solomon et al., 2012). A recent meta-analysis and systematic
review both confirm the effectiveness of performance feedback in shaping implementers’
treatment integrity (Fallon et al., 2013; Solomon et al., 2012).

Solomon and colleagues (2012) utilized meta-analysis techniques to evaluate the effect of
performance feedback on teachers’ classroom intervention (Solomon et al., 2012). The results of
36 single-case studies were reviewed and potential moderators (i.e., setting, population, target
behavior, and latency) and type of design were coded. The results of two types of effect size
indicate that performance feedback is moderately effective at improving teachers’ treatment
integrity (average effect size across student = .62 for IRD and $R = .72$ for ALLISON-MT).

Further, to examine the effectiveness of performance feedback related to student outcomes, the
16 studies that provided student data were examined. Effect sizes indicate a smaller, but positive
effect of performance feedback on student outcomes (average effect size across student = .60 for
IRD and $R = .50$ for ALLISON-MT). Moderator analyses for student grade level and immediacy
of performance feedback were not significant and the comparison of academic and behavioral
interventions (i.e., target behavior) was not conclusive due to conflicting effect sizes. However,
results indicated that performance feedback was slightly more effective for general education
teachers, in comparison to special education teachers, which may be reflective of their unique
responsibilities or types of students and interventions supported by these types of educators. In
this meta-analysis, the difference between studies that employed experimental or quasi-
experimental designs was not significant.

The results of performance feedback studies were also reviewed in a recent systematic
review based upon WWC Standards for single-case research (Fallon et al., 2013). This analysis
technique varies from traditional meta-analytic methods as (a) only studies that employ sound
methodological quality are included; (b) case level data are evaluated visually based on multiple
criteria; and (c) evidence is determined by the number of cases that meet standards across papers, research teams, and geographical locations. In addition, this review did not limit studies based on type of implementer or setting, in contrast to the meta-analysis conducted by Solomon and colleagues (2012). Forty-seven studies were coded for study and performance feedback characteristics and individual case level data (n = 168) were reviewed for quality codes. Of the 125 cases that met design standards, most demonstrated strong or moderate evidence (43.2% and 36.8% of studies that met design standards, respectively). These findings were considered in relation to the number of papers, unique research teams, and geographic locations, and it was deemed that performance feedback could be considered an evidence-based practice. Notably, performance feedback was the first and is currently the only implementer-based strategy to have this designation, which has in the past been limited to student interventions (Fallon et al., 2013).

Components of performance feedback. As it is clear that performance feedback has substantial empirical support, it is valuable to examine the core elements of this strategy. The application of performance feedback typically involves a brief meeting between the consultant and implementer during which intervention implementation is reviewed and graphic treatment integrity data are shared (Noell et al., 1997; 2005). In addition, the consultant (a) provides positive feedback for steps consistently implemented, (b) discusses issues related to steps not implemented correctly and stresses their importance, and (c) elicits the implementer’s agreement to attend to these steps and continue with implementation.

However, variations on this typical format abound and, in some cases, additional elements are included within the delivery of performance feedback. Fallon and colleagues (2013) reported that in only 46.4% of the 28 studies that met design standards in their review included the core elements of performance feedback (i.e., verbal and graphic performance feedback,
review of student data, and problem-solving support around implementation). The other studies included a mixed combination of performance feedback elements, though most studies did include verbal performance feedback (96.4%). In addition, many studies include additional elements in the delivery of performance feedback, most commonly a discussion of barriers, goal setting, examples, and praise (Fallon et al., 2012). Other elements include negative reinforcements, positive reinforcement other than praise, self-recording, role-play and coaching.

**Development of performance feedback strategy.** Though some performance feedback studies date back to 1973 (Cossairt, Hall, & Hopkins, 1973), in a series of studies in the late-1990’s, performance feedback reemerged as a treatment integrity promotion strategy that incorporated the core elements described above. This reemergence was informed by industrial and organizational psychology literature (see Noell et al., 1997). Specifically, research findings consistently indicated that verbal and written instructions alone were not effective in changing employee behavior, but the application of prompts and feedback resulted in an increase in positive employee behavior (e.g., Harchick, Sherman, Hopkins, Strouse, & Sheldon, 1989; Harchick, Sherman, Strouse, & Sheldon, 1992). These findings were noted and performance feedback procedures were adapted and applied to promote the treatment integrity of teachers (Noell et al., 1997; Witt et al., 1997).

Using a nonconcurrent multiple baseline design, Witt and colleagues (1997) examined the relationship between performance feedback and four elementary school teachers’ treatment integrity. Performance feedback was provided daily and included verbal and graphic performance feedback as well as student progress review and implementation problem solving. Implementation of the student academic performance intervention was assessed via permanent product review. Intervention training was delivered didactically and in-vivo, and all materials
necessary were provided. Results indicate that following intervention training, where teachers implemented the intervention with 100% accuracy, teachers’ treatment integrity dropped substantially and rapidly. After performance feedback was introduced, teachers’ treatment integrity increased and remained high. In the maintenance phase (i.e., performance feedback was removed), treatment integrity levels became more variable and slightly decreased. Student outcomes improved upon the introduction of the intervention and even more so for three students upon the increased in treatment integrity during the performance feedback phase.

Building on the results of Witt et al., 1997, Noell and colleagues (1997) assessed the effectiveness of performance feedback within more typical consultation. Specifically, only didactic training was provided and materials were not made available to participants. Otherwise the research design, performance feedback elements, method of treatment integrity assessment, and student intervention remained the same as Witt et al. (1997). Following intervention training, the treatment integrity of the three participating elementary teachers demonstrated a substantial decreasing trend. Upon application of performance feedback, treatment integrity increased and remained high. In the maintenance phase, treatment integrity of two teachers increased in variability, while one teachers’ treatment integrity remained similar to the performance feedback phase. From baseline to the performance feedback phase, student outcomes increased, though some variability between phases was present for some students. The findings of this study demonstrate the performance feedback can be effective even in the absence of high-quality training and material support.

Extending these findings, Mortenson and Witt (1998) utilized a multiple baseline design to evaluate the effectiveness of performance feedback when delivered weekly, as opposed to daily as it had been in Witt et al. (1997) and Noell et al. (1997). Outside of this deviation, the
methods and procedures utilized in Witt et al. (1997) were employed. Three of the four teachers’ treatment integrity dropped following initial training, where all achieved 100% implementation. After performance feedback was introduced, treatment integrity increased immediately and substantially. These levels remained high during the maintenance phase. One teacher did not receive performance feedback as her treatment integrity remained high throughout the study. Student outcomes were variable, but increased somewhat. These findings indicate that performance feedback is similarly effective when it is delivered weekly or daily.

To further assess the reason for the improvements to treatment integrity following the application of performance feedback in the three preceding studies, Noell et al. (2000) compared regular check-in meetings to the specific performance feedback protocol. In this multiple baseline design, five elementary school teachers implemented a peer-tutoring intervention. General methods and procedures remained similar to Witt et al. (1997) and Witt and Mortenson (1998). After implementing with 100% treatment integrity during training, all teachers’ treatment integrity dropped substantially and became somewhat variable. Upon the application of the daily check-in meetings, wherein the consultant asked about implementation but remained naïve to the data, implementation remained consistently at 0% for three teachers, but increased, though remained variable, for two teachers. When performance feedback was provided, three teachers’ treatment integrity increased, one teachers’ treatment integrity decreased slightly, and one teacher initially increased her implementation followed by a substantial decrease (potentially due to the difficulty of the intervention). Generally, these findings indicate the specific performance feedback protocol is more effective that the daily check-in meetings and provide further support for the effectiveness of performance feedback as a method to increase teachers’ treatment integrity.
The last study in this series of performance feedback studies, Noell et al. (2005), involved a group design with 45 elementary school teacher participants and students with varied presenting issues (e.g., academic, behavior). Participants were assigned to one of three conditions: (a) weekly check-in meetings, (b) weekly check-in meetings with commitment emphasis wherein the importance of sustained commitment was discussed, and (c) performance feedback that was delivered daily until 100% implementation was earned for two days and then delivered weekly. Assignment was random, except groups were kept equal and consultants served in all conditions. Consultant conditions were applied for three weeks. Results indicated performance feedback (mean = 77.1%) was more effective in promoting high levels of treatment integrity as compared to weekly check-in meetings (mean = 35.0%) and weekly check-in meetings with commitment emphasis (mean = 52.3%). This same pattern presented for student outcomes as well. This study provided further support for the effectiveness of performance feedback in promoting teachers’ treatment integrity.

**Varied application of performance feedback.** Since the initial studies of performance feedback described above, the strategy has been evaluated utilizing varied methods and when delivered to target varied populations. Performance feedback has been effective when delivered (a) at varying frequencies (e.g., daily, weekly, as needed; Witt et al., 1997; Mortenson & Witt, 1998; Gilbertson, Witt, Singletary, & VanDerHeyden, 2007), (b) to increase academic or behavioral intervention implementation (Noell et al., 1997; Sanetti, Fallon, et al., 2013) and (c) to individual implementers or school teams (Burns et al., 2008; Sanetti et al., 2007).

**Delivery schedule.** Performance feedback has been delivered to implementers at varying frequencies. In different studies, performance feedback has been effective in promoting treatment integrity when delivered on a daily (e.g., Witt et al., 1997) or weekly basis (Mortenson
Further, additional studies have demonstrated that performance feedback results in improvements in implementation when delivered only when treatment integrity falls below a criterion (e.g., Gilbertson et al., 2007; Sanetti, Fallon, et al., 2013). At this time, there is no empirical evidence for the superiority of one delivery schedule, as compared to others. Thus, the appropriate schedule should be determined based on appropriateness, feasibility, and available resources (Collier-Meek, Fallon, Sanetti, & Maggin, in press).

**Intervention type.** Performance feedback has been delivered to support the implementation of varied types of interventions to promote student outcomes. These include academic interventions related to promoting academic engagement (Martens, Hiralall, & Bradley, 1997), increasing performance on assignments such as homework (Bonar, 2007), and peer tutoring (Noell et al., 2000). Behavior interventions, such as individualized behavior support plans and class-wide behavioral supports (Codding, Feinberg, Dunn, & Pace, 2005, Codding, Livanis, Pace, & Vaca, 2008, respectively), have also been targeted by performance feedback. Other interventions include functional skills (Ingham & Greer, 1992) and team processes (Duhon, Mesmer, Gregerson, & Witt, 2009). These interventions have been designed to support students at varied grade levels and with and without disabilities (Fallon et al., 2012).

**Implementers.** Performance feedback has been effective when delivered to varied implementers. It has been assessed most often when delivered to general and special education teachers (Noell et al., 1997; Sanetti, Fallon et al., 2013). Performance feedback may be more effective when delivered to general education teachers, as compared to special education teachers (Solomon et al., 2012). Emerging research has assessed the delivery of performance feedback to school teams (Burns et al., 2000; Duhon et al., 2009), paraprofessionals (Bolton & Mayer, 2008; Hall et al., 2010), and parents/guardians (Bonar, 2007).
Few studies have examined the effectiveness of delivering performance feedback to increase parents’ treatment integrity. A dissertation on the subject (Bonar, 2007) was hampered by serious design flaws, such as (a) neglecting to consistently impose the inclusion criteria, (b) allowing mediocre levels of consultant treatment integrity, and (c) applying performance feedback unsystematically (e.g., reporting incorrect implementation data to parents, considering phone messages and graph sent home performance feedback). A case study (Connell, 2009) assessed the effectiveness of providing performance feedback to a guardian (i.e., grandmother), but also had significant design flaws. Specifically, the study included (a) no report of consultant treatment integrity, (b) unclear criteria for performance feedback, (c) inconsistent performance feedback (e.g., provided in person at irregular time intervals, provided via telephone), and (d) extremely variable data. Thus, it is not possible to draw conclusions about the effectiveness of performance feedback when delivered to parents from the results of these studies.

Limitations of performance feedback literature. Research has consistently supported the effectiveness of performance feedback in increasing school personnel’s level of treatment integrity (Fallon et al., 2012; Solomon et al., 2012). However, the research literature is not without limitations. Specifically, criticisms include (a) limited definition of treatment integrity present in most studies, (b) varied components used within performance feedback, (c) feasibility of the strategy on a larger scale, and (d) limited assessment of multiple types of consultants and implementers.

Limited definition of treatment integrity. There are few psychometrically sound measures of treatment integrity that incorporate the multiple dimensions of the construct (Sanetti & Kratochwill, 2009a). Rather, most measures are somewhat crudely developed based on general and evolving guidelines (Gresham, 1989; Sanetti et al., 2011). Further, most treatment
integrity measures attend only to adherence (Sanetti & Fallon, 2011; Schulte et al., 2009). As the provision of performance feedback is determined by levels of treatment integrity indicated by these measures, they may not account for all aspects relevant to consistent and high-quality implementation. In addition, when performance feedback is provided, the consultant might only review adherence steps not consistently implemented. As such, this support may not attend to all relevant behaviors related to implementation.

**Varied components used with performance feedback.** Though performance feedback is generally defined as a series of questions within a consultation session, a recent review highlighted the variability of additional components (Fallon et al., 2012). Most studies include aspects that might be considered the core components of performance feedback, but additional strategies (e.g., goal setting, discussion of barriers, verbatim examples) were also included in many. It is unclear how which elements or set of elements is functionally related to changes in implementer behavior (Fallon et al., 2012).

**Feasibility on a larger scale.** As the use of performance feedback has had demonstrable effects the behavior of individuals and school teams, it was recently deemed an evidence-based practice (Fallon et al., 2012). The widespread adoption of this support strategy may be limited by several issues related to feasibility (Sanetti, Fallon, et al., 2013). More specifically, the strategy requires an individual consultant to meet with an implementer on a regular basis, which may not be realistic for many educators or situations. The consultant must also have access to reliable treatment integrity data and review and analyze these data prior to the meeting. Though these actions may be feasible on a small scale with specific cases, the intervention may not be appropriate to meet the larger demand due to low levels of treatment integrity.
**Limited assessment of multiple types of consultants and implementers.** Though performance feedback has been assessed across many studies, the type of consultants and implementers in these investigations have been relatively similar. As such, the literature does not address the wide range of consultants and individuals implementing student interventions reflective in schools and homes. The literature primarily employs university-based personnel (e.g., graduate students, researchers) to deliver performance feedback; only two studies have evaluated performance feedback when delivered by school-based personnel (Sanetti, Chafouleas et al., 2013, Sanetti, Fallon et al., 2013). Performance feedback has been most often assessed when delivered to general and special education teachers (Solomon et al., 2012). Emerging research has assessed the delivery of performance feedback to parents, paraprofessionals, and school teams (Bolton & Mayer, 2008; Bonar, 2008; Duhon et al., 2009). However, in consideration of the extent to which these other implementers deliver student interventions, it is likely appropriate to increase the evaluation of their responsiveness to performance feedback.

**Homework**

Homework can be defined as a task assigned during the school day meant to be completed outside of school (Cooper, 1989). In the United States, most students experience regular homework assignments (Campbell, Reese, O’Sullivan, & Dossey, 1996) for both instructional and non-instructional purposes (Cooper et al., 2006; Epstein & Van Voorhis, 2001). More specifically, the completion of homework may benefit students through (a) increasing academically engaged time; (b) improving the maintenance, retention and generalizability of concepts taught in class; (c) promoting self-management skills; and (d) developing a habit of learning outside of school (Cooper & Valentine, 2001). In addition, homework may have the non-instructional purposes of improving communication between school, parents, and children or
fulfilling school administrator objectives (Cooper & Valentine, 2001; Olympia, Sheridan, & Jenson, 1994).

**History of homework.** In its early application, homework was thought to be an effective strategy to “discipline children’s minds” (Cooper et al., 2006, p. 3). However, by the early 1900’s, society’s position reversed and homework was thought to improperly intrude on other at-home activities. That position held until the late 1950’s, when Russia launched the Sputnik satellite. This act led to great concern for the American school system and increased efforts to improve the rigor of the curriculum in an effort to prepare students for a more technologically advance and ideologically fractured future (Gill & Schlossman, 2000; Goldstein, 1960; Epps, 1966). Homework was viewed as a critical component of this effort. Although by the 1960’s homework was viewed as a source of pressure for students, particularly related to mental health issues, and its value was questioned (Jones & Colvin, 1964). In the 1980’s, homework was viewed more favorably, again in response to concerns about global competitiveness and lower test scores (National Commission on Excellence in Education, 1983). This view of homework has generally held; though some continued concerns of parents regarding homework have been cited (Cooper et al., 2006), homework is now considered as fundamental part of students’ educational lives.

**Homework effectiveness.** Homework has been the focus of many empirical investigations that have employed varied methodology to examine its impact on student achievement (Cooper, 1998; Cooper et al., 2006). More recent meta-analyses have found homework to be positively associated with improved student outcomes (Cooper et al., 2006). However, the several reviews conducted prior to the late 1980’s found variable results of
homework, likely due to different inclusion criteria and methods employed (see Cooper 1989 for a review).

Cooper (1989) employed varied analytical methods to review 120 empirical studies of homework and related outcomes. Of the 50 studies appropriate for correlational review based on statewide or national assessments and surveys, most correlations (43 studies, 86%) indicated a positive relationship between students who did more homework and academic achievement. A grade-level interaction was found; the correlation between homework and achievement was much higher for high school students, as compared to middle school students and elementary school students. The authors hypothesize that this may be related to the variability of homework applied in high school across different levels of achievement.

To further evaluate the relationship between homework and achievement, a meta-analysis was conducted (Cooper et al., 2006). Results of studies wherein homework was manipulated indicated a consistent, positive relationship between homework and achievement. Based on this finding, the authors conclude the following, “Therefore, we think it would not be imprudent, based on the evidence in hand, to conclude that doing homework causes improved academic achievement” (Cooper et al., 2006, p.48), though they also encourage further research.

Moderator analyses indicated the relationship between homework and positive student outcomes is stronger for secondary school students, as compared to elementary school students. The authors urged caution in interpreting this finding and offer multiple explanations, including limited study skills, different purposes of homework, and that students struggling academically may spend more time on their homework than their peers. Further, the authors found that the relationship between homework time and achievement is greater when the amount of homework time is reported by students, as compared to others (e.g., parents).
As homework has the potential to impact a student’s academic achievement, it functions as an important addition to in-school academic work. Though most teachers assign regular homework, not all students complete it regularly or with adequate accuracy (Bryan et al., 2007). As such, these students are not reaping the potential benefits of homework and interventions to improve their completion and accuracy may be appropriate.

**Homework interventions.** Homework can be problematic for students for several reasons, such as a poor instructional match, poor student organization, limited supervision during homework time, insufficient contingencies for homework completion, and lack of collaboration between home and school (Powers, 2009). Interventions to improve student homework accuracy and completion should be targeted to address the specific issue of concern. However, most homework interventions cross multiple systems (i.e., school, home) and include multiple components (Jenson et al., 1994; Power, 2009).

**Multi-system interventions.** Homework is unique as completion often includes multiple settings and systems, (e.g., school, home, afterschool programs), and, particularly if homework difficulties arise, requires collaboration among these systems (Hoover-Dempsy et al., 2001). Involving parents in homework interventions can be an opportunity to promote home-school collaboration (Olympia et al., 1994). As such, the collaboration of teachers and parents in homework intervention may address many of the issues related to homework problems (Power, 2009).

A review of the literature on parent involvement in homework suggests that (a) parents become involved if they perceive their involvement would be helpful or believe it is being encouraged, (b) involvement takes many forms but typically includes adding structure to homework time, and (c) parent involvement supports student success as it encourages attributes
related to student achievement (Hoover-Dempsey et al., 2001). Parental involvement in homework is particularly helpful at the elementary school level (Patall, Cooper, & Robinson, 2008). However, this finding may reflect that students requiring more parental support with homework in secondary grade levels may already be struggling academically. Parent involvement may impact homework through increasing time engaged in homework and limiting television time (Keith et al., 1986).

Homework interventions that include both parents and teachers often begin by the communication of homework goals and procedures across these settings, which may not have been explicit before the intervention (Weiner et al., 1998). Then, many interventions target specific homework problem areas across these settings and evaluate related environmental variables (Jenson et al., 1994). Parents and teachers develop appropriate strategies to address these issues (see specific strategies below) and determine procedures for accountability across settings. Specific parent components vary, but may include (a) structuring homework time, (b) providing reinforcement based on a contingency, and (c) communicating with the teacher about progress (Bonar, 2008; Meyer & Kelley, 2007; Rhoades & Kratochwill, 1998, Weiner et al., 1998).

**Multi-component interventions.** Specific components of interventions vary based on the student’s particular area of homework difficulty (Jenson et al., 1994; Power, 2009). Homework interventions are targeted based on the student presenting with a skill or performance deficit (Bryan et al., 2007). More specifically, it is necessary to determine if the student struggles with homework because they do not have the academic skills necessary to complete the work (i.e., skill deficit) or if the student has the academic ability but fails to regularly demonstrate it (i.e., performance deficit). The appropriate intervention for a student with a skill deficit might involve
targeted academic instruction and practice (e.g., Rosenberg, 1980). Most homework interventions that address performance deficits are function-based and involve antecedent, teaching, and consequence strategies (Bryan & Burnstein, 2004; Jenson et al., 1994; Miller & Kelley, 1991).

**Antecedent strategies.** Antecedent strategies involve the manipulation of the environment to reduce the likelihood of an undesired behavior from occurring (Cooper, Heron, & Heward, 2007). Antecedent strategies for homework interventions may involve developing a specific homework time and routine that involves fewer distractions and more consistency (e.g., Weiner et al., 1998). Further, it may include developing supports to ensure that homework is recorded and brought home (Bryan et al., 2007). Antecedent strategies may also include revising homework assignments to ensure they are clear, appropriate, and relevant to the student (Weiner et al., 1998). The development of a communication system between school and home is an antecedent strategy as it may decrease the likelihood of confusion and misunderstanding across these systems (Jenson et al., 1994).

**Teaching strategies.** A student struggling to complete homework regularly may benefit from instruction related to the procedures and expectations for homework (Bryan et al., 2007; Hoover-Dempsey et al., 2001). For instance, in a study by Callahan and colleagues (2004), students were explicitly trained to monitor, evaluate, and reinforce their homework completion. This instruction included opportunities for practice and role-play. Results indicated that students taught these procedures demonstrated an increase in homework completion and accuracy as well as improved scores on a standardized academic measure.

**Consequence strategies.** Many homework interventions incorporate positive reinforcement for predetermined levels of homework completion and accuracy (Bryan et al.,
2007; Jenson et al., 1994; Sah & Borland, 1989). How this reinforcement occurs varies across studies, but may include the provision of individual reinforcement (e.g., Weiner et al., 1998) or group contingencies (Theodore et al., 2009, Lynch, Theodore, Bray, & Kehle, 2009). Some studies embed reinforcement procedures into student self-monitoring and evaluation (e.g., Callahan et al., 1998). In homework intervention studies, both parents (Rhoades & Kratchwill, 1998, Weiner et al., 1998) and teachers (Little, Akin-Little, & Newman-Eig, 2010, Reinhardt, Theodore, Bray, & Kehle, 2009) have successfully implemented reinforcement-based interventions to improve students’ homework completion and accuracy.

**Homework intervention implementation.** Many homework intervention studies have not included quantitative assessments of treatment integrity (e.g., Weiner et al., 1998), despite the importance of treatment integrity data in determining the effectiveness of an intervention. The inclusion of treatment integrity data in homework intervention studies was the focus of a recent systematic review (Collier-Meek, Fallon, & Sanetti, 2011). In the 46 studies reviewed, treatment integrity data were assessed in 39.1% of studies, monitored without quantitative data in 23.9% of studies, and not assessed in 37.0% of studies. When treatment integrity data were reported, the average percentage was 90.3% (SD = 23.43), which was assessed from an average of 36.2% of total intervention sessions (SD = 41.32). Based on criteria developed by Peterson et al. (1982), most studies (52.0%) were considered to have no risk of implementation issues as treatment integrity was assessment or monitored. The remaining homework intervention studies were mostly considered high risk of implementation issues (30.0%), though some were considered low risk (17.0%). The treatment agents in these studies included teachers (67.4%), research personnel (45.7%), and/or parents (45.7%).
Conjoint Behavioral Consultation

Many student interventions (e.g., interventions to improve homework completion and accuracy) require the collaboration and support of schools and families. CBC is an indirect service delivery model, in which parents and teachers join together to address student needs (Sheridan, 1997). Although CBC is primarily concerned with improving student outcomes, another goal is to improve parents’ and teachers’ collaboration skills (Sheridan et al., 1996; Sheridan et al., 2012).

**Bases of CBC.** The development of CBC was influenced by varied theoretical approaches. Specifically, the model is informed by the theory and research supporting behavioral consultation; in fact, CBC involves the same procedures as behavioral consultation (Kratochwill & Bergan, 1990; Sheridan, 1997). Behavioral consultation, as informed by behavioral theory, operates under the principle that behavior is learned and functional, and, as such, behavioral consultation includes a focus on observable behaviors (rather than underlying causes), defined intervention goals, and empirical support through the documentation of effects (Sheridan et al., 1996). CBC also incorporates aspects of systems theory and ecological theory (Sheridan et al., 1996). Systems theory focuses on the larger system (e.g., family, school) and interactions between members of these systems. In this way, problems within individuals are viewed as evidence of dysfunction between the system structure and interdynamics (Minuchin, 1974). As applied to CBC, systems theory can provide a useful framework for viewing the complex systemic patterns and interactions both within and between family and school systems (Sheridan et al., 1996). Likewise, ecological theory focuses on the relationship between an individual and their environment viewed as a series of interrelated systems (i.e., microsystem, mesosystem, exosystem, microsystem, and chronosystem; Bronfenbrenner, 1977). Of particular importance,
the mesosystem involves the interrelation between varied immediate settings a child experiences (e.g., family and school). Sheridan and colleagues (1996) describe the implications of ecological theory to CBC, including (a) the need for comprehensive assessment and interventions across systems, (b) attention to and coordination of the beliefs and perspectives of stakeholders from multiple systems, and (c) awareness of the potential larger impact of individual interventions to benefit others (e.g., teachers, other students, family). The linkages between behavioral theory, systems theory, and ecological theory make CBC a unique consultation model.

**Procedures of CBC.** Procedurally, CBC involves a sequence of meetings between a consultant and consultees (e.g., parents, teachers; Sheridan et al., 1996). During the first meeting, Conjoint Needs Identification (CNI), the consultant and consultees identify and operationalize the target behavior, develop a hypothesis of the setting event, antecedent, and consequences related to the target behavior, describe the behavior strength across settings, and develop a goal for behavior change across settings. Throughout these activities, the consultant works to develop a positive rapport and trusting working relationship by using a partnership-centered approach (Garbacz et al., 2008). In addition, procedures for baseline data collection are established during the CNI and are implemented by consultees between this and the subsequent meeting. At the Conjoint Needs Analysis (CNA) meeting, the baseline data are evaluated, the functional hypothesis of the target behavior is revised and further defined, and an appropriate intervention and implementation plan is developed. Following the CNA, the consultees implement the intervention plan and continue to collect data. At the final meeting, the Conjoint Plan Evaluation, (CPE) the consultant and consultee analyze the effectiveness of the intervention, determine if the goals across settings were met, and discuss strategies to modify, continue, or end the intervention plan. Throughout these meetings, consultant language is consistent with CBC principles when it
reflects collaborative statements (Sheridan, Meegan, & Eagle, 2002) and the partnership approach (which involves an emphasis on “joint responsibilities [empowerment], individual strengths and competencies, and communication between families and school personnel” Garbacz, et al., 2008, p. 314).

**Goals of CBC.** The CBC model includes goals for both the process (i.e., the series of meetings described above) as well as the outcomes (Sheridan & Kratochwill, 1992; Sheridan et al., 1996). Specific process goals are related to (a) greater understanding the family system; (b) development and improvement of home-school partnerships; (c) increased understanding of the problem across systems; and (d) greater commitment, expertise, and resources related to the problem and education in general. The establishment of a collaborative relationship between home and school is a strong contributor to positive student achievement as measured by (a) learning attributes and behaviors that promote school success; (b) summary measures of achievement (e.g., grades, standardized tests); and (c) long-term educational outcomes (e.g., graduation rates; Hoover-Dempsey et al., 2010). The promotion of home-school partnerships (a) acknowledges that students exist in multiple systems; (b) leads to the development of shared goals for the student; (c) encourages the development of a positive school culture; and (d) builds proactive, collaborative relationships (Christenson & Reschly, 2010).

Outcome goals of CBC are related to the intervention plan and its effects as well as building consultee skills related to the intervention and home-school partnerships. Intervention plan goals include (a) gathering functional data across systems, (b) implementing congruous intervention plans across settings, (c) monitoring the effects of this plan across settings attending to differences and potential side effects, and (d) improving generalization and maintenance of intervention due to the across-systems approach.
**CBC research.** The goals of CBC have been assessed through experimental single-case research and systematic literature reviews. Findings consistently support CBC as an effective service delivery method (e.g., Guli, 2005; Sheridan & Colton, 1994; Weiner et al., 1998). It has been replicated with diverse clients and target concerns (e.g., academic, behavioral, and social; Sheridan, Eagle, Cowan, & Mickelson, 2001). Key studies that provide support for the effectiveness of CBC are reviewed below.

Sheridan and colleagues (2001) reported the findings from a four-year investigation that involved 57 cases of CBC. Elementary and middle school students presented with a varied academics, behavior, or socio-emotional concerns. Teacher and parents (most often mothers) joined together as consultees to participate in CBC. Results indicate improvement in student outcomes across home and school (average effect size 1.08, SD = 0.82 for home and 1.11, SD = 1.24 for school). Regression analyses indicated that client age and symptom severity, but not case complexity, were predictive of school-related outcomes. More specifically, younger students with more severe symptoms and older students with less severe symptoms were associated with higher effect sizes. Sheridan and colleagues also assessed social validity and treatment integrity across cases. CBC was rated by consultees as effective and acceptable, and most consultees indicated that their consultation goals were met. Treatment integrity data from consultant’s implementation of CBC procedures was moderately high, with an average of 83% of objectives met. Consultee intervention implementation was assessed liberally; 71% of cases included some documentation of treatment integrity.

A review of 125 CBC cases examined the effectiveness of CBC with diverse consultees and clients (Sheridan, Eagle, & Doll, 2006). Diversity characteristics included ethnicity, socio-economic status, language, maternal education, and family composition. Regardless of the type
or number of diversity characteristics present (e.g., one client with both ethnic and language
diversity), results reveal high effect sizes for student outcomes (range of average effect size 1.51,
SD = 1.52 to 1.21, SD = 1.12). No intervention treatment integrity data are reported in this
article. Multiple social validity measures were administered and the CBC and intervention
procedures were rated positively by consultees. Consultees with more diversity characteristics
rated the procedures more positively across parents and teachers.

The efficacy of CBC related to student outcomes and teacher-parent relationships was
evaluated in a randomized controlled trial (Sheridan et al., 2012). Early elementary school
students referred due to disruptive behavior were assigned to CBC or a control condition. Plans
included individualized, strength-based interventions and implementation was assessed through
self-report, permanent products, and direct observation. Parents and teachers returned their
treatment integrity forms irregularly, but when they did the forms indicated moderate levels of
implementation (81.64% for parent self report to 98.49% teacher permanent products). Only
some teachers’ implementation was assessed through direct observation. Results across the
treatment (CBC) and control group indicated that CBC was effective in promoting social skills
and adaptive skills, though no improvement in disruptive behavior was found. Further, the
improvement in student outcomes was mediated by the quality of the parent-teacher relationship.

Using the Task Force on Evidence-Based Interventions in School Psychology guidelines
(Kratochwill et al., 2002), Guli (2001) conducted review of evidence-based parent consultation
methods related to school-based student outcomes. All CBC studies in this review demonstrated
“strong” or “promising” evidence of significant change in key outcomes. Related to specific
outcomes, CBC provided the strongest evidence related to social skills and homework problems.
Based on the results of this review, Guli (2001) described CBC as the parent consultation model with the strongest evidence to produce significant change in school-related outcomes.

In a CBC study that addressed homework specifically, Weiner and colleagues (1998) assessed the effectiveness of a parent-implemented intervention to increase five middle school students’ homework accuracy and completion. The behavioral homework intervention included a self-recording school component, a structured homework time with parental supervisions, and positive contingent reinforcement across settings. Results of the multiple baseline design indicate that four of the five students’ completion and accuracy rates increased. Further, gains for most students maintained at the one-month follow up. Parents were provided with self-report checklists to indicate their adherence to the homework intervention. Only three parents completed the checklists, but reported a high degree of adherence (average = 93.6%).

**CBC and social validity.** In addition to social validity data included within investigations of CBC, survey research has assessed the acceptability of CBC. A survey of 409 nationally certified school psychologists examined acceptability related to procedures and specific situations (Sheridan & Steck, 1995). Procedural acceptability was high, but significantly predicted by logistical barriers, theoretical orientation, and age of student. To assess situational acceptability, participants were asked to rate modes of service delivery (teacher only consultation, parent only consultation, CBC, direct service) for specific types of problems (e.g. academic, behavior). There was no difference in ratings based on problem types, but CBC was rated most highly as the service delivery type. A more recent replication of this survey with Canadian school psychologists revealed similar results (Sladeczek, Madden, Illsley, Finn, & August, 2006).
**CBC and treatment integrity.** Treatment integrity data have not been consistently included in CBC research (Collier-Meek & Sanetti, 2012). A recent review of treatment integrity in CBC studies reported quantitative treatment integrity data were included in 47.82% (n = 11) of studies. Many studies (42.85%, n = 9) failed to include an operational definition of the intervention. Only one study included inter-rater data on the review of treatment integrity data and less than half mentioned any sort of implementer training (42.85%, n = 9). Though 52.38% of studies (n = 11) were rated as having no risk of implementation issue (as treatment integrity was either assessed or monitored), 47.61% of studies (n = 10) were rated as being at high risk for implementation issues. These data indicate there is a substantial need for improvement around reporting of treatment integrity data within CBC research (Collier-Meek & Sanetti, 2012).

Monitoring treatment integrity data is particularly important within CBC because many consultees (e.g., parents, guardians) may experience unique barriers to implementing interventions as designed. For example, many parents may not have background training or experience related to educational and mental health interventions (Swanger-Gagne et al., 2009). This may inhibit their ability to properly implement interventions, as high-quality training has been linked to high levels of treatment integrity (Sterling-Turner, Watson, Wildson, Watkins, & Little, 2001). This limited experience with interventions may also contribute to a lack of understanding of the importance and benefits of consistent implementation.

Recent attention has been given to developing reliable, valid, and meaningful methods of assessing treatment integrity within a CBC framework (Sheridan et al., 2009; Swanger-Gagne et al., 2009). Sheridan and colleagues (2009) utilized multiple methods to assess treatment integrity across settings, including self-report, permanent product review, and direct observation (in the classroom only). Across varied methods, both teachers and parents reported high levels of
treatment integrity (range = 81.05-95.57%). The reliability of these measures was analyzed using median exact agreement, intraclass correlations, and standard deviations which all revealed high levels of reliability within measures. Though this research is heartening, a few limitations must be considered. First, only half of participating parents regularly returned self-report and permanent product forms, which may have created a selection bias and inflated reported parent treatment integrity levels. Second, the reliability statistics used may not be appropriate to comprehensively assess the multi-dimensional treatment integrity instruments, which include varied items that may not necessarily be completed at the same rates (e.g., provide specific praise, update a behavioral chart).

As these methods are developed, researchers will need to have empirically based strategies to improve the low treatment integrity of the diverse treatment agents included in CBC (e.g., parents, teachers). Swanger-Gagne and colleagues (2009) reported parent consultees’ self-report and permanent product treatment integrity levels and described treatment integrity enhancement strategies used. All parents’ treatment integrity levels were greater than 75%. These levels of treatment integrity may have been bolstered by consultants’ use of multiple treatment integrity enhancement strategies (Swanger-Gagne et al., 2009). General strategies included employing a partnership model during consultation, providing high-quality intervention training, explaining the purpose of treatment integrity data, and developing easy to use intervention forms (Swanger-Gagne et al., 2009). Additional strategies employed for families at-risk included (a) employing culturally responsive techniques, (b) building trust and communication through family-centered approach and specific information about the home and family, (c) arranging regular contracts and opportunities for consultative support, and (d) adjusting forms to make data collection easier. These strategies were reported descriptively and it
is not possible to infer how these strategies impacted treatment integrity. In fact, the authors of this study write, “Little is known currently about conditions that predict or are related to the ability of family members to implement CBC-developed interventions aimed at supporting children’s appropriate behaviors” (Swanger-Gagne et al., 2009, p. 132). Further research is needed that systematically assesses the impact of enhancement strategies on parents’ treatment integrity.

**Purpose of Study**

Evidence-based interventions must be implemented with high treatment integrity for the greatest likelihood of improved student outcomes (Peterson et al., 1982; Sanetti & Kratochwill, 2009a). Performance feedback is an empirically supported method of increasing school personnel’s treatment integrity, which has not been systematically assessed with other implementers, such as parents (Fallon et al., 2013; Noell, 1997; 2005; Solomon et al., 2012). Homework is a widely practiced and effective intervention that some students struggle to complete with accuracy (Bryan & Burnstein, 2004; Cooper & Valentine, 2001). Some homework interventions include parent involvement components (Jenson et al., 1994). These interventions can serve as an opportunity to promote family-school collaboration (Olympia et al., 1994), which is associated with improved student outcomes (Christenson & Reschly, 2010). CBC is an evidence-based method of structuring family-school collaboration to promote student outcomes (Sheridan et al., 1996; Sheridan et al., 2006). However, there has been no systematic evaluation of parents’ treatment integrity or evidence-based methods to increase parent integrity levels when low (Sheridan et al., 2009; Swanger-Gagne et al., 2009). The goal of this dissertation was to address this gap in the literature through the systematic assessment of five dimensions of
parents’ treatment integrity to a homework intervention and evaluation of the effectiveness of performance feedback as a treatment integrity promotion strategy for parents.

**Research Questions and Hypotheses**

**Primary research questions.** There were three primary research questions, listed below, with associated hypotheses.

1. Will parents consistently implement the homework intervention with high adherence?
   I hypothesized that parents would not consistently implement the homework intervention with high adherence during the check-in meeting phase. This finding would be consistent with treatment integrity literature in school settings, which has found that teachers’ adherence levels decrease shortly after implementation begins (Noell et al., 1997; Sanetti et al., 2011). Visual analysis of parent adherence permanent product data was used to answer this question, and two or more days per week with below 80% adherence was considered low adherence (Perepletchikova & Kazdin, 2005).

2. Will the as-needed weekly delivery of performance feedback by a consultant increase parents’ adherence to the homework intervention, as measured by permanent product?
   I hypothesized that the delivery of performance feedback by a consultant in the performance feedback phase would increase parents’ adherence to the homework intervention, as measured by permanent product. School-based research consistently supports performance feedback as an effective method of increasing adherence (Burns et al., 2008; Codding et al., 2005; 2008; Noell et al., 1997; 2005; Sanetti et al., 2007). To assess the effectiveness of performance feedback, the analysis plan included analyzing parent adherence permanent product data using visual analysis and both parametric effect size methods (i.e., Generalized Least Squares, Hierarchical Linear Models, and standard mean difference no assumptions approach) and nonparametric effect size
methods (i.e., Percent of Non-Overlapping Data, Percentage of All Non-Overlapping Data, Improvement Rate Difference, and Percent Exceeding the Median Trend Line).

3. To what extent will parents’ report of their adherence agree with permanent product data?
I hypothesized that parents would not accurately report their adherence, as compared to permanent product data. This finding would be consistent with most research on teacher self-report, as results demonstrate most teachers are inaccurate reporters of treatment integrity data (e.g., Wickstrom et al., 1998). To answer this question, the correlation between permanent product data and parental self-report was calculated using Pearson’s r.

**Secondary research questions.** There were three secondary research questions, listed below, with associated hypotheses.

1. Will the homework intervention improve student outcomes, as measured by homework accuracy, homework completion, and the Homework Problem Checklist?
I hypothesized that the homework intervention, implemented during the check-in meeting and performance feedback phases, will improve student outcomes, which would be consistent with research on similar homework interventions designed through CBC and literature supporting elementary school parents’ involvement in homework (e.g., Rhoades & Kratochwill, 1998; Weiner et al., 1998). The analysis plan included assessing student participants’ accuracy and completion rates through visual analysis and both parametric effect size methods (i.e., Generalized Least Squares, Hierarchical Linear Models, and standard mean difference no assumptions approach) and nonparametric effect size methods (i.e., Percent of Non-Overlapping Data, Percentage of All Non-Overlapping Data, Improvement Rate Difference, and Percent Exceeding the Median Trend Line). In addition, the pre- and post-intervention data from the
parents’ completion of the Homework Problem Checklist (Anesko, Schoiock, Ramirez & Levine, 1987) were evaluated and are reported as descriptive statistics (i.e., means, standard deviations).

2. Will there be a relationship between parent adherence and student outcomes?
I hypothesized that there would be a positive relationship between student outcomes and parent adherence, as this would be consistent with prior school-based research of treatment integrity and student outcomes (e.g., Biggs et al., 2008; Forgatch et al., 2005; Gansle & McMahon, 1997). To assess the relationship between parent adherence, as measured by permanent product data, and student outcomes, as measured by student homework accuracy and completion rates, Pearson’s $r$ was used.

3. Will the CBC procedures and homework intervention be rated as acceptable and socially valid by participants?
I hypothesized that participants would perceive CBC and the homework intervention to be acceptable and socially valid, as these impressions would be consistent with the CBC and performance feedback literatures (e.g., Noell et al., 1997; 2005; Sanetti et al., 2007; Sheridan et al., 2001; 2006). To answer this question, descriptive statistics (e.g., means, standard deviations) were computed and are reported for (a) teachers’ and parents’ completion of the Consultant Evaluation Form (Erchul, 1987), (b) teachers’ and parents’ completion of the Behavior Intervention Rating Scale (Elliott & Treuting, 1991), (b) student participants’ completion of the Children’s Intervention Rating Profile (Witt & Elliott, 1985) and (c) parents’ pre- and post-intervention completion of the Parental Self-efficacy for Helping Child in School (Hoover-Dempsey & Sandler, 2005; Walker, Wilkins, Dallaire, Sandler, & Hoover-Dempsey, 2005).

**Exploratory research question.** There was one exploratory research question, listed below.
1. How will treatment integrity data across dimensions (i.e., adherence, exposure, participant responsiveness, participant adherence, and program differentiation) influence evaluation utility?

Current conceptual models suggest a multidimensional definition of treatment integrity, yet there have been few studies that have evaluated the utility of the proposed dimensions (e.g., Sanetti & Fallon, 2011). Exposure, participant responsiveness, participant adherence, and program differentiation data were visually analyzed to demonstrate how consideration of multiple dimensions of treatment integrity influences evaluation utility.
Chapter III: Methods

Participants

Four triads (i.e., student, teacher, and parent) initially agreed to participate in the study. After screening, one triad dropped out of the study, and, thus, three triads were randomized to baseline order (see Figure 1). Only the three triads randomized to baseline order are described. The student participants were late elementary students who demonstrated problems with homework completion and accuracy in math, and whose math teacher and parent or guardian also agreed to be participants. Problematic homework completion was defined as: (a) an average math homework completion rate of 60% or less, and (b) an average math homework accuracy rate of 60% or less. Teacher participants were asked to provide at least three samples of previously completed math homework for the investigator to calculate completion and accuracy rates. Further, as there was no academic skill-building component to the intervention in this study, the problematic homework completion could not be due to a skill deficit (i.e., must be a performance deficit; see Screening below).

The teacher participants were three elementary school teachers who taught a student participant in mathematics. The parent participants were a parent or guardian of the student participants. Only one parent per student was included in the study and took primary responsibility for engaging in CBC and implementing the intervention. At the onset, all participants agreed to the study procedures, specifically, to (a) participate in CBC with audio-taping; (b) implement the homework intervention (including check-in meetings); and (c) allow their treatment integrity and outcome data, including audiotapes of the CBC meetings, to be used for publication purposes.
Figure 1. CONSORT diagram illustrating recruitment, screening, and implementation.
**Triad A.** Student A was a nine-year-old male enrolled in fourth grade. His mother served as the parent participant. She was married, unemployed, and had completed some high school. In addition to the participating child, Parent A had three children ranging in age from 11 to 3 years old. The teacher participant for Triad A was female, had completed some graduate school, and had been teaching for two years. All participants in Triad A were Caucasian. The school for Triad A was located in a rural town with a 14.67% poverty rate (National Center for Education Statistics [NCES], 2010)

**Triad B.** Student B was a 10-year-old male enrolled in fifth grade. His mother served as the parent participant. She was married, employed part-time, and held a Master’s degree. In addition to the participating child, Parent B had another child, who was nine years old and in third grade. The teacher participant for Triad B was female, completed some graduate school, and had been teaching for four years. All participants in Triad B were Caucasian. The school for Triad B was located in a suburban town with a 4.26% poverty rate (NCES, 2010)

**Triad C.** There are limited demographic data on the participants in Triad C as they became unreachable and dropped out of the study prior to completing their demographic forms. The information presented here was gathered through discussion in the completed consultation interviews. Student C was a female enrolled in third grade. Her grandmother served as the parent participant. The student and parent participants were of Hispanic descent. The teacher was Caucasian. The school for Triad C was located in a suburban town with a 20.95% poverty rate (NCES, 2010)

**Setting**

This study occurred at the students’ homes and school buildings. Implementation of the homework intervention occurred at the students’ homes. The CBC meetings with teachers and
parents, check-in meetings, performance feedback meetings, and student meetings were held at locations convenient to the participants. More specifically, all meetings held with Triad A occurred in the school building, while all meetings with Triad B were ultimately held at the student’s participants home due to repeated failures to attend meetings scheduled at the school building. Consultation meetings held with Triad C were held at school, while the check-in meeting was held at the participants’ home.

**Homework Intervention**

The homework intervention included a general framework and set of procedures that was individualized based on baseline data and preferences of the teacher and parent participants. The intervention included five components (i.e., homework to home, structured homework time, completion, homework to school, and accuracy). The intervention was developed based on previous intervention research that supported the efficacy of these components for students struggling with homework-related performance deficits (Bryan et al., 2004; Rhoades & Kratochwill, 1998; Olympia et al., 1994; Weiner et al., 1998). These components are described below as they were completed, on a daily and weekly basis.

**Daily.** Each parent-student dyad completed the following homework routine whenever math homework was provided, at least three times per week. The Daily Homework Sheets (Appendix A) were individualized with the student’s and parent’s names as well as the date. The student was to engage in homework, at a consistent time and place, for an agreed upon duration with limited noise and distraction. On the Daily Homework Sheet, the parent and student recorded the location where homework was completed and the student’s homework start and end time. In addition, the parent and student recorded the noise level and number of distractions. To do so, they rated the noise level as quiet (i.e., very little noise, quiet whispers), some noise (i.e.,
soft music, inside voices), or really noisy (i.e., loud noise, music, or talking) and recorded the number of distractions from no distractions (i.e., 0) to some distractions (i.e., 1-3) to lots of distractions (i.e., 4 or more). The parent also recorded who initiated the homework intervention (e.g., student, parent), the student’s level of focus when completing homework (i.e., completely, mostly, somewhat, not at all) and the student’s level of cooperation when completing the homework intervention (i.e., completely, mostly, somewhat, not at all). Following homework completion, the parent and student assessed if the student (a) wrote down the assignment; (b) brought home the assignment; (c) brought home additional homework materials, as needed; (d) brought home an indication of previous homework accuracy (e.g., graded homework or teacher note); (e) completed items on the Daily Homework Sheet regarding the homework situation; (f) completed the math homework; and (g) packed homework back into folder to return to school. As prompted by the Daily Homework Sheet, the parent converted the number of these steps completed out of the total applicable steps to a percentage. A percentage cheat sheet was included in the Homework Intervention binder. The student and parent participants then added the percentage of completed steps to the Weekly Homework Steps Graph (Appendix B). The Daily Homework Sheet prompted the parent and student to review the indication of previous homework accuracy and record this data onto the Weekly Homework Accuracy graph (see Appendix C).

**Weekly.** On the last day of week for which homework was assigned (e.g., Thursday), student and parent participants reviewed the Weekly Homework Steps and Weekly Homework Accuracy graphs to determine if the criteria agreed upon during consultation had been met. The criteria consisted of (a) above an agreed upon percentage on the Weekly Homework Steps Graph, and (b) accuracy above a certain level for at least the agreed upon number of days per
week on the Weekly Homework Accuracy Graph. This was recorded on the respective graphs and on the Weekly Reward System (Appendix D). As prompted by the Weekly Reward System, if the student reached only one of the criteria he or she received a small reward or if the student reached both criteria he or she received a large reward. If no criteria were met, the student did not receive a reward. The parent participants then recorded what type of reward was earned and when it was delivered.

**Materials.** The materials needed to complete the intervention were provided by the researcher, parents, and teachers. The researcher provided a Homework Intervention Binder, which included the Daily Homework Sheets, Weekly Homework Steps Graphs, Weekly Homework Accuracy Graphs, and Weekly Reward System Sheets. Teachers were responsible for providing screening rewards, math homework, and indication of homework accuracy. Parents were responsible for providing the agreed upon intervention rewards. Student A was to be rewarded with access to a video game if he earned the large reward, and a trip to the deli for ice cream if he earned the small reward. Both Student B and Student C were to be rewarded with a fun family activity of their choice if they earned the large reward, and ice cream if they earned the small reward.

**Dependent Variables**

**Treatment integrity.** Multiple dimensions of parent treatment integrity were assessed. Parents’ adherence (i.e., the degree an intervention is implemented as planned) was the primary dependent variable, and was assessed through permanent products and self-report. Exposure (i.e., time the participant’s engaged in the intervention), participant responsiveness (i.e., participant’s engagement in the intervention; Dane & Schneider, 1998), and participant adherence (i.e., the participant’s implementation of intervention as planned; Jones et al., 2008) were assessed
through permanent products. Last, program differentiation (i.e., the difference between the intervention and typical practice; Dane & Schneider, 1998) was determined by a comparison of homework procedures prior to the intervention (i.e., baseline data and parent report) to the homework intervention. The measurement of these dimensions is described below.

**Permanent products.** Permanent products are regularly used to assess treatment integrity in research as they are feasible (Noell, 2010), non-reactive (Foster & Cone, 1986), and informative (e.g., Noell et al., 1997; 2005; Sanetti & Kratochwill, 2009a). The homework intervention in the current study was designed such that the completion of each intervention step would result in a permanent product. Implementation included nine steps to be completed each day of the intervention. The last day of the intervention each week (e.g., Thursday) required the completion of five additional steps, for 14 total steps. The treatment integrity checklist, which detailed the permanent products assessed per intervention step, can be found in Appendix E.

Four dimensions of treatment integrity were assessed through permanent products. Parent adherence to the homework intervention was assessed as the percentage of intervention steps completed out of the total applicable intervention steps (see Appendix E). Adherence data derived from permanent product review were the primary data source and were used to make decisions regarding phase changes. Exposure, participant responsiveness, and participant adherence were recorded on the Treatment Integrity Record Sheet (Appendix F). Exposure was assessed based on the students’ start and end of homework time, which was recorded on permanent products. Participant responsiveness was assessed by the parents’ completion of two items on the Daily Homework Sheet which ask the parent to rate the students’ focus while completing homework and cooperation towards the homework intervention (i.e., completely, mostly, somewhat, and not at all). Participant adherence was measured by the student performing
the components and assisting the parent to complete the Homework Situation and Homework Program Steps sections (see the Daily Homework Sheet, Appendix A). Participant adherence was reported as a percentage of the completed six steps. Program differentiation was assessed for each triad by examining the difference between the modified Daily Homework Sheet used in baseline (following the Conjoint Needs Identification Interview), and the Daily Homework Sheet used during intervention implementation (see Appendices G and A, respectively).

In addition, teacher treatment integrity was assessed (see Teacher Adherence Checklist, Appendix H). Parent permanent product data (Appendix E) was used to assess teacher treatment integrity. On the agreed upon intervention days, teacher intervention implementation included two steps, providing math homework and an indication of homework accuracy.

**Self report.** Parent self-report of treatment integrity was completed daily by parents using the Homework Report (see Appendix I). On the Homework Report, parent participants rated their implementation of intervention steps, reported their anecdotal comments, and asked any questions. Thus, parents rated nine steps on a daily basis and 14 steps on the last day of the intervention week.

**Student outcomes.** Student math homework completion and accuracy rates, as well as data from the Homework Problem Checklist (Anesko et al., 1987), were used to measure student outcomes.

**Completion and accuracy rates.** The content and extent of students’ math homework varied somewhat by teacher; however, homework was to be assigned at least three times per week across all triads. Homework completion was calculated as the number of math problems completed out of total assigned problems, and multiplied by 100. Homework accuracy was
calculated as the number of math problems completed correctly out of the total problems completed, and multiplied by 100.

**Homework problem checklist.** The Homework Problem Checklist (Anesko et al., 1987) was completed by the parent participants before and after the study implementation. The checklist is a 20-item Likert scale measure in which specific homework difficulties are rated as occurring never (0), at times (1), often (2), or very often (3). The Homework Problem Checklist has an internal consistency of .91 and assesses the frequency and intensity of a student’s homework problems (see Appendix J).

**Social validity.** During study procedures, participants were administered the following social validity and acceptability measures: the Parental Efficacy in Helping Child Succeed in School (Hoover-Dempsey & Sandler, 2005; Walker et al., 2005), Consultant Evaluation Form (Erchul, 1987), Behavior Intervention Rating Scale (Elliott & Treuting, 1991), and Children’s Intervention Rating Profile (Witt & Elliott, 1985).

**Parental efficacy in helping child succeed in school.** To assess social validity and acceptability, parent participants completed the Parental Efficacy in Helping Child Succeed in School (see Appendix K; Hoover-Dempsey & Sandler, 2005; Walker et al., 2005), a 7-item Likert scale measure, before and after intervention implementation. Higher scores indicate agreement with positive parent self-efficacy for supporting their student’s education. More specifically, parents rate their level of agreement with specific statements from disagree very strongly (1), disagree (2), disagree just a little (3), neutral (4), agree just a little (5), agree (6), to agree very strongly (7). This measure has an alpha reliability of .78 (Walker et al., 2005).

**Consultant evaluation form.** The parent and teacher participants completed the Consultant Evaluation Form (Erchul, 1987) after the study was complete (see Appendix L). The
Consultant Evaluation Form is a 12-item Likert scale measure of consumer satisfaction, which has an alpha reliability level of .95 (Erchul, 1987). Specifically, this measure assessed the parent and teacher participants’ perception of the consultant’s helpfulness. Items are rated on a 7-item scale from disagree very strongly (1), disagree (2), disagree just a little (3), neutral (4), agree just a little (5), agree (6), to agree very strongly (7).

**Behavior intervention rating scale.** At the end of the study, parent and teacher participants completed the Behavior Intervention Rating Scale (Appendix M; Elliott & Treuting, 1991). The Behavior Intervention Rating Scale is a 24-item Likert scale questionnaire that includes items related to: (a) acceptability, (b) effectiveness, and (c) time of effect (Elliott & Treuting, 1991). Items are rated on a 6-point scale from strongly disagree (1), disagree (2), slightly disagree (3), slightly agree (4), agree (5), and strongly agree (6). The measure has an overall alpha reliability of .97 (Von Brock & Elliott, 1987).

**Children’s intervention rating profile.** Following the study, the student participants were asked to complete the Children’s Intervention Rating Profile (Appendix N; Witt & Elliott, 1985). The Children’s Intervention Rating Profile is a widely used 6-item Likert scale measure that addresses perceived fairness, acceptability, and side effects of treatment. Items are rated on a 5-point scale from agree very much (1), sort of agree (2), don’t agree or disagree (3), sort of disagree (4), and disagree very much (5).

**Inter-rater agreement.** A second rater reviewed the permanent products, social validity forms, and database for accuracy. More specifically, 30.20% of data were reviewed and the average agreement was 96.38%.
Experimental Design

The study was designed to utilize a randomized multiple baseline across subjects design to assess the effectiveness of performance feedback on parental treatment integrity. Parents who demonstrated low treatment integrity (i.e., below 80% adherence as measured by permanent product review 2 or more days per week) were randomly assigned to baseline order for performance feedback. The qualitative descriptor for this level of treatment integrity is per recommendations by Perepletchioka and Kazdin (2005) and this criterion has been used in previous investigation of implementation support strategies (e.g., Sanetti et al., 2011; Sanetti, Kratochwill et al., 2013). Movement between the check-in meeting and performance feedback phases was based on parents’ adherence data, as measured by permanent products, and staggered (i.e., multiple baseline across participants). The experimental design employed has high internal validity and greater external validity than other single-case designs (Kratochwill & Levin, 2010; Kratochwill et al., 2010).

Throughout the study, efforts were made to Meet Evidence Standards in single-case design according to WWC (Kratochwill et al., 2010). Therefore, each participant triad was in the baseline phase for at least 5 nights of homework completion so enough data points were collected. Further, at least 20% of data during each phase (e.g., baseline) were reviewed by both the investigator and another assessor, and inter-assessor data reported.

Procedures

This study consisted of six distinct sections: recruitment, screening, and the four stages of CBC (i.e., conjoint needs identification, conjoint needs analysis, intervention implementation, and conjoint plan evaluation). Within the intervention implementation section there were two phases: check-in meetings and performance feedback.
Recruitment. Recruitment occurred in two parts: gaining district and school approval and then recruitment of individual participants (see Figure 1 for an illustration). The principals of local elementary and middle schools were emailed and asked about their interest in their teachers participating in the study. The email addresses of local elementary and middle school principals were found via an Internet search, and a sample of convenience was utilized. Beginning in September 2011 the researcher contacted the principals of 32 individual elementary or middle schools from 20 local school districts. Six principals indicated interest in their teachers participating, though official district approval was obtained from only three districts due to limited teacher interest.

Following district approval, recruitment began. Based on principal preference, the investigator recruited teachers in person during a faculty meeting or forwarded an email and teacher consent form to teachers responsible for mathematics instruction. During in-person recruiting, the investigator shared a brief description of the study, and handed out consent forms and contact information to interested teachers. The email to principals and teachers (see Appendix O) included a brief overview of the study and referred the reader to the attached consent form for further details and contact information for the principal and investigator. The teacher consent form detailed the study background, procedures, potential risks and benefits, data safety monitoring, withdrawal from the study, and contact information (see Appendix P).

Interested teachers contacted the investigator (via phone or email) to schedule a meeting to discuss the purposes and procedures, potential risks and benefits, and answer any questions. Three teachers expressed initial interest and engaged in lengthy email dialogues with the investigator, but failed to follow through on scheduling a meeting time. In addition, the investigator met with a group of approximately 12 interested teachers at one school. However,
these teachers did not respond to several follow up emails after this meeting. Three teachers interested in participating provided their signed consent.

The teacher participants then nominated students who demonstrated problematic homework completion and accuracy, as defined above. The teacher participant then contacted a parent or guardian of those students eligible for participation utilizing a phone script (see Appendix Q). For this initial contact, the teacher participant provided a brief overview of the purposes and procedures of the study. Each teacher reported that they contacted numerous parents (e.g., 6-8) and most parents asked not to participate. For the six parents interested in participation, the teacher participant sent home the parent consent form for further detail (see Appendix R) and shared the parent information with the researchers. The parent consent form detailed the study background, procedures, potential risks and benefits, data safety monitoring, withdrawal from the study, and contact information (Appendix R). The investigator then scheduled a meeting or phone call with the interested parents to discuss the purposes and procedures, potential risks and benefits, and answer any questions. Two parents expressed initial interest to the teacher, but then failed to follow up or be reachable by the investigator or teacher (e.g., changed phone numbers, phone messages not returned, notices home not returned). Four parents were interested in participating and the investigator obtained signed consent and parental permission (see Appendices R and S respectively).

Once teacher and parent participants were identified, the eligible students were approached. At a time and place convenient for the student, the investigator met with the student to explain the study purposes and procedures, potential risks and benefits, and answer any questions the student had. If during school, it was at a time approved by the teacher to minimize missed instruction. If the student expressed interest in participation, the investigator obtained
signed assent (see Appendix T). This step in the study procedures was delayed due to a participating teacher being on emergency medical leave for three weeks. Though this delay only directly affected Triad C and the other triads continued to screening, the other triads were not able to continue on to next steps due to the constraints of the multiple baseline design.

**Screening.** Eligible student participants were screened to determine if their problem with homework completion and accuracy was due to a skill or performance deficit. Determination of skill or performance deficit was completed using procedures previously utilized in identification of appropriate student intervention (Duhon et al., 2004; Sanetti & Kratochwill, 2009b). The investigator spoke with teachers and parents to determine acceptable and feasible rewards and solicit their opinions about the rate of accuracy that was reasonable to expect from their student (e.g., 80% accurate, 90% accurate) and that could be used as an accuracy criterion. Then, students individually rated a list of teacher- and parent-approved rewards using the descriptors “dislike”, “like”, or “like a lot.” The investigator then prompted the student to complete a math worksheet, provided by the teacher, on which the teacher believed the student should be able to meet or exceed the accuracy criterion. After completion, the investigator assessed the worksheet for accuracy. If the accuracy criterion was met or exceeded, the student was given a reward from the “like a lot” category. Students who did not meet the accuracy criterion did not earn a reward, and were prompted to complete a second math worksheet. The investigator assessed the second worksheet for accuracy, and, if the accuracy criterion was met, provided a reward from the “like a lot” category. Students were thanked for their cooperation. Parent and teacher participants were then notified of their student’s screening status (see Appendix U). All student participants demonstrate performance deficits (i.e., performed above an accuracy criterion when the reward was provided) and were included in the study. However, following screening, the parents of one
student no longer responded to the investigator or teacher participant and no consultation
interviews were scheduled.

Conjoint needs identification. The investigator scheduled the Conjoint Needs
Identification Interviews for each teacher-parent dyad, at a time and location convenient to the
participants. These interviews took an average of 22 minutes (range: 18-30 minutes) and were
audio-taped to assess the investigator’s adherence to the consultation procedures (see Appendix
V for CBC treatment integrity checklists). Prior to the interviews beginning, the parent
participants completed the Parent Efficacy for Helping the Child Succeed in School and the
Homework Problem Checklist. During the Conjoint Needs Identification Interview, the
investigator, teacher, and parent discussed the student participant’s problems with math
homework in operational terms, and tentatively described setting events, antecedents, and
consequences. Further, the procedures for collecting baseline data were discussed, and
participants had the opportunity to ask questions.

During the 2 weeks following the Conjoint Needs Identification Interview, the teacher
and parent participants collected baseline data. The teacher participants were asked to make note
of completed math homework and assess accuracy using the Homework Completion and
Accuracy Form (Appendix W). The parent participants unobtrusively observed when student
participants began and ended their homework, and noted this on a modified Daily Homework
Sheet (Appendix G). In addition, parent participants wrote down pertinent environmental
variables (e.g., noise, distractions, setting) and observations surrounding homework completion.

Conjoint needs analysis. The investigator scheduled Conjoint Needs Analysis
Interviews for each teacher-parent dyad, at a time and location convenient to the participants.
These interviews took an average of 31 minutes (range: 20-49 minutes) and were audio-taped for
treatment integrity purposes (see Appendix V for checklist). During the Conjoint Needs Analysis Interview, the investigator, teacher, and parent reviewed baseline data, and described the student’s homework non-compliant behavior in functional assessment terms (i.e., setting events, antecedents, consequences, and other relevant environmental variables). The investigator then presented the homework intervention, which was individualized based on the baseline data and feedback from the parent and teacher participants. The Conjoint Needs Analysis Interview for Triad A was rescheduled twice, which resulted in a delay in beginning homework intervention implementation.

To reduce the number of meetings for feasibility, intervention training occurred during the Conjoint Needs Analysis Interview. Using a standardized training protocol (see Appendix X), the investigator trained the parent and teacher participants to implement the homework intervention, and parent participants to complete the self-report procedure. Standardized training included (a) direct training using a PowerPoint presentation, (b) modeling, (c) participant practice, (d) feedback, and (d) an opportunity to ask questions. In addition, the Homework Intervention Binders included the PowerPoint from training and copies of intervention forms.

**Intervention implementation.** During the Intervention Implementation phase, the homework intervention was implemented. Parent participants were responsible for sending the Homework Intervention Binder (including the Daily Homework Sheets, Weekly Homework Steps Graph, Weekly Homework Accuracy Graphs, Weekly Reward Sheet, and Homework Report) to school on Monday mornings. As Teacher A reported that Parent A had difficulty returning forms, Parent A was not asked to send the binder to school and it was reviewed at her home prior to the check-in meetings. The investigator collected the contents of the binder and returned the binder with new documents. Based on a review of these permanent products, the
investigator assessed the treatment integrity of the parent participants using the Adherence Checklist (see Appendix E). In addition, another assessor reviewed at least 20% of the permanent product data, and inter-assessor agreement was calculated.

**Check-in meetings.** The investigator met with the parent participants at a regularly scheduled time on a weekly basis. During this brief meeting, the investigator asked general questions about intervention implementation and the students’ responsiveness as well as answered any questions from the parent participants. A script for these meetings can be found in Appendix Y. These meetings were audio-taped and assessed as the investigators’ adherence to the scripts.

**Performance feedback.** As detailed above, the investigator analyzed the treatment integrity data of parent participants. When the permanent product data indicated that the parents’ adherence fell below 80% on 2 or more days per week, the investigator delivered performance feedback at the next weekly check-in meeting. During performance feedback, the investigator (a) reviewed implementation data in graphic form, (b) discussed student responsiveness, (c) described missed intervention steps, (d) provided targeted implementation support, (e) obtained commitment to the intervention, and (f) answered any questions from the parent participants. A script for these meetings can be found in Appendix Z. These meetings were audio-taped and assessed for treatment integrity purposes.

In addition, during the homework baseline and intervention implementation phases, the investigator assessed teachers’ treatment integrity. If the data indicated that the teachers’ adherence was below 100% any day of the intervention, the teacher received performance feedback. The threshold (i.e., below 100% at least once per week) was due to the necessity of the teachers’ responsibilities (i.e., providing homework and accuracy note) to the parent and student
implementation of the intervention. When earned, performance feedback was scheduled as soon as possible at the teacher’s convenience. These meetings were scripted and occurred in the same format as described above (see Appendix Z).

**Conjoint plan evaluation.** Six weeks after the beginning of intervention implementation, the investigator scheduled Conjoint Plan Evaluation for the two participating teacher-parent dyads, at a time and place convenient to the participants. These interviews took an average of 25 minutes (range: 12-40 minutes) and were audio-taped to assess treatment integrity (see Appendix V for the treatment integrity checklist). During these meetings, the investigator and participants evaluated the effectiveness of the intervention in multiple settings, and determined if consultation goals had been met. The teacher and parent participants completed the Consultant Evaluation Form, and Behavior Intervention Rating Scale. In addition, the parent participant completed the Parental Self-Efficacy in Helping Child Succeed in School, and the Homework Problem Checklist. Further, the investigator discussed strategies for the teacher and parent participants to continue or modify the intervention, if desired during the subsequent school year (the present school year was ending), and thanked the teachers and parents for their participation.

The investigator also met with the student participant briefly at a time and place convenient to the student. If during school, it was at a time approved by the teacher to minimize missed instruction. The student was asked to complete the Children’s Intervention Rating Profile and for feedback on the homework intervention.

**Data Analysis**

**Evidence standards.** The data analysis plan was developed to align with the What Work Clearinghouse guidelines for single-case research (Kratochwill et al., 2010). The study was designed was such that it would “Meet Evidence Standards” according to WWC. Specifically,
the study was designed to have (a) an independent variable that is statistically manipulated by the researcher, (b) at least three attempts to demonstrate intervention effects across at least three different subjects, (c) at least 5 data points per phase, and (d) acceptable levels of inter-assessor agreement for 20% of data in each phase. Several of these criteria were not satisfied due to participant attrition and the end of the school year challenges to data collection, which limited the number of data points that could be included per phase.

Per the original design plan, data were to be assessed through visual analysis and quantitative analysis, in line with the WWC Standards (Kratochwill et al., 2010). Though quantitative analyses were planned, only visual analyses were completed to assess the effect of performance feedback on parental treatment integrity (primary research question 2) and the effect of the homework intervention on homework completion and accuracy (secondary research question 1). Only visual analysis was used to determine if parents consistently implemented the homework intervention with high adherence (primary research question 1). Quantitative statistical analyses were omitted due to the limited number of participants and absence of experimental control.

Visual analysis. Data were analyzed using visual analysis through four steps and based on six features (Kratochwill et al., 2010). First, data were reviewed to determine stable, predictable baseline. Second, data were assessed to determine if there was sufficient consistency within each phase. Third, data within each phase were compared to data in adjacent and similar phases to assess change. For the second and third steps, data were analyzed based on six features: level, trend, variability, immediacy of effect, overlap, and consistency of data patterns in similar phases. Last, information from the prior three steps were combined to determine if there are least three demonstrations of an effect.
**Quantitative synthesis.** This study was designed to conform to WWC *Standards* and several quantitative measures were planned to be used (Kratochwill et al., 2010). More specifically, the study analysis plan included the use of methods (likely both nonparametric methods and parametric) that (a) were appropriate for characteristics of the data (e.g., level, variability, trend), and (b) aligned with best practice recommendations available at the time of study conclusion. These methods may have included nonparametric methods such as (a) Generalized Least Squares (Swaminathan et al., 2010), (b) Hierarchical Linear Models as proposed by Van den Noortgate and Onghena (2003, 2007), and (c) standard mean difference no assumptions approach (Buskin & Serlin, 1992) and parametric methods such as (a) Percent of Non-Overlapping Data (Sruggs, Mastropieri, & Casto, 1987), (b) Percentage of All Non-Overlapping Data (Parker, Hagan-Burke, & Vannest, 2007), (c) Improvement Rate Difference (Parker, Vannest, & Brown, 2009), and (d) Percent Exceeding the Median Trend Line (Wolery, Busick, Reichow, & Barton, 2010). Due to the lack of experimental control, these quantitative analyses were not completed.

**Correlations.** Correlations were employed to assess (a) the agreement of parental self-report to permanent product data (primary research question 3), and (b) relationship between student outcomes and parent treatment integrity (secondary research question 2).

**Descriptive statistics.** This study employed descriptive statistics such as means and standard deviations. Descriptive statistics were used to assess scores on the Homework Problem Checklist (pre- and post-intervention), Parental Self-efficacy for Helping Child in School (pre- and post-intervention), Consultant Evaluation Form (post-intervention), Behavior Intervention Rating Scale (post-intervention), and Children’s Intervention Rating Profile (post-intervention). These descriptive data were used to answer secondary research questions one and three.
**Procedural reliability.** To assess procedural reliability, the investigator assessed her implementation of CBC meeting objectives. Across all meetings, 96.37% of objectives were met (range = 70-100%). During PAIs an average of 100% of objectives were met, during PIIs an average of 94.87% of objectives were met, and during TEIs an average of 85.71% of objectives were met. A second rater reviewed 37.5% of the consultation meetings. The ratings of the objectives as met or unmet were compared using point-by-point agreement. That is, the agreement or disagreement of objectives was coded and then the number of objectives rated in agreement was divided by the total number of objectives. This review indicated 98.0% agreement for objectives met across meetings.

**Teachers’ treatment integrity.** Across the homework baseline and homework intervention implementation phases, teachers’ treatment integrity was assessed. Teacher A and Teacher B implemented the intervention with 100% treatment integrity across all intervention days. Teacher C’s implementation dipped during the first week of the homework intervention implementation phase and she received performance feedback. Her mean adherence prior to receiving performance feedback was 66.66%, whereas she implemented the intervention with 100% treatment integrity after performance feedback.
Chapter IV: Results

The results of this study are presented below, organized by research question.

Primary Research Questions

There were three primary research questions related to parents’ implementation of the intervention and response to performance feedback. These questions are listed below with associated hypotheses, analysis methods, and results.

Primary research question 1: Will parents consistently implement the homework intervention with high adherence? I hypothesized that parents would not consistently implement the homework intervention with high adherence during the check-in meeting phase. To analyze this prediction, visual analysis of parent adherence permanent product data was completed, and two or more days per week with below 80% adherence was considered low adherence.

Two of the three parent participants implemented the homework intervention with low adherence (see Figure 2). More specifically, during the check-in meeting phase, Parent A initially implemented at a low level and then failed to implement the intervention completely (check-in meeting phase mean adherence = 11.11%). Thus, she demonstrated low and stable adherence to the intervention. During the check-in meeting phase, Parent B initially implemented the intervention with high levels of adherence, however, her adherence became increasingly variable and lower over time (check-in meeting phase mean adherence = 75.83%). The adherence levels of Parent A and Parent B during the check-in meeting phase support the hypothesis for this research question. Parent C initially implemented the intervention with low adherence, but her adherence subsequently rose and remained high (check-in meeting phase...
mean adherence = 77.22%). Notably, only four data points are available for her implementation, so it is unclear whether her adherence would have remained high over time.

*Figure 2. Parents’ Percent Adherence to Homework Intervention Across Sessions*
Primary research question 2: Will the as-needed weekly delivery of performance feedback by a consultant increase parents’ adherence to the homework intervention, as measured by permanent product? I hypothesized that the delivery of performance feedback by a consultant during the performance feedback phase would increase parents’ adherence to the homework intervention, as measured by permanent product. To assess the effectiveness of performance feedback, parent adherence permanent product data were analyzed using visual analysis. Effect size methods were not employed due to the limited data.

Only two parent participants received performance feedback, as Parent C attrited prior to this phase (see Figure 2). Following the delivery of performance feedback, Parent A’s adherence briefly increased and then decreased to 0%. Her adherence remained stable at 0% throughout the rest of the study, despite the weekly delivery of performance feedback (performance feedback phase mean adherence = 6.48%). Parent B received performance feedback only once. Following performance feedback, her adherence increased for two sessions and then fell to a moderate level (performance feedback phase mean adherence = 85.71%).

Primary research question 3: To what extent will parents’ report of their adherence agree with permanent product data? I hypothesized that parents would not accurately report their adherence, as compared to permanent product data. Only Parent B completed the self-report form regularly, Parent A completed the form for only one day, and Parent C completed it for only two days. As such, only Parent B’s data were used to assess this question. The correlations between her permanent product and self-report data across the check-in meeting and performance feedback phases were calculated using Pearson’s r. The resulting correlation was 0.77, which indicates a strong degree of agreement between Parent B’s report of her implementation and her adherence across the check-in meeting and performance feedback phases.
as indicated by permanent products (Cohen, 1988). Phases were not evaluated separately due to limited data points available.

Secondary Research Questions

There were three secondary research questions related to the homework intervention. These questions are listed below with associated hypotheses and results.

Secondary research question 1: Will the homework intervention improve student outcomes, as measured by homework accuracy, homework completion, and the Homework Problem Checklist? I hypothesized that the homework intervention would improve student outcomes. Student participants’ accuracy and completion rates were assessed through visual analysis. Pre- and post-intervention data from the parents’ completion of the Homework Problem Checklist were reported as descriptive statistics (i.e., means, standard deviations).

Students’ percent homework completion and accuracy are presented in Figure 3. No homework completion or accuracy data for Student C were provided to the researcher throughout the study. Prior to the homework intervention, Student A completed no homework during the homework baseline phase (homework baseline completion mean = 0%). Following the introduction of the homework intervention in the check-in meeting phase, his completion and accuracy initially increased, however, his completion decreased to 0% (check-in meeting phase completion mean = 42.85%, accuracy mean = 23.71%). During the performance feedback phase, Student A’s homework completion remained at 0%.

Across all phases in the study Student B completed his homework with 100% completion. During the homework baseline phase, his accuracy was moderate (homework baseline accuracy mean = 82.33%). Student B’s accuracy became slightly lower and more variable in the check-in meeting phase (homework baseline accuracy mean = 74.46%). During
the performance feedback phase, his homework accuracy increased and became less variable (performance feedback accuracy mean = 94.66%).

Parents’ completed ratings of the Homework Problem Checklist before and after intervention implementation (see Table 1). Higher ratings indicate parents’ perceive homework issues to be more frequent and intense as compared to lower ratings. At the beginning of the study, Parent A’s 2.40 score on the Homework Problem Checklist indicated that she felt homework problems occurred between “Very Often” to “Often”. After study completion, her rating on the Homework Problem Checklist fell by 1.6, indicating that she perceived homework problems to occur between “At Times” and “Often.” At the beginning of the study, Parent B rated homework problems “At Times” (mean score = 0.95). After the study completed, Parent B’s rating indicated she still felt that homework problems occurred “At Times” (mean score = 1.15). Her ratings increased by 0.20, which may be related to an increase in homework problems or may be explained by her simply attending to homework problems more during the course of the study. Only pre-intervention scores are available for Student C, as Triad C dropped out of the study prior to completion. Parent C’s rating of the Homework Problem Checklist indicated she felt homework problems occurred “At Times”.

Table 1. Parent participants’ pre- and post- ratings of the Homework Problem Checklist.

<table>
<thead>
<tr>
<th>Triad</th>
<th>Pre-Intervention</th>
<th>Post-Intervention</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Mean Score</td>
<td>Standard Deviation</td>
</tr>
<tr>
<td>A</td>
<td>2.40</td>
<td>1.23</td>
</tr>
<tr>
<td>B</td>
<td>0.95</td>
<td>0.82</td>
</tr>
<tr>
<td>C</td>
<td>0.85</td>
<td>0.74</td>
</tr>
</tbody>
</table>
Figure 3. Students’ Percent Homework Completion and Accuracy Across Sessions
Secondary research question 2: Will there be a relationship between student outcomes and parent adherence? I hypothesized that there would be a positive relationship between student outcomes and parent adherence during the check-in meeting and performance feedback phases. No student outcome data are available for Student C. Therefore, only adherence and student outcome data across phases from Student A and Student B were analyzed. More specifically, to assess the relationship between parent adherence, as measured by permanent product data, and student outcomes, as measured by student homework accuracy and completion rates, Pearson’s $r$ was used. Results indicate that that parents’ adherence to the intervention was highly correlated to students’ homework completion ($r = 0.87$) and students’ homework accuracy ($r = 0.91$).

Secondary research question 3: Will the CBC procedures and homework intervention be rated as acceptable and socially valid by participants? I hypothesized that participants would perceive CBC and the homework intervention to be acceptable and socially valid. To answer this question, descriptive statistics (e.g., means, standard deviations) are provided for (a) teachers’ and parents’ completion of the Consultant Evaluation Form (Erchul, 1987), (b) teachers’ and parents’ completion of the Behavior Intervention Rating Scale (Elliott & Treuting, 1991), (b) student participants’ completion of the Children’s Intervention Rating Profile (Witt & Elliott, 1985) and (c) parents’ pre- and post-intervention completion of the Parental Self-efficacy for Helping Child in School (Hoover-Dempsey & Sandler, 2005; Walker et al., 2005). The descriptive results are presented below.

Parents and teachers were asked to complete the Consultation Evaluation Form at the end of the study to indicate their satisfaction with the consultant and perception of the consultant as helpful. The parents and teachers from Triads A and B rated the consultant highly (see Table 2).
Teacher A and Parent B indicated they “Very Strongly Agree” (i.e., 7) the consultant was satisfactory and helpful, while scores from Parent A and Teacher B fell in the “Strongly Agree” (i.e., 6) to “Very Strongly Agree” (i.e., 7) range. No ratings are available from Triad C.

Parents and teachers completed the Behavior Intervention Rating Scale to indicate their perception of the homework intervention as acceptable, effective, and efficient (see Table 2). The parent and teacher from Triad B rated the intervention slightly higher (i.e., in the “Agree” to “Strongly Agree” range) than the parent and teacher in Triad A (i.e., in the “Slightly Agree” to “Agree” range). No ratings were available for participants from Triad C.

Student A and Student B completed the Children’s Intervention Rating Scale to indicate their perception of the homework intervention (see Table 2). There ratings indicated the students’ perceived the intervention to be fair, acceptable, and have few side effects in between “At times” (i.e., 1) and “Often” (i.e., 2). Student C did not complete this measure.

Table 2. Participants’ ratings of consultation and intervention social validity measures.

<table>
<thead>
<tr>
<th>Measure</th>
<th>Triad</th>
<th>Role</th>
<th>Mean Score</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consultant Evaluation Form</td>
<td>A</td>
<td>Parent</td>
<td>6.63</td>
<td>0.80</td>
</tr>
<tr>
<td></td>
<td>A</td>
<td>Teacher</td>
<td>7.00</td>
<td>0.00</td>
</tr>
<tr>
<td></td>
<td>B</td>
<td>Parent</td>
<td>7.00</td>
<td>0.00</td>
</tr>
<tr>
<td></td>
<td>B</td>
<td>Teacher</td>
<td>6.27</td>
<td>1.27</td>
</tr>
<tr>
<td></td>
<td>C</td>
<td>Parent</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>C</td>
<td>Teacher</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Behavior Intervention Rating Scale</td>
<td>A</td>
<td>Parent</td>
<td>4.85</td>
<td>1.49</td>
</tr>
<tr>
<td></td>
<td>A</td>
<td>Teacher</td>
<td>4.79</td>
<td>2.04</td>
</tr>
<tr>
<td></td>
<td>B</td>
<td>Parent</td>
<td>5.50</td>
<td>1.02</td>
</tr>
<tr>
<td></td>
<td>B</td>
<td>Teacher</td>
<td>5.45</td>
<td>1.64</td>
</tr>
<tr>
<td></td>
<td>C</td>
<td>Parent</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>C</td>
<td>Teacher</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Children Intervention Rating Scale</td>
<td>A</td>
<td>Student</td>
<td>1.57</td>
<td>1.51</td>
</tr>
<tr>
<td></td>
<td>B</td>
<td>Student</td>
<td>1.42</td>
<td>0.53</td>
</tr>
</tbody>
</table>
The Parent Self-Efficacy in Helping their Child Succeed in School Measure was completed by parent participants before and after the intervention was implemented (see Table 3). This measure is designed to assess parents’ self-efficacy for supporting their student’s education, with higher ratings indicating a more positive self-efficacy than lower ratings. At the onset of the study, Parent A scores on this measure, 4.14, indicated she “Agreed Just a Little” (i.e., 4) with statements of parental self-efficacy related to school. Following the study, her score on this measure decreased to 3.71 and fell into the “Disagree Just a Little” (i.e., 3) to “Agree Just a Little” (i.e., 4) range. Parent B’s rating on the measure increased during the study from a pre-study score of 4.57 to a post-study score of 4.71, but both scores fell into the “Agree Just a Little” to “Agree” range. Parent C did not complete this measure.

Table 3. Parent participants’ pre- and post- ratings of the Parental Self-Efficacy in Helping their Child Succeed in School.

<table>
<thead>
<tr>
<th>Triad</th>
<th>Pre-Study Implementation</th>
<th>Post-Study Implementation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean Score</td>
<td>Standard Deviation</td>
</tr>
<tr>
<td>A</td>
<td>4.14</td>
<td>1.46</td>
</tr>
<tr>
<td>B</td>
<td>4.57</td>
<td>0.78</td>
</tr>
<tr>
<td>C</td>
<td>3.14</td>
<td>1.21</td>
</tr>
</tbody>
</table>

Exploratory Research Question

There was one exploratory research question related to dimensions of treatment integrity. How will treatment integrity data across dimensions (i.e., adherence, exposure, participant responsiveness, participant adherence, and program differentiation) influence evaluation utility? Exposure, participant responsiveness, participant adherence, and program differentiation data
were graphed to be will be visually analyzed and demonstrate how consideration of multiple
dimensions of treatment integrity influences evaluation utility.

**Exposure.** Students’ exposure to the homework intervention varied across participants
(see Figure 4). Per intervention procedures, math homework should have been completed for at
least 10 minutes per homework session. During the check-in meeting phase, Student A’s
exposure was stable (check-in meeting phase mean exposure = 22.5 minutes) and increased in
the performance feedback phase (mean exposure = 60 minutes). Though, Student A exposure
data was only reported on three occasions, twice during the check-in meeting phase and once
during the performance feedback phase. Student B was consistently exposed to the homework
intervention. More specifically, during the check-in meeting phase, Student B’s mean exposure
was variable (mean exposure = 34.33 minutes), while during the performance feedback phase,
his mean exposure fell to 16.67 minutes and became more stable. Student C completed the
homework intervention for only a few sessions and exposure was only reported for two sessions
(check-in meeting phase mean exposure = 22.5).

**Participant adherence.** Students’ participant adherence to the homework intervention
was measured by the students’ performance of specific intervention components. More
specifically, the student was assessed on six intervention steps related to (a) writing down the
homework assignment, (b) bringing home the assignment, (c) bringing home additional
materials, (d) bringing home an accuracy note, (e) completing the Homework Situation section
of the intervention with the parent, and (f) packing his homework into the folder. Participant
adherence was reported as a percentage of these intervention steps completed.

Participant adherence varied greatly across students (see Figure 5). In the check-in
meeting phase, Student A initially demonstrated high adherence to the intervention, but after two
Figure 4. Students’ Minutes of Exposure to Homework Intervention Across Sessions
Figure 5. Students’ Percent Participant Adherence to Homework Intervention Across Sessions
sessions his adherence fell to 0% (check-in meeting phase mean participant adherence = 25.71%). During the performance feedback phase, his adherence increased to moderate levels briefly before returning to 0% (performance feedback phase mean participant adherence = 6.15%). Student B’s adherence was generally high and stable during the check-in meeting phase (mean participant adherence = 93.66%). However, in the performance feedback phase, his adherence increased briefly before falling to moderate levels of adherence (performance feedback phase participant adherence = 66.66%). Student C demonstrated moderate and stable participant adherence, before falling to 0% (check-in meeting phase participant adherence = 50.00%).

**Participant responsiveness.** Students’ participant responsiveness was assessed by the extent to which parents’ rated their children as motivated and cooperative with the intervention. The students were rated as completely (i.e., 4), mostly (i.e., 3), somewhat (i.e., 2), or not at all (i.e., 1) motivated and cooperative, respectively. Throughout implementation, participant responsiveness varied across students (see Table 4). There were limited data related to Student A’s participant adherence, only two data points for the check-in meeting phase and two data points for the performance feedback phase. Student A’s mean motivation and completion during the check-in meeting phase was 3.00, indicating he was “Mostly” responsive. In the performance feedback phase, his motivation and cooperation fell to 1.50, in the “Not at all” and “Somewhat” range. Student B’s participant responsiveness was moderate and variable during the check-in meeting phase. More specifically, Student A’s mean motivation score was 2.66 (in the “Somewhat” or “Mostly” range), while his mean cooperation score was in the “Mostly” range at 3.20 during the check-in meeting phase. In the performance feedback phase, his motivation and cooperation scores increased slightly to the “Mostly” range (mean motivation score = 3.00, mean
cooperation score = 3.33). Similar to Student A, there are limited data to assess participant responsiveness for Student C. In the check-in meeting phase, student C demonstrated a high degree of participant responsiveness. More specifically her motivation score was in the “Mostly” to “Completely” range (mean motivation score = 3.66), while her mean cooperation score of 4.00 indicates she cooperated completely.

### Table 4. Participant responsiveness as measured by motivation and cooperation across phases.

<table>
<thead>
<tr>
<th>Participant Responsiveness</th>
<th>Triad</th>
<th>Check-In Meeting Phase</th>
<th>Performance Feedback Phase</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Mean Score</td>
<td>Standard Deviation</td>
</tr>
<tr>
<td>Motivation</td>
<td>A</td>
<td>3.00</td>
<td>0.00</td>
</tr>
<tr>
<td></td>
<td>B</td>
<td>2.66</td>
<td>0.72</td>
</tr>
<tr>
<td></td>
<td>C</td>
<td>3.66</td>
<td>0.57</td>
</tr>
<tr>
<td>Cooperation</td>
<td>A</td>
<td>3.00</td>
<td>0.00</td>
</tr>
<tr>
<td></td>
<td>B</td>
<td>3.20</td>
<td>0.56</td>
</tr>
<tr>
<td></td>
<td>C</td>
<td>4.00</td>
<td>0.00</td>
</tr>
</tbody>
</table>

**Program differentiation.** Program differentiation was assessed by examining modified Daily Homework Sheet used in homework baseline and the Daily Homework Sheet used during intervention implementation throughout the check-in meeting and performance feedback phases. These permanent products were reviewed with the adherence checklist and, across each phase, the percentage of intervention steps implemented was calculated. Across all triads, some components from the homework intervention were implemented during the homework baseline, though homework intervention was implemented more fully in subsequent phases (see Table 5). Parent A implemented 2.78% of the homework intervention during homework baseline. During the check-in meeting phase, her mean adherence rose to 11.11%, though it fell during the performance feedback phase (mean adherence = 6.48%). Parent B implemented an average of 43.17% of intervention steps during homework baseline. Her mean adherence rose substantially
during the check-in meeting phase (75.83%). In addition, Parent B’s adherence increased to 85.71% during the performance feedback phase. During homework baseline, Parent C implemented an average of 50.13% of intervention steps. After the intervention was introduced in the check-in meeting phase, she completed an average of 77.22% intervention components. No performance feedback phase data are available for Parent C.

Table 5. *Program differentiation across phases*

<table>
<thead>
<tr>
<th>Triad</th>
<th>Homework Baseline</th>
<th>Check-In Meeting Phase</th>
<th>Performance Feedback Phase</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean Adherence</td>
<td>Standard Deviation</td>
<td>Mean Adherence</td>
</tr>
<tr>
<td>A</td>
<td>2.78%</td>
<td>7.85</td>
<td>11.11%</td>
</tr>
<tr>
<td>B</td>
<td>43.17%</td>
<td>18.24</td>
<td>75.83%</td>
</tr>
<tr>
<td>C</td>
<td>50.13%</td>
<td>19.28</td>
<td>77.22%</td>
</tr>
</tbody>
</table>
Chapter V: Discussion

Treatment integrity assessment data are necessary to ensure an intervention is implemented as planned and to accurately evaluate student outcomes (Sanetti & Kratochwill, 2009a; Shadish et al., 2002). Performance feedback is the only evidence-based method to increase low treatment integrity levels per WWC standards, but it has been evaluated primarily with only school personnel (Fallon et al., 2012; Solomon et al., 2012). Some student interventions, such as many homework interventions, require parents to act as implementers (Weiner et al., 1998). However, there is limited research that evaluates (a) parents’ treatment integrity levels, (b) the delivery of performance feedback to parents, and (c) the agreement between parent self-report and permanent product data. In this dissertation, I attempted to address these gaps within the literature through research that involved a randomized multiple baseline across subjects design. To improve students’ homework completion and accuracy, parents and teachers participated in CBC to individualize a parent-implemented homework intervention. Parents’ treatment integrity was monitored; when it fell below acceptable levels, performance feedback was delivered. In addition, (a) the effectiveness of the homework intervention, (b) the relationship between the homework intervention and treatment integrity data, and (c) acceptability and social validity of the intervention were evaluated.

Levels of Treatment Integrity

In this study, parents implemented the homework intervention with low or variable levels of treatment integrity. That is, during the check-in meeting phase, Parent A implemented the intervention with low levels of treatment integrity and Parent B implemented the intervention with moderate, but variable levels of treatment integrity. Only three data points were collected for Parent C, but these indicated high levels of treatment integrity. These implementation levels
demonstrated by Parent A extend the findings of Bonar (2007) and Connell (2009) who documented the low and varied treatment integrity of parents’ implementing educational interventions at home. The implementation of Parent B and Parent C was similar to the levels documented by Sheridan et al. (2009) and Swanger-Gagne et al. (2009) who found moderate and high levels of implementation among parent participants.

Moreover, the levels of adherence documented in this study are similar to implementation research in schools that finds that teachers and other school professionals (e.g., paraprofessionals, school teams) generally implement interventions with varying and low levels of treatment integrity (DiGennaro et al., 2005, 2007; Mortenson & Witt, 1998; Noell et al., 1997; 2005). Thus, it seems appropriate to assert that as attention is now being paid to assess, support, and promote school-based implementers’ implementation (Collier-Meek et al., 2013; NASP, 2010; Sanetti et al., 2011), it will likely be necessary to do the same to support the implementation of interventions at home. These data indicate that it is not appropriate to simply assume parents will consistently and fully implement educational related supports at home.

**Performance Feedback**

Performance feedback was provided to Parent A and Parent B in the course of this study. Based on the study design, only two participants are not enough to empirically evaluate the impact of independent variable (i.e. performance feedback; Kazdin 2011; Kratochwill et al., 2010). Despite this major limitation, it is still useful to evaluate the differences between implementation in phases based on case-level data. These data can be compared to other studies to provide tentative explanations about the impact of performance feedback on these parents’ implementation.
Parent A seemed to initially respond to performance feedback, but overall her adherence was lower in the performance feedback phase, as compared to the baseline phase. More specifically, per visual analysis, when Parent A initially received performance feedback her implementation increased to moderate levels, however, it shortly fell off to 0%, where it remained the rest of the study, despite receiving performance feedback on three more occasions. Parent A’s pattern of implementation is similar to findings of Connell (2009), wherein an ABAB design to evaluate the effectiveness of performance feedback on treatment integrity, a grandmother demonstrated consistently variable and low levels of adherence throughout the study, regardless of phase.

Parent B demonstrated moderate and variable implementation during the baseline phase. Per visual analysis, upon receipt of performance feedback, her adherence increased slightly, but remained variable. Her average implementation increased slightly from baseline to performance feedback phase. Parent B’s pattern of implementation is similar to parents’ implementation documented by Bonar (2008) and teachers’ implementation as documented by Sanetti, Kratochwill, and colleagues (2013). That is, these studies also documented a moderate increase in treatment integrity after implementers received performance feedback.

Overall, the impact of performance feedback on parents’ treatment integrity in this study is quite different from the overwhelming majority of research on performance feedback in schools. A recent meta-analysis documented the effectiveness of performance feedback on teachers’ implementation (Solomon et al., 2012). Further, in a systematic literature review conducted per WWC Standards, found that performance feedback could be considered an evidence-based practice (Fallon et al., 2013). The contradiction between the findings present in this study with school-based research on performance feedback may indicate that (a) this promotion strategy may not be similarly effective with parents or (b) attrition issues impacted the ability of this and
other studies to document the effectiveness of this strategy. This difference between impact of performance feedback in these settings should be viewed very tentatively due to the significant limitations associated with this study.

**Self-Report Data**

Parent participants were asked to complete a self-report checklist about the extent to which they implemented the homework intervention. Only one parent, Parent B, consistently completed the self-report form. Therefore, the conclusions that can be drawn from these data are limited and should be viewed as only exploratory findings. That said, Parent B’s self-report had a high level of agreement with her permanent product data. This level of agreement may be attributed to the parent’s willingness to accurately report her implementation. The high level of accuracy by Parent B is contrary to most research on teachers’ self-report, which has found that teachers generally over-estimate their implementation (Noell et al., 2005; Sanetti & Kratochwill, 2009b). Rather, the level of correlation between self-report and permanent product data are similar to data reported by Sanetti and Kratochwill (2009b), who documented a high level of agreement between teachers’ self-report and permanent product data.

**Treatment Integrity Dimensions**

Treatment integrity has been conceptualized as a multi-dimensional construct; however, there are few studies that examined implementation outside of adherence (Sanetti & Kratochwill, 2009a). This study incorporated several dimensions hypothesized to be components of treatment integrity including (a) adherence, (b) exposure, (c) participant adherence, (d) participant responsiveness, and (e) program differentiation. These data were analyzed to consider how these dimensions contributed to intervention evaluation utility. However, there were limited data to examine so these findings should be viewed as only exploratory.
It makes conceptual sense that the amount of time a student is exposed to an intervention would influence outcomes. As such, exposure is dimension considered in several researchers’ conceptualizations of treatment integrity (Dane & Schneider, 1998, Jones et al., 2008, Power et al., 2005; Waltz et al., 1993). For this study, exposure was considered how long students completed their math homework. Per intervention procedures math homework should have been completed for at least 10 minutes per homework session. For all participants, the average exposure by phase was greater than required by the intervention. However, these exposure durations only account for when parents recorded the number on the Daily Homework Sheet and do not include non-exposure when a parent failed to implement completely. The exposure data across participants was variable and does not seem to have a direct relationship with parents' adherence or student outcomes. Based on these limited data, the findings seem to indicate that simple exposure to the intervention was not potent enough to influence student outcomes. Therefore, while exposure may be valuable when considered alongside adequate levels of adherence, exposure data alone may have limited utility.

Students’ involvement in the homework intervention was evaluated as related to participant adherence and participant responsiveness. Participant adherence was assessed through the parents' ratings of the student completing six intervention steps. Participant adherence varied greatly across participants, though the pattern of each participant’s adherence was similar to their parent’s adherence, though present a slightly different picture. Participant adherence data may be particularly useful for specific interventions that require the student to actively complete certain steps. For example, the homework intervention could not be completed without the student bringing home their homework and materials. In this case, it may be appropriate to collect these
data, alongside implementer adherence data, so if there if implementation is low targeted support can be provided for the appropriate step and the appropriate person.

Participant responsiveness to the homework intervention was assessed through a Likert scale rating of students' motivation and cooperation with the homework intervention. Across all triads, student participants were rated as more highly cooperative, then motivated to participate in the homework intervention. This finding may be related to (a) the intervention procedures specifically, (b) the fact that the students did not enjoy completing math homework or (c) the rewards not being reinforcing enough for the new and challenging behavioral repertoire. The participant responsiveness ratings of only Students A and B can be compared across the check-in meeting and performance feedback phases. An examination of these limited data indicates that the ratings of motivation and cooperation mimicked the parents' adherence. That is, Parent A's adherence and Student A's participant responsiveness decreased from the check-in meeting to the performance feedback phases, while Parent B's adherence and Student B's participant responsiveness increased from check-in meeting to performance feedback phase. This may indicate a participants’ responsiveness to an intervention may affect the implementers’ adherence, and vice versa.

To evaluate program differentiation, homework intervention adherence data were reviewed across phases. In many studies on treatment integrity, the student outcome baseline is not examined for adherence. Rather, adherence is evaluated only after the intervention is introduced to the implementer. The findings from this study indicate that it may be useful to evaluate these data during the baseline phase, as it may provide valuable information for interpreting treatment integrity data. In this study, Parent B and Parent C implemented a substantial portion of the intervention prior to the introduction of the homework intervention in
this study (mean adherence = 43.17% and 50.1%, respectively). The fact that several intervention components were already consistently embedded into their routines may have made it easier to adhere to the intervention procedures. During homework intervention baseline, Parent A’s mean adherence was very low. Although her adherence increased slightly after the introduction of the intervention, it remained low. It seems that the direct training provided to Parent A during the Conjoint Needs Analysis may have been insufficient to support her learning all of the new intervention-related behaviors, as opposed to Parents B and C, who only needed to incorporate some new behaviors. The review of Parent A’s adherence during homework intervention baseline provides valuable information that might help explain why she struggled to complete the steps consistently.

**Homework Intervention**

Through CBC, the parents and teachers individualized a homework intervention designed to improve problematic homework completion exhibited by the student participants. The homework intervention included structured homework time and contingent reinforcement, and was designed for this study based on prior research that supported the effectiveness of these intervention components (Bryan et al., 2007, Olympia et al., 1994; Rhoades & Kratochwill, 1998, Weiner et al., 1998). Though the data are limited, the results of this study do not similarly document improvements in student outcomes. Rather, in some cases, the implementation of this intervention was related to decreases in homework completion, homework accuracy, and parents’ and teachers’ ratings on the Homework Problem Checklist. This finding may be due to the limited appropriateness of this intervention for the student participants as the initial report of homework difficulties was different than data indicated during homework intervention baseline (i.e., Student B and C regularly completed their math homework).
Limitations

This study was encumbered by several limitations that impact the conclusions that can be drawn from the findings. Foremost, the attrition of participants during the execution of the study led to fewer participants than necessary to find a demonstrable effect (Kazdin, 2011). Though four student participants joined the study initially, only three triads were randomized to baseline order due to participant attrition, and only two participants entered the performance feedback phase due of further participant attrition during the check-in meeting phase. The multiple baseline design requires three demonstrations of effect to demonstrate causality (Kazdin, 2011, Kratochwill et al., 2010). This requirement was not met in this study, and thus, the efficacy of performance feedback on parents’ implementation cannot truly be evaluated. Further, this limitation resulted in two criteria for the WWC single case research design standards remaining unmet in this study, (a) an independent variable that is statistically manipulated by the researcher and (b) at least three attempts to demonstrate intervention effects across at least three different subjects. As such, this study does not provide evidence on the impact of performance feedback on treatment integrity.

There are additional limitations related to participants in this study. As described in the methods, recruitment of schools and participants was an arduous process that took several months. Thus, it is likely that those participants willing to be a part of the study may not represent of the majority of parents or teachers. This condition may reduce the generalizability of these findings to other school- and home-based implementers. Further, the three parent participants randomized to baseline order varied greatly with respect to their personal and familial characteristics, despite the fact their children were all struggling with math homework. For example, one parent participant had not completed high school, while another parent
participant held a master’s degree, and another, was a grandmother who had guardianship of her grandchildren. Clearly, these participants had different circumstances and contingencies governing their behavior. In a multiple-baseline design, it is ideal for different cases, in this instance, implementers, to be similar on a set of predefined characteristics. This criterion was not met in this study.

The study was also limited by logistical school-based realities as it was implemented near the end of the school year. The impact of these logistics can be seen in the number of data points present in performance feedback phase. Parent B only received performance feedback once and only three data points were collected during this phase. Though three stable data points are generally considered an acceptable number of data points per phase in single-case research (Kazdin, 2011), WWC single case research standards recommends at least 5 data points per phases (Kratochwill et al., 2010). This limitation further impacts the ability of this study to be used to demonstrate evidence of performance feedback.

In this study, treatment integrity was solely assessed through permanent product review. Though permanent product review is routinely used in treatment integrity research (Noell et al., 1997; Sanetti et al., 2001) and has several strengths, including feasibility and limited observer reactivity (Noell, 2008), researchers have highlighted the many limitations of this assessment method (Sanetti & Collier-Meek, 2013; Noell & Gansle, in press). Permanent product review has been questioned based on the limited components that may be assessed with this method and that the measure may be simply a matter of paper completion. Indeed, a recent study found that permanent product and direct observation treatment integrity data were only modestly correlated and direct observation was more highly correlated with student outcomes, than permanent product review (Sanetti & Collier-Meek, 2013). Despite these recent evaluations of treatment
integrity assessment methods, permanent product review seemed to be an adequate assessment method in this study, based on the relationship between treatment integrity and outcomes and parents’ description of their implementation, though these data are quite limited.

Parents were asked to complete a self-report checklist related to their implementation of the homework intervention. The data analysis plan included a comparison of self-report and permanent product review data. However, this assessment was limited as only one parent consistently completed the self-report form. Parent B completed the self-report with moderate agreement as compared to her permanent product review data. As this parent was the only participant who completed the self-report, it is difficult to conclude whether the accuracy of her ratings would be replicated across other parents implementing similar interventions.

In addition to evaluating the impact of performance feedback on parents’ implementation, this study purported to assess the impact of the homework intervention on student outcomes. Several limitations impacted the potential to evaluate these student outcome data in this manner. First, homework completion and accuracy data were only collected from Triad A and Triad B. No student outcome data from Triad C was made available to the researcher, despite repeated requests. Thus, there are limited data from which to evaluate the effectiveness of the intervention. Second, despite a discussion with participants about inclusion characteristics and review of homework grades prior to screening, Student B demonstrated high levels of homework completion and accuracy during baseline. That is, during baseline, Student B did not appear to meet the definition of problematic homework completion and require the intervention supports.

Last, the investigator was not blind to the research questions in the study. This circumstance may have unwittingly impacted her behavior when interacting with the participants.
Implications

Despite serious limitations that impact the empirical conclusions that can be drawn from this study, the initial exploratory findings and lessons learned may have implications for research and practice.

Research. The study findings were similar to other studies that have evaluated parents’ implementation and found their treatment integrity to be low and variable (Bonar, 2008; Connell, 2009; Swanger-Gagne et al., 2009). School personnel often partner with parents to implement interventions when a student is struggling academically or behaviorally (Christenson & Reschly, 2010; Sheridan & Steck, 1995). Within these partnerships to benefit student outcomes, it is expected that all stakeholders will consistently and fully implement their portion of the intervention plan (Sheridan et al., 2009; Swanger-Gagne et al., 2009). To ensure that students, particularly those that are struggling, receive interventions designed as planned, parents’ implementation should likely be evaluated and supported as needed. Based on the results of this study and similar investigations (Bonar, 2007, Connell, 2009), it seems unwise to assume parents will implement educational interventions consistently without ongoing support.

Relatedly, the limited results of this study seem to provide tentative support for a relationship between parents’ implementation and student outcomes. More specifically, the very limited data available from Triad A and Triad B seem to support the relationship between higher levels of implementation and higher levels of homework completion, homework accuracy, and ratings on the Homework Problem Checklist. These initial data may indicate that the link between implementation at home may be similar to that relationship between implementation and outcomes at school, a finding recently supported in research by Sheridan and colleagues.
Additional research is needed to further evaluate the relationship between parents’ implementation of educational-based interventions and student outcomes.

However, in addition to calling attention to the importance of implementation assessment, this study documented the limited sophistication and effectiveness of treatment integrity assessment and support strategies for parents. Though permanent product data seemed to account for parents’ general levels of implementation (per the correlation between permanent products and student outcomes and parents general report of their implementation), recent studies demonstrate the limitations of this method. Further, only one parent consistently completed the self-report form, though she demonstrated high levels of agreement. As parents’ implementation is assessed more regularly, it will be necessary to find an accurate, acceptable, and feasible method for which to do so. As research is conducted to evaluate the appropriateness and accuracy of treatment integrity assessment methods in schools (Collier-Meek & Sanetti, 2013; Gresham, in press), similar work should be conducted in the home setting.

In addition to treatment integrity assessment, implementation promotion strategies for parents should be evaluated. Though performance feedback is considered an evidence-based practice, most studies have been conducted in schools with teachers (Fallon et al., 2013; Solomon et al., 2012). It may not be possible to simply transfer that evidence-based from schools to other context, such as homes. The three studies evaluating the impact of performance feedback on parents’ implementation, including this dissertation, have been muddled by significant limitations (Bonar, 2007; Connell, 2009). These consistent research issues may not allow for the impact of performance feedback to be demonstrated, but may also be related to the lack of fit between performance feedback and the home context. More specifically, the home context involves different contingencies, responsibilities and demands; whereas a teachers’ primary job
is to teach and intervene, a parent has substantial additional responsibilities outside of their children’s educational development (e.g., financial and work responsibilities, household routines and maintenance). In fact, during homework time, parents may oversee homework, work themselves, care for whole family, maintain the home, prepare dinner, and shuffle other children to events, among other activities. Further research on performance feedback, possibly with variations, and other treatment integrity promotion strategies is needed. Promotion strategies that may be appropriate for the home setting include implementation planning (Sanetti, Kratochwill, et al., 2013) and strategies utilized by Swanger-Gagne and colleagues (2009), such as utilizing a family-centered approach, regularly communicating with families, and adjusting treatment integrity data collection as needed. These promotion strategies may be more reflective of the context and contingencies of the homework environment, as opposed to the professional work environment of schools.

Future research that attends to parents’ implementation may also benefit from having similar parent participants across the study. The participant inclusion criteria for this study were based solely on students’ problematic homework completion and the parent and teacher participants’ willingness to participate. The parents in this study demonstrated very different levels and patterns of implementation. This may be due, in part, to their different personal and familial characteristics and reflected in the program differentiation data, which indicated very different levels of intervention components implemented prior to intervention training. Researchers seeking to evaluate parents’ treatment integrity may consider developing explicit criteria for the parent participants, as well as student participants. This may reduce the variability across participants. After the impact of a treatment integrity promotion strategy has been demonstrated, researchers may consider systematically manipulating the characteristics of parent
participants to demonstrate the wide-spread applicability of the strategy. Initial studies with more restricted participants may be useful to demonstrate what types of promotion strategies are most effective.

**Practice.** The findings of this study do not offer clear recommendations or guidelines for school psychologists who wish to support student outcomes by developing and implementing interventions across settings. Rather, the findings suggest that attending to parents’ implementation may be critical to the success of home-based interventions, in a similar manner that implementation is an essential link for school-based interventions (Sanetti & Kratochwill, 2009a). As such, practitioners should consider incorporating treatment integrity monitoring, assessment, and promotion into their ongoing support provided for interventions implemented at home. Although specific guidelines for how to do so are not yet available, school psychologists may utilize best practice recommendations from treatment integrity research in schools (Collier-Meek, in press; Sanetti et al., 2011). Further, they may work to ensure that educational interventions as well as treatment integrity documents and supports are feasible and appropriate for the unique home context.
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manuscript in submission.


Swaminathan, H., Horner, R. H., Sugai, G., Smolkowski, K., Hedges, L., & Spaulding, S. A.


doi: 10.1016/0022-4405(87)90022-7


Appendix A
Sample Daily Homework Sheet

<table>
<thead>
<tr>
<th>Daily Homework Sheet</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>JO</td>
<td>MO</td>
</tr>
</tbody>
</table>

ύ Homework Situation: Johnny and Marissa, fill in the answer for the first three questions and then circle the appropriate responses for questions 4 and 5.

1. What time did Johnny start his math homework?
2. What time did Johnny end his math homework?
3. Where did Johnny do his homework?
4. How noisy was it when Johnny did his homework? Quiet (very little noise, quiet whispers) Some noise (soft music, inside voices) Really noisy (loud noise, music, or talking)
5. How many distractions happened when Johnny was doing his homework? No distractions (0) Some distractions (1-3) Lots of distractions (4 or more)

ύ Homework Information: For this section, Marissa, circle the appropriate response for each question.

1. Who suggested you start the homework program today? JO MO Other
2. Was Johnny focused when completing his homework today? Completely Mostly Somewhat Not at all
3. Was Johnny cooperative when completing the homework program? Completely Mostly Somewhat Not at all

ύ Homework Program Steps: For this section, Johnny and Marissa circle the appropriate response.

1. Did Johnny write down his math assignment? Yes No
2. Did Johnny bring his math assignment home in his homework folder? Yes No
3. Did Johnny bring additional math homework materials home, if needed? Yes No Not Needed Not provided
4. Did Johnny bring an accuracy note home? Yes No
5. Did Johnny complete the Homework Situation 😊 with you? Yes No
6. Did Johnny complete his math homework? Yes No
7. Did Johnny pack his homework into homework folder? Yes No

Total Number of “Yes”
Number of Applicable Steps
Percentage (see cheat sheet)

Graph your successes! Update the Homework Accuracy Graph!
Appendix B

Sample Homework Steps Graph

Homework Steps Graph

<table>
<thead>
<tr>
<th>JO</th>
<th>MO</th>
<th>April 23 - April 27</th>
</tr>
</thead>
</table>

Directions: Add the percentage of Homework Steps completed to the lightning graph below.

Johnny's goal:
What Johnny earned this week:
Did Johnny meet his goal?
Appendix C

Sample Homework Accuracy Graph

<table>
<thead>
<tr>
<th>JO</th>
<th>MO</th>
<th>April 23-April 27</th>
</tr>
</thead>
</table>

Directions: Fill up the arrow based on Johnny’s accuracy note to showcase his success!

Johnny’s goal: 

What Johnny earned this week: 

Did Johnny meet his goal?
Appendix D

Sample Weekly Reward System

<table>
<thead>
<tr>
<th>Date</th>
<th>How many goals did Johnny meet this week? Check the Homework Steps Graph and Homework Accuracy Graph to find out!</th>
<th>What type of reward did Johnny earn?</th>
<th>When did Johnny receive the reward? Who delivered it?</th>
</tr>
</thead>
<tbody>
<tr>
<td>4/27/12</td>
<td></td>
<td>0 goals = No reward 1 goal = Small reward 2 goals = Large reward</td>
<td></td>
</tr>
<tr>
<td>5/4/12</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5/11/12</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5/19/12</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5/25/12</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6/1/12</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6/8/12</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
# Adherence Checklist

<table>
<thead>
<tr>
<th>Student</th>
<th>Parent</th>
<th>Week</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Did Student begin within decided time frame? 😊</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Did student work for at least 10 minutes straight? 😊</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Did Student work in the “homework spot”? 😊</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Was it quiet? 😊</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Where there “no distractions”? 😊</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Did parent complete Homework Information?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Did parent fill in the Homework Steps section? 🌟</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Did parent update the Homework Steps Graph? 😊</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. Did parent update Homework Accuracy Graph? 🌟</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. Did parent figure out if student met his Homework Steps goal? 😊</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11. Did parent figure out if student met his Homework Accuracy goal? 🌟</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12. Did parent complete the Homework Program Reward ✨ Chart to determine if student earned a reward?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>13. Did parent deliver the reward as planned?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>14. Did parent send Homework Program Binder to school on Monday morning?</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Did parent complete self-report (not in %)?

<table>
<thead>
<tr>
<th>Y items</th>
<th>Applicable items</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>PF earned?</td>
</tr>
</tbody>
</table>
### Appendix F

Treatment Integrity Record

<table>
<thead>
<tr>
<th>Student initials:</th>
<th>Parent initials:</th>
<th>Week:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Exposure

<table>
<thead>
<tr>
<th>Participant responsiveness- Motivation</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Participant responsiveness- Cooperation</td>
<td></td>
</tr>
</tbody>
</table>

#### Participant adherence

<table>
<thead>
<tr>
<th>Question</th>
<th>Week 1</th>
<th>Week 2</th>
<th>Week 3</th>
<th>Week 4</th>
<th>Week 5</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Did student write down assignment?</td>
<td>Y</td>
<td>N</td>
<td>Y</td>
<td>N</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>Did student bring home assignment in hw folder?</td>
<td>Y</td>
<td>N</td>
<td>Y</td>
<td>N</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>Did student bring home additional hw materials?</td>
<td>Y</td>
<td>N</td>
<td>Y</td>
<td>N</td>
<td>Y</td>
<td>N</td>
</tr>
<tr>
<td>Did student bring home an accuracy note?</td>
<td>Y</td>
<td>N</td>
<td>Y</td>
<td>N</td>
<td>Y</td>
<td>N</td>
</tr>
<tr>
<td>Did student complete hw time section with parent?</td>
<td>Y</td>
<td>N</td>
<td>Y</td>
<td>N</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>Did student pack homework in hw folder?</td>
<td>Y</td>
<td>N</td>
<td>Y</td>
<td>N</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td><strong>“Y” total</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Applicable items</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Percentage</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Appendix G

Sample Modified Daily Homework Sheet

<table>
<thead>
<tr>
<th>Student initials: JO</th>
<th>Guardian initials: MO</th>
<th>Date: ______________________</th>
</tr>
</thead>
<tbody>
<tr>
<td>Who prompted homework? ____________________________________________</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Homework to Home

1. Did Johnny write down his assignment?  
   - Yes  
   - No

2. Did Johnny bring home his homework neatly (i.e., not crumpled)?  
   - Yes  
   - No

3. Did Johnny bring home additional homework materials?  
   - Yes  
   - No  
   - NA

4. Did Johnny bring home an indication of previous homework’s completion or accuracy?  
   - Yes  
   - No

### Homework Time

<table>
<thead>
<tr>
<th>Start time:</th>
<th>End time:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Location:</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Noise level:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quiet - very minimal noise, at most a few quiet whispers</td>
</tr>
<tr>
<td>Noisy - some noise, people talking using inside voices, soft music</td>
</tr>
<tr>
<td>Really noisy - loud noise, people talking loudly or yelling, loud music</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Distraction level:</th>
</tr>
</thead>
<tbody>
<tr>
<td>No distractions - Zero distractions</td>
</tr>
<tr>
<td>Some distractions - 1-3 distractions</td>
</tr>
<tr>
<td>Lots of distractions - 4 or more distractions</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Did Johnny complete his homework?</th>
</tr>
</thead>
</table>
| Yes  
| No |

### Homework to School

1. Did Johnny pack his homework to return to school?  
   - Yes  
   - No

<table>
<thead>
<tr>
<th>Notes/Observations:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
</tbody>
</table>
Appendix H

Teacher Adherence Checklist

<table>
<thead>
<tr>
<th>Student initials:</th>
<th>Teacher initials:</th>
<th>Week:</th>
<th>Wknd</th>
<th>Mon</th>
<th>Tues</th>
<th>Wedn</th>
<th>Thurs</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1. Did teacher provide math homework? | Y | N | Y | N | Y | N | Y | N |

2. Did teacher provide an indication of homework accuracy? | Y | N | Y | N | Y | N | Y | N |

“Y” total

Percentage

Performance Feedback earned? | YES | NO |
Appendix I

Sample Homework Report

<table>
<thead>
<tr>
<th>Homework Checklist</th>
<th>Wknd</th>
<th>Mon</th>
<th>Tues</th>
<th>Wed</th>
<th>Thur</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Directions:</strong> Check off activities you complete daily or write NA (not applicable) where appropriate.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>When Johnny completed math homework... 😊 Did Johnny begin within decided time frame?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Did Johnny work for at least 10 minutes straight?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Did Johnny work in the “homework spot”?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Was it quiet?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Where there “no distractions”?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Did you fill in the Homework Steps section? ⭐</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Did you update the Homework Steps Graph? 🌟</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Did you update Homework Accuracy Graph? 🔽</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Did you figure out if Johnny met his Homework Steps goal?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Did you figure out if Johnny met his Homework Accuracy goal?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Did you complete the Homework Program Reward Chart to determine if Johnny earned a reward?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Did you deliver the reward as planned?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Did you send Homework Program Binder to school on Monday morning?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Do you have any questions or comments you would like to share?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Thank you!!
Appendix J
Homework Problem Checklist (Anesko et al., 1987)

<table>
<thead>
<tr>
<th>Parent initials:</th>
<th>Student initials:</th>
<th>Date:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

For each statement, check one.

<table>
<thead>
<tr>
<th>Statement</th>
<th>Never</th>
<th>At Times</th>
<th>Often</th>
<th>Very Often</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Fails to bring home assignments and necessary materials (textbooks, dittos, etc.)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Doesn’t know exactly what homework has been assigned.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Denies having homework assignment</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Refuses to do homework assignment</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Whines or complains about homework.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Must be reminded to sit down and start homework.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Procrastinates, puts off doing homework.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Doesn’t do homework satisfactorily unless someone is in the room.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. Doesn’t do homework satisfactorily unless someone does it with him/her.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. Daydreams or plays with objects during homework session.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11. Easily distracted by noise or activities of others.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12. Easily frustrated by homework assignment.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13. Fails to complete homework.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14. Takes unusually long time to do homework.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15. Responds poorly when told by parent to correct homework.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16. Produces messy or sloppy homework.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>17. Hurries through homework and makes careless mistakes.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18. Show dissatisfaction with work, even when he/she does a good job.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>19. Forgets to bring assignment back to class.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20. Deliberately fails to bring assignment to class.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Appendix K
Parental Self-Efficacy in Helping the Child Succeed in School
(Hoover-Dempsey & Sandler, 2005; Walker et al., 2005)

<table>
<thead>
<tr>
<th>Parent initials:</th>
<th>Student initials:</th>
<th>Date:</th>
</tr>
</thead>
</table>

Please indicate how much you agree or disagree with each of the following statements. Please think about the current school year as you consider each statement.

<table>
<thead>
<tr>
<th>Statement</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I know how to help my child do well in school</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>2. I don’t know if I’m getting through to my child.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>3. I don’t know how to help my child make good grades in school.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>4. I feel successful about my efforts to help my child learn.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>5. Other children have more influence on my child’s grades than I do</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>6. I don’t know how to help my child learn</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>7. I make a significant difference in my child’s school performance.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
</tbody>
</table>
Appendix L

Consultation Evaluation Form (Erchul, 1987)

<table>
<thead>
<tr>
<th></th>
<th>initials:</th>
<th>Student initials:</th>
<th>Date:</th>
<th>Strongly disagree</th>
<th>Strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>1.</td>
<td>The consultant was generally helpful.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
<td>Strongly agree</td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>The consultant offered useful information.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
<td>Strongly agree</td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>The consultant’s ideas as to the primary goals of schools were similar to my own ideas.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
<td>Strongly agree</td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>The consultant helped me find alternative solutions to problems.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
<td>Strongly agree</td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>The consultant was a good listener.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
<td>Strongly agree</td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td>The consultant helped me identify useful resources.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
<td>Strongly agree</td>
<td></td>
</tr>
<tr>
<td>7.</td>
<td>The consultant fit well into the school’s environment.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
<td>Strongly agree</td>
<td></td>
</tr>
<tr>
<td>8.</td>
<td>The consultant encouraged me to consider a number of points of view.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
<td>Strongly agree</td>
<td></td>
</tr>
<tr>
<td>9.</td>
<td>The consultant viewed his or her role as a collaborator rather than as an expert.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
<td>Strongly agree</td>
<td></td>
</tr>
<tr>
<td>10.</td>
<td>The consultant helped me find ways to apply the content of our discussions to specific or classroom situations.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
<td>Strongly agree</td>
<td></td>
</tr>
<tr>
<td>11.</td>
<td>The consultant was able to offer assistance without completely “taking over” the management of the problem.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
<td>Strongly agree</td>
<td></td>
</tr>
<tr>
<td>12.</td>
<td>I would request services from this consultant again, assuming that other consultants were available.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
<td>Strongly agree</td>
<td></td>
</tr>
</tbody>
</table>
Appendix M

Behavior Intervention Rating Scale (Elliott & Treuting, 1991)

Please evaluate the intervention by circling the number which best describes your agreement or disagreement with each statement. You must answer each question.

<table>
<thead>
<tr>
<th></th>
<th>Strongly disagree</th>
<th></th>
<th>Strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. This would be an acceptable intervention for the child's problem behavior.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Most teachers would find this intervention appropriate for behavior problems in addition to the one addressed.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. The intervention should prove effective in changing the identified problem.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. I would suggest the use of this intervention to other teachers.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. The child's homework problem is severe enough to warrant the use of this intervention.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Most teachers would find this intervention suitable for the behavior problem addressed.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. I would be willing to use this in the classroom setting again.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. The intervention would not result in negative side-effects for the child.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. The intervention would be appropriate intervention for a variety of children.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. The intervention is consistent with those I have used in the classroom setting.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11. The intervention was a fair way to handle the child's problem behavior.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12. The intervention was reasonable for the behavior problem addressed.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>13. I like the procedures use in this intervention.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>14. This intervention was a good way to handle the identified behavior problem.</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>15. Overall, the intervention was beneficial for the child.</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>16. The intervention quickly improved the child’s behavior.</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>17. The intervention produced a lasting improvement in the child’s homework.</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>18. The intervention would improve the child’s behavior to the point that it did not noticeably deviate from other classmate’s behavior.</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>19. Soon after using the intervention, a positive change in problem behavior was noticed.</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>20. The child’s behavior will remain at an improved level even after the intervention is discontinued.</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>21. Using the intervention should not only improve the child’s homework in the classroom, but also in the other settings (e.g., other classrooms, home).</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>22. When comparing this child with a peer before and after use of the intervention, the child’s and the peer’s homework would be more alike after using the intervention.</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>23. The intervention should produce enough improvement in the child’s behavior so the behavior is no longer is a problem.</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>24. Other behaviors related to the problem behavior also are likely to be improved by the intervention.</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>
Appendix N
Children’s Intervention Rating Profile (Witt & Elliot, 1985)

<table>
<thead>
<tr>
<th>Parent initials:</th>
<th>Student initials:</th>
<th>Date:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

We are interested in learning your ideas about the program that you are now finishing. Below are some sentences. You may or may not agree with the sentences. For each one, please circle the number that describes how much you agree or disagree with the statement. Using the following guide:

5 = I disagree very much  
4 = I sort of disagree  
3 = I don’t agree or disagree  
2 = I sort of agree  
1 = I agree very much

<table>
<thead>
<tr>
<th></th>
<th>I agree very much</th>
<th>I sort of agree</th>
<th>I don’t agree or disagree</th>
<th>I sort of disagree</th>
<th>I disagree very much</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>The things used to deal with the problem were fair.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>2</td>
<td>The teacher/parent were too hard (mean).</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>3</td>
<td>The things used to deal with the problem might cause problems with my friends.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>4</td>
<td>There are better ways to handle this problem.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>5</td>
<td>The things used would be good for other children.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>6</td>
<td>I like the things used to handle this problem.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>7</td>
<td>The things used for this problem would help other children do better in school.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>
Appendix O

Introductory Email to Principal and Teachers

Dear Principal,

I am a graduate student at the University of Connecticut, conducting my dissertation under the guidance of Lisa Sanetti, PhD. I am writing to request your approval to introduce study participation to 5th grade math teachers in your school. The purpose of this study is to (1) assess the effectiveness of an intervention to increase homework completion and accuracy designed through consultation with teachers and parents and (2) learn about parent intervention implementation.

Participation in this study is completely voluntary. If you decide to allow teachers to participate, teachers’ identifying information and the school and district names will be kept confidential. The attached teacher consent form contains details about confidentiality and other important information about the study.

If you agree to allow teachers to participate in the study, I can approach teachers in one of two ways. I can speak briefly at a faculty meeting to describe the study procedures and consent or you can forward the following email (see below) and the attached consent form to all 5th grade math teachers.

If you have any other questions, please contact me, Melissa Collier-Meek at 860-608-9880 or melissa.collier@uconn.edu, or Lisa Sanetti, PhD, at 860-486-2747 or lisa.sanetti@uconn.edu. Thank you.

Sincerely,
Melissa Collier-Meek, MA

Dear Teacher,

I am a graduate student at the University of Connecticut, conducting my dissertation under the guidance of Lisa Sanetti, PhD. I am writing to request your participation in a research study. To be eligible for participation you must teach a 5th grade student experiencing difficulty with math homework. The purpose of this study is to (1) assess the effectiveness of an intervention to increase homework completion and accuracy designed through consultation with teachers and parents and (2) learn about parent intervention implementation.

Participation in this study is completely voluntary. If you decide to participate, your identifying information will be kept confidential. The attached consent form contains details about confidentiality, the study procedures, and other important information about the study.

If you are interested in participation please contact me, Melissa Collier-Meek at 860-608-9880 or melissa.collier@uconn.edu to arrange a brief meeting to discuss study participation at your convenience. If you have any other questions, please contact me, or Lisa Sanetti, PhD, at 860-486-2747 or lisa.sanetti@uconn.edu. Thank you.

Sincerely,
Melissa Collier-Meek, MA
Appendix P
Consent Form for Teachers

Consent Form for Participation in a Research Study

University of Connecticut

Principal Investigator: Lisa Sanetti, PhD
Student Researcher: Melissa Collier-Meek, MA
Study Title: Increasing Parent Treatment Integrity to a Homework Intervention Through Conjoint Behavioral Consultation and Performance Feedback

Introduction
You are invited to participate in a research study to improve student homework completion and intervention implementation. You are being asked to participate because you are a 5th-grade math teacher who may teach a student eligible for participation (i.e., low homework completion and accuracy).

Why is this study being done?
This study is being done to assess the effectiveness of a homework intervention designed through consultation with teacher and parent participants, and learn about parent intervention implementation. To do this, teacher participants will (a) help identify a student experiencing homework difficulty and make initial contact with parents, (b) participate in three consultation meetings with the parent participant, (c) support the homework intervention implementation and (d) rate their satisfaction with the intervention.

What are the study procedures? What will I be asked to do?
We expect you will participate in this study for approximately 12 weeks. If you consent to participate, there are four distinct activities you will be asked to complete.

Identification
If you consent to partake in this study, you will be asked to help identify a student participant, who is experiencing homework difficulties, and make initial contact to his/her parent or guardian regarding study participation. Homework difficulty is considered: (a) an average math homework completion rate of 60% or less, and (c) an average math homework accuracy rate of 60% of less. Further, the homework difficulty cannot be due to a skill deficit (i.e., must be a performance deficit). After you identify a student, you will be asked to make initial contact with the student’s parent or guardian using a researcher-developed phone script.
The researchers will then obtain parental consent, and student assent, and assure participation is appropriate for the student using the screening procedures. For screening, you will be asked to provide a math homework worksheet that you believe the student has the ability to complete with a high degree of accuracy. In addition, you and the parent participant will be asked to help identify appropriate rewards for screening and an appropriate criterion for completion and accuracy. However, if the student participant performs below the criterion they will not be included in the study. In such a case, you and the parent participant will be offered a meeting with the student investigator to develop a homework intervention and provided with written suggestions to address homework problems. If you do not have other participating (and eligible) students your participation in the study will be complete. If the student participant performs at or above the criterion, they will be included in the study, and you will continue with study procedures.

Consultation
You will be asked to participate in Conjoint Behavioral Consultation. For each participating student, Conjoint Behavioral Consultation consists of three meetings. During these meetings we will discuss your student’s homework difficulties, design an appropriate intervention, and assess the effectiveness of this intervention. Two of these meetings (Conjoint Problem Identification and Conjoint Problem Analysis) will be held prior to intervention implementation and one meeting (Conjoint Treatment Evaluation) will be held after. Each meeting will be held with a researcher consultant and parent participant, and take approximately 30 minutes. These meetings will audio-taped to assure all information was collected. These meetings will be arranged at a time and location convenient to you and the parent participant.

Data Collection and Intervention Support
To support the homework intervention you will be asked to (a) consistently assign math homework (i.e., Monday-Friday), (b) keep record of participating students’ math homework completion and accuracy, and (c) regularly share this information with the parent participants and researchers.

Intervention Evaluation
At the end of the study you will be asked to assess the consultation process and intervention effectiveness.

What are the risks or inconveniences of the study?
There are no anticipated physical, social, legal, employment or financial risks associated with the current study. However, there may be psychological risks, as you may experience minimal stress or anxiety associated with consultation, and audio-taped meetings. In addition, you may be inconvenienced by the amount of time associated with consultation and regular assessment of student homework as a result of study participation. Add a statement here that to attempt to limit inconveniences all consultation will be scheduled at a time and place convenient to the teacher.
What are the benefits of the study?
There may be psychological benefits associated with participation. It is expected that through the current study the student participants will experience less difficulty with homework. This may contribute to a decrease in the stress and concern you may have regarding the student participant. Further, your participation in the study may contribute to school psychology research and practice. Improved relationship with parent?

Will I receive payment for participation? Are there costs to participate?
There are not costs and you will not be paid to be in this study.

How will my personal information be protected?
The following procedures will be used to protect the confidentiality of your data. The researchers will keep all study records (including any codes to your data) locked in a secure location. Research records will be labeled with a random number code. A master key that links names and codes will be maintained in a separate and secure location. The master key and audiotapes will be destroyed after 3 years. All electronic files (e.g., database, spreadsheet, etc.) containing identifiable information will be password protected. Any computer hosting such files will also have password protection to prevent access by unauthorized users. Only the members of the research staff will have access to the passwords and data. At the conclusion of this study, the researchers may publish their findings. Information will be presented in summary format and you will not be identified in any publications or presentations.

You should also know that the UConn Institutional Review Board (IRB) and the Office of Research Compliance may inspect study records as part of its auditing program, but these reviews will only focus on the researchers and not on your responses or involvement. The IRB is a group of people who review research studies to protect the rights and welfare of research participants.

Can I stop being in the study and what are my rights?
You do not have to be in this study if you do not want to. If you agree to be in the study, but later change your mind, you may drop out at any time. There are no penalties or consequences of any kind if you decide that you do not want to participate.

Whom do I contact if I have questions about the study?
Take as long as you like before you make a decision. We will be happy to answer any question you have about this study. If you have further questions about this study or if you have a research-related problem, you may contact the principal investigator, Lisa Sanetti at 860-486-2747, or the student researcher Melissa Collier-Meek at 860-608-9880. If you have any questions concerning your rights as a research participant, you may contact the University of Connecticut Institutional Review Board (IRB) at 860-486-8802.
<table>
<thead>
<tr>
<th><strong>Participant Signature:</strong></th>
<th><strong>Print Name:</strong></th>
<th><strong>Date:</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>_________________________</td>
<td>_________________________</td>
<td>_________________________</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Signature of Person Obtaining Consent</strong></th>
<th><strong>Print Name:</strong></th>
<th><strong>Date:</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>_________________________</td>
<td>_________________________</td>
<td>_________________________</td>
</tr>
</tbody>
</table>
Appendix Q

Phone Script: Teacher Initial Call to Parents

“Hi ____________

☎ “This is __________.  Your child, [child’s name]’s, math teacher at _______________ School.  Do you have a few minutes to talk with me now?
  ① If not, schedule another time to call.
  ② If yes, proceed.

☎ “I am calling because researchers from the UConn are interested in evaluating the effectiveness and implementation of a collaboratively developed parent-based intervention to improve [student’s name]’s homework.  As you know, I have expressed concerns about his/her homework completion and accuracy, and we’d like to find a way to help him/her be more successful.  The researchers from UConn would like to help you and I develop and implement a homework intervention and take data to see how well implementation goes.  Would you like to hear more?
  ① If no, thank them for their time.
  ② If yes, proceed.

☎ “Okay.  First, we will meet with a researcher who will help us design a homework intervention, and then we will take data and meet with the researcher to discuss implementation.  Specifically, we will meet together with a researcher and discuss [child’s name]’s homework difficulty and collect some information about current homework practices.  We would then meet again, and individualize the homework intervention for your child, based on the data and our feedback.

☎ “Then we would implement the homework intervention, which basically consists of structuring homework routines and reinforcing your child for homework completion and accuracy.  During this time you would briefly meet with the researcher weekly to discuss intervention implementation at a time and place of your convenience.

☎ “Approximately 6 weeks after the intervention is implemented we would meet again as a group to assess the intervention, and our give our feedback on the consultation and intervention process.

☎ “Your decision to participate and to allow your child to participate is entirely voluntary.  It will not affect your or your child’s relationship with his/her teachers or the school.

☎ “If you agree to participate and to let your child participate, the researchers will keep all the information gathered confidential.  No one will be able to match your or your child’s name with his/her intervention or implementation information.  There is a minimal risk that you may uncomfortable within consultation or during intervention implementation.  To avoid any discomfort, you may discontinue participation at any time, without consequences.

☎ “Do you think you may be interested in participating and allowing your son/daughter to participate in this study?
  ① If no, thank them for their time and end conversation.
  ② If yes, proceed.
“Great, then I will send home a study consent form with more information about the study, and I would like to ask your permission to give your name and number to the researchers from UConn. They will be contacting you to arrange a meeting, where they will review what we just discussed in more detail and give you an opportunity to ask questions about the study.

If you have any questions before the meeting, feel free to call me back at ________. You can also contact Melissa Collier-Meek at (860) 608-9880 (a researcher from the UConn) or Lisa Sanetti at (860) 427-2747 (the principal researcher from UConn).

Thank you and have a great day!
Appendix R

Consent Form for Parents

Consent Form for Participation in a Research Study

University of Connecticut

Principal Investigator: Lisa Sanetti, PhD  
Student Researcher: Melissa Collier-Meek, MA

Study Title: Increasing Parent Treatment Integrity to a Homework Intervention through Conjoint Behavioral Consultation and Performance Feedback

Introduction
You are invited to participate in a research study to improve student homework completion and intervention implementation. You are being asked to participate because you are the parent or guardian of a 5th-grade student experiencing difficulty in homework completion and accuracy.

Why is this study being done?
This study is being done to assess the effectiveness of a homework intervention designed through consultation with teacher and parent participants, and learn about parent intervention implementation. To do this, parent participants will (a) support screening procedures, (b) participate in Conjoint Behavioral Consultation, (c) collect baseline data, (d) implement a nightly homework intervention with your child, (e) meet with the student investigator on a weekly basis, and (f) evaluate the consultation and intervention process.

What are the study procedures? What will I be asked to do?
We expect you will participate in this study for approximately 12 weeks. If you consent to participate, there are five distinct activities you will be asked to complete.

Screening
The researchers will obtain student assent, and assure participation is appropriate for the student using the screening procedures. With the teacher participant, you will be asked to help identify appropriate rewards for screening and an appropriate criterion for completion and accuracy. However, if the student participant performs below the criterion they will not be included in the study. In such a case, you and the teacher participant will be offered a meeting with the student investigator to develop a homework intervention and provided with written suggestions to address homework problems. Then, your participation in the study will be complete. If the student participant performs at or above the criterion, they will be included in the study, and you will continue with study procedures.
Consultation
Conjoint Behavior Consultation consists of three 30-minute meetings held with Student Investigator and your child’s math teacher. During these meetings we will discuss your child’s homework difficulties, design an appropriate intervention, and assess the effectiveness of this intervention. Two of these meetings (Conjoint Problem Identification and Conjoint Problem Analysis) will be held prior to intervention implementation and one meeting (Conjoint Treatment Evaluation) will be held after. These meetings will be audio-taped to assure we covered all needed information. These meetings will be arranged at a time and place convenient to you and the teacher participant.

Data Collection
Between the Conjoint Problem Identification and Conjoint Problem Analysis meetings you will be asked to unobtrusively assess current homework procedures at your home, and complete brief rating scales about helping your child with schoolwork and homework issues. This data will help us design a targeted and specific homework intervention for your child.

Intervention Implementation
You will be asked to implement the homework intervention on a nightly basis (Monday-Thursday and one day on the weekend). The homework intervention framework consists of (a) structuring homework time, (b) recording your child’s homework accuracy and completion, and (c) providing nightly and weekly positive reinforcement, but will be individualized based on your child’s needs. As part of the homework intervention you will be asked to note intervention steps implemented nightly, and bring homework intervention materials to school weekly.

Check-In Meetings
During intervention implementation, parent participants will briefly meet with the researcher on a weekly basis, at a regular time and place of your convenience (e.g., the school, your home). During these meetings we will discuss intervention implementation and effectiveness, and you may ask any questions. These meetings will be audio-taped to assure we cover all needed information.

Intervention Evaluation
At the end of the study you will be asked to assess the consultation process and intervention effectiveness.

What are the risks or inconveniences of the study?
There are no anticipated physical, social, legal, employment or financial risks associated with the current study. However, there may be psychological risks, as you may experience minimal stress or anxiety associated with consultation, and audio-taped meetings. In addition, you may be
inconvenienced by the amount of time associated with consultation and regular assessment of student homework as a result of study participation. Add same statement here about minimizing inconveniences by scheduling at times/places of convenience.

What are the benefits of the study?
There may be psychological benefits associated with participation. It is expected that through the current study the student participants will experience less difficulty with homework. This may contribute to a decrease in the stress and concern you may have regarding the student participant. Further, your participation in the study may contribute to school psychology research and practice.

Will I receive payment for participation? Are there costs to participate?
There are not costs and you will not be paid to be in this study.

How will my personal information be protected?
The following procedures will be used to protect the confidentiality of your data. The researchers will keep all study records (including any codes to your data) locked in a secure location. Research records will be labeled with a random number code. A master key that links names and codes will be maintained in a separate and secure location. The master key and audiotapes will be destroyed after 3 years. All electronic files (e.g., database, spreadsheet, etc.) containing identifiable information will be password protected. Any computer hosting such files will also have password protection to prevent access by unauthorized users. Only the members of the research staff will have access to the passwords and data. At the conclusion of this study, the researchers may publish their findings. Information will be presented in summary format and you will not be identified in any publications or presentations.

You should also know that the UConn Institutional Review Board (IRB) and the Office of Research Compliance may inspect study records as part of its auditing program, but these reviews will only focus on the researchers and not on your responses or involvement. The IRB is a group of people who review research studies to protect the rights and welfare of research participants.

Can I stop being in the study and what are my rights?
You do not have to be in this study if you do not want to. If you agree to be in the study, but later change your mind, you may drop out at any time. There are no penalties or consequences of any kind if you decide that you do not want to participate.

Whom do I contact if I have questions about the study?
Take as long as you like before you make a decision. We will be happy to answer any question you have about this study. If you have further questions about this study or if you have a research-related problem, you may contact the principal investigator, Lisa Sanetti at 860-486-2747, or the
student researcher Melissa Collier-Meek at 860-608-9880. If you have any questions concerning your rights as a research participant, you may contact the University of Connecticut Institutional Review Board (IRB) at 860-486-8802.

Participant Signature: ____________________________ Print Name: ____________________________ Date: ____________________________

Signature of Person Obtaining Consent Print Name: ____________________________ Date: ____________________________
Appendix S
Parental Permission

Parental Permission Form for Participation in a Research Study

University of Connecticut

Principal Investigator: Lisa Sanetti, PhD
Student Researcher: Melissa Collier-Meek, MA
Study Title: Increasing Parent Treatment Integrity to a Homework Intervention Through Conjoint Behavioral Consultation and Performance Feedback

Introduction
Your child is invited to participate in a research study to improve student homework completion and intervention implementation. Your child is being asked to participate because he or she is experiencing difficulty with homework completion and accuracy, and may benefit from a homework intervention.

Why is this study being done?
This study is being done to assess the effectiveness of a homework intervention designed through consultation with teacher and parent participants, and learn about parent intervention implementation. To do this, student participants will be asked to (a) assent to participate, (b) complete the screening process, and (c) participate in the homework intervention. In addition, the teacher and parent participants will collect student data.

What are the study procedures? What will my child be asked to do?
We expect you will participate in this study for 12 weeks. If you give permission for your child to take part in this study, there are four distinct activities included in participation.

Assent
If you give permission for your child to participate, he/she will be asked to provide assent prior to the start of study procedures. At a convenient time or place (e.g., school) a researcher will briefly explain the study, confidentiality, and ask him/her to sign assent. Your child will also receive a copy of the assent sheet. If your child does not provide assent, he/she will not be included in study participation.

Screening
Following student assent, we will confirm that the homework intervention is appropriate for your child. To do this we will present your child with two math worksheet, and ask him/her to complete them. Upon completion we will provide your child with a parent and teacher approved
reward. If we determine the intervention is appropriate for your child he/she will continue with the study procedures. If we determine the intervention is not appropriate for your child he/she will not continue with the study procedures, and further data will not be collected. You and your child’s teacher will be notified of your child’s continued eligibility.

*Homework Intervention*
Your child will be asked to participate in a homework intervention, designed by you, your child’s math teacher, and the researchers. You will be asked to implement the homework intervention on a nightly basis (Monday-Thursday and one weekend day). The homework intervention framework consists of (a) structuring homework time, (b) recording your child’s homework accuracy and completion, and (c) nightly and weekly positive reinforcement but will be individualized based on your child’s data.

*Data Collection*
Throughout the study you will be asked to collect and share data about (a) current homework practices at your home, (b) your child’s homework completion and accuracy rates and (c) implementation, which may include information about your child. In addition, your child’s teacher will be asked to share information about your child’s homework completion and accuracy. Lastly, your child will be asked to evaluate the intervention through a survey at the end of the study.

**What are the risks or inconveniences of the study?**
We believe there are no known risks to your child because of his/her participation in the research study; however, a possible inconvenience may be the time it takes to complete the study.

**What are the benefits of the study?**
It is expected that through the current study your child will experience less difficulty with homework, which will likely help your child at home and at school. Further, your child’s participation in the study may contribute to school psychology research and practice.

**Will my child receive payment for participation? Are there costs to participate?**
There are not costs to you and your child for participating in this study. Your child will not be paid to participate in this study.

**How will my personal information be protected?**
The following procedures will be used to protect the confidentiality of your child’s data. The researchers will keep all study records (including any codes to your data) locked in a secure location. Research records will be labeled with a random number code. A master key that links names and codes will be maintained in a separate and secure location. The master key and audiotapes will be destroyed after 3 years. All electronic files (e.g., database, spreadsheet, etc.)
containing identifiable information will be password protected. Any computer hosting such files will also have password protection to prevent access by unauthorized users. Only the members of the research staff will have access to the passwords and data. At the conclusion of this study, the researchers may publish their findings. Information will be presented in summary format and you will not be identified in any publications or presentations.

You should also know that the UConn Institutional Review Board (IRB) and the Office of Research Compliance may inspect study records as part of its auditing program, but these reviews will only focus on the researchers and not on your responses or involvement. The IRB is a group of people who review research studies to protect the rights and welfare of research participants.

**Can my child stop being in the study and what are my and my child’s rights?**
Your child does not have to be in this study if you do not want him/her to participate. If you give permission for your child to be in the study, but later change your mind, you may withdraw your child at any time. There are no penalties or consequences of any kind if you decide that you do not want your child to participate.

**Whom do I contact if I have questions about the study?**
Take as long as you like before you make a decision. We will be happy to answer any question you have about this study. If you have further questions about this study or if you have a research-related problem, you may contact the principal investigator, Lisa Sanetti at 860-486-4281, or the student researcher Melissa Collier-Meek at 860-608-9880. If you have any questions concerning your rights as a research participant, you may contact the University of Connecticut Institutional Review Board (IRB) at 860-486-8802.
Parental Permission Form for Participation in a Research Study

University of Connecticut

**Principal Investigator:** Lisa Sanetti, PhD  
**Student Researcher:** Melissa Collier-Meek, MA  
**Study Title:** Increasing Parent Treatment Integrity to a Homework Intervention Through Conjoint Behavioral Consultation and Performance Feedback

**Documentation of Permission:**
I have read this form and decided that I will give permission for my child to participate in the study described above. Its general purposes, the particulars of my child’s involvement and possible risks and inconveniences have been explained to my satisfaction. I understand that I can withdraw my child at any time. My signature also indicates that I have received a copy of this parental permission form.

__________________________  
Parent/Guardian Signature:  
Print Name:  
Date:  

Relationship to Child (e.g. mother, father, guardian): _____________________________  

__________________________  
Signature of Person Obtaining Consent  
Print Name:  
Date:
Appendix T

Student Assent

Project Title: Increasing Parent Treatment Integrity Through Conjoint Behavioral Consultation and Performance Feedback

Project Director: Dr. Lisa Sanetti

Student Director: Melissa Collier-Meek

Your parents have talked to you about being in a research study. Dr. Sanetti and Ms. Collier-Meek want to learn about how to help kids with their homework. You can ask as many questions as you would like about the study, and Dr. Sanetti and Ms. Collier-Meek can explain it to you in a way you can understand.

Ms. Collier-Meek will work with your parent or guardian and your math teacher to come up with a homework plan that will work for you. Then, your parent or guardian will work with you at home to help you with your homework. No information about you will be shared with people not working on the study.

You may call Dr. Sanetti or Ms. Collier-Meek, or ask your parent to call for you if you have more questions about the study. You don’t have to be in this study if you don’t want to and no one will be mad at you. If at first you say yes, but later change your mind, you should let your parents or Ms. Collier-Meek know and you don’t have to be in the study anymore.

Participant: ___________________________ Date: ____________

Researcher: __________________________ Date: ____________

Reason why student did not want to participate: __________________________
Appendix U

Screening Criteria Notice

Students still eligible for participation:

Dear Parent/Guardian,

Thank you for signing the Parent Consent Form for Participating in a Research Study related to the math homework intervention study. Based on the screening criteria, your child does meet the study criteria and will continue to be included in the study. Therefore, I will be contacting you to schedule a time to meet with you and your child’s math teacher to begin consultation, and continue the study procedures.

If you have any questions please contact me, Melissa Collier-Meek at 860-608-9880 or melissa.collier@uconn.edu or Lisa Sanetti, PhD, at 860-486-2747 or lisa.sanetti@uconn.edu. Thank you.

Best,

Melissa Collier-Meek, MA

Dear Teacher,

Thank you for helping to identify a student with math homework difficulty. Based on the screening criteria, your student, XXXX YYYY, does meet the study criteria and will be included in the study. Therefore, I will be contacting you to schedule a time to meet with you and your student’s parent to begin consultation, and continue the study procedures.

If you have any questions please contact me, Melissa Collier-Meek at 860-608-9880 or melissa.collier@uconn.edu or Lisa Sanetti, PhD, at 860-486-2747 or lisa.sanetti@uconn.edu. Thank you.

Best,

Melissa Collier-Meek, MA

Students no longer eligible for participation:

Dear Parent/Guardian,

Thank you for signing the Parent Permission Form for Participating in a Research Study related to the math homework intervention study. Based on the screening criteria, your child does not meet the study criteria. Therefore, your child’s data will not be collected for this study, and your participation is not needed. All data collected on your child will be destroyed.
If interested, I can meet with you and your child’s teacher to develop a homework intervention and provided with written suggestions to address homework problems. Please contact me if you are interested in this consultative support.

If you have any questions please contact me, Melissa Collier-Meek at 860-608-9880 or melissa.collier@uconn.edu or Lisa Sanetti, PhD, at 860-486-2747 or lisa.sanetti@uconn.edu. Thank you.

Best,

Melissa Collier-Meek, MA

Dear Teacher,

Thank you for helping to identify a student with math homework difficulty. Based on the screening criteria, your student, XXXX YYYY, does not meet the study criteria. Therefore, your student’s data will not be collected for this study, and your participation is not needed (unless you have identified another eligible student). All data collected on your student will be destroyed.

If interested, I can meet with you and your child’s parent to develop a homework intervention and provided with written suggestions to address homework problems. Please contact me if you are interested in this consultative support.

If you have any questions please contact me, Melissa Collier-Meek at 860-608-9880 or melissa.collier@uconn.edu or Lisa Sanetti, PhD, at 860-486-2747 or lisa.sanetti@uconn.edu. Thank you.

Best,

Melissa Collier-Meek, MA
Appendix V

CBC Treatment Integrity Checklists

Consultant’s Name:  
Observer’s Name:  
Date:  
Subject ID:  

Problem Identification Interview Objectives Checklist

<table>
<thead>
<tr>
<th>Objective</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Opening salutation</td>
</tr>
<tr>
<td>2.</td>
<td>General statement to open discussion</td>
</tr>
<tr>
<td><strong>Behavior specification</strong></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>Specify example</td>
</tr>
<tr>
<td>4.</td>
<td>Specify priorities</td>
</tr>
<tr>
<td>5.</td>
<td>Target behavior definition</td>
</tr>
<tr>
<td>6.</td>
<td>Summarize target behavior</td>
</tr>
<tr>
<td>7.</td>
<td>History of problem</td>
</tr>
<tr>
<td><strong>Behavior setting</strong></td>
<td></td>
</tr>
<tr>
<td>8.</td>
<td>Specify examples</td>
</tr>
<tr>
<td>9.</td>
<td>Specify priorities</td>
</tr>
<tr>
<td><strong>Conditional/functional analysis</strong></td>
<td></td>
</tr>
<tr>
<td>10.</td>
<td>Antecedent conditions/setting events</td>
</tr>
<tr>
<td>11.</td>
<td>Consequent conditions</td>
</tr>
<tr>
<td>12.</td>
<td>Environment/sequential conditions</td>
</tr>
<tr>
<td>13.</td>
<td>Summarize and validate conditions and functions</td>
</tr>
<tr>
<td>14.</td>
<td>Behavior strength</td>
</tr>
<tr>
<td>15.</td>
<td>Summarize and validate behavior and strength</td>
</tr>
<tr>
<td>16.</td>
<td>Tentative definition of goal</td>
</tr>
<tr>
<td>17.</td>
<td>Existing procedures</td>
</tr>
<tr>
<td>18.</td>
<td>Strengths/Assets</td>
</tr>
<tr>
<td>19.</td>
<td>Possible reinforcers</td>
</tr>
<tr>
<td>20.</td>
<td>Summarize and validate behavior, strength, goal</td>
</tr>
<tr>
<td>21.</td>
<td>Rationale for data collection</td>
</tr>
<tr>
<td>22.</td>
<td>Data collection procedures</td>
</tr>
<tr>
<td>23.</td>
<td>Summarize and validate data recording procedures</td>
</tr>
<tr>
<td>24.</td>
<td>Date to begin data collection</td>
</tr>
<tr>
<td>25.</td>
<td>Next appointment</td>
</tr>
<tr>
<td>26.</td>
<td>Closing salutation</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Percentage</strong></td>
<td></td>
</tr>
</tbody>
</table>
Consultant’s Name:
Observer’s Name:
Date:
Subject ID:

Problem Analysis Interview Objectives Checklist

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Opening salutation</td>
</tr>
<tr>
<td>2.</td>
<td>General statement to regarding data and problem</td>
</tr>
<tr>
<td>3.</td>
<td>Behavior strength</td>
</tr>
<tr>
<td>4.</td>
<td>Antecedent conditions</td>
</tr>
<tr>
<td>5.</td>
<td>Consequent conditions</td>
</tr>
<tr>
<td>6.</td>
<td>Sequential conditions</td>
</tr>
<tr>
<td>7.</td>
<td>Summarize and validate behavior/strength/conditions</td>
</tr>
<tr>
<td>8.</td>
<td>Behavior interpretation</td>
</tr>
<tr>
<td>9.</td>
<td>Plan development</td>
</tr>
<tr>
<td>10.</td>
<td>Summarize and validate plan</td>
</tr>
<tr>
<td>11.</td>
<td>Data recording procedures</td>
</tr>
<tr>
<td>12.</td>
<td>Next appointment</td>
</tr>
<tr>
<td>13.</td>
<td>Closing salutations</td>
</tr>
<tr>
<td>Total</td>
<td></td>
</tr>
<tr>
<td>Percentage</td>
<td></td>
</tr>
</tbody>
</table>
Consultant’s Name:  
Observer’s Name:  
Date:  
Subject ID:  

<table>
<thead>
<tr>
<th>Treatment Evaluation Interview Objectives Checklist</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Opening salutation</td>
</tr>
<tr>
<td>2. Question regarding procedures and outcome</td>
</tr>
<tr>
<td>3. Goal attainment</td>
</tr>
<tr>
<td>If goal has not been attained:</td>
</tr>
<tr>
<td>4. Plan modification</td>
</tr>
<tr>
<td>5. Next appointment</td>
</tr>
<tr>
<td>If goal has been attained:</td>
</tr>
<tr>
<td>1. Plan effectiveness</td>
</tr>
<tr>
<td>2. External validity</td>
</tr>
<tr>
<td>6. Post implementation planning</td>
</tr>
<tr>
<td>7. Procedures for generalization/maintenance</td>
</tr>
<tr>
<td>8. Follow-up assessment procedures</td>
</tr>
<tr>
<td>9. Need for future interviews</td>
</tr>
<tr>
<td>10. Termination of consultation</td>
</tr>
<tr>
<td>11. (or 6) Closing salutation</td>
</tr>
<tr>
<td>Total</td>
</tr>
<tr>
<td>Percentage</td>
</tr>
</tbody>
</table>
Appendix W

Homework Completion and Accuracy Form

<table>
<thead>
<tr>
<th>Teacher Initials:</th>
<th>Student Initials:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date:</td>
<td>Completion Rate:</td>
</tr>
<tr>
<td></td>
<td>Accuracy Rate:</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
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<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Calculating Student Homework Completion:

\[
\text{Total Homework Problems Completed} \times 100 = \text{Completion Rate}
\]
\[
\text{Total Homework Problems Assigned}
\]

Calculating Student Homework Accuracy:

\[
\text{Total Homework Problems Completed Accurately} \times 100 = \text{Accuracy Rate}
\]
\[
\text{Total Homework Problems Completed}
\]
Appendix X

Sample Training

Slide 1

Supporting Johnny’s Homework

Slide 2

We know, homework is important

- Homework increases academically engaged time and promotes independent learning

- Homework allows for increased retention of concepts taught during school

- Homework promotes study skills and organizational skills

How can we promote Johnny’s homework completion and accuracy?
**Slide 3**

**Homework Program - Key Components**

- Keep a structured homework time
- Promote homework organization
- Monitor homework completion and accuracy

**Slide 4**

**How Do We Do This?**

- Everyday math homework is assigned, complete a Daily Homework Sheet with Johnny

  - Homework Situation
  - Homework Information
  - Homework Program Steps

**Slide 5**

**Daily Homework Sheet**

<table>
<thead>
<tr>
<th>Homework Program Steps</th>
<th>Monday</th>
<th>Wednesday</th>
<th>Total Header</th>
<th>Total % Complete</th>
</tr>
</thead>
<tbody>
<tr>
<td>John today’s math work</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>100%</td>
</tr>
<tr>
<td>John today’s math work</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>100%</td>
</tr>
<tr>
<td>Homework Info</td>
<td></td>
<td></td>
<td></td>
<td>100%</td>
</tr>
</tbody>
</table>
Slide 6

**HOMEWORK SITUATION**

- It’s important to have a consistent, quiet place for Johnny to complete his math homework for at certain duration of minutes.

  - Let’s make a plan, what will the homework situation look like at your home?

---

Slide 7

**HOMEWORK INFORMATION**

- While Johnny is completing his homework, complete the Homework Information section by circling the correct response.

  - This information helps us see how the homework program is going for you at home.

---

Slide 8

**HOMEWORK PROGRAM STEPS**

- After homework time, answer these questions with Johnny to help promote homework organization.
Next, Graph Student’s Success!

- **Homework Steps Graph**
  - Chart completion of Homework Program Steps ♠

- Let’s determine an appropriate goal

---

Next, Graph Student’s Success!

- **Homework Accuracy Graph**
  - Chart Johnny’s homework accuracy

- Let’s determine an appropriate goal

---

**AT THE END OF THE WEEK**

- Complete the Homework Program Reward Chart

<table>
<thead>
<tr>
<th>Homework Program Reward Chart</th>
<th>JO</th>
<th>MO</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Directions</strong>: Complete the reward chart weekly to see if Johnny earned a reward.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Date</strong></td>
<td><strong>Check the Homework Steps Graph</strong></td>
<td><strong>What type of reward did Johnny earn?</strong></td>
</tr>
<tr>
<td>4/27/13</td>
<td>Yes</td>
<td>1 point = No reward</td>
</tr>
<tr>
<td>5/4/13</td>
<td>Yes</td>
<td>2 points = Small reward</td>
</tr>
<tr>
<td>5/11/13</td>
<td>Yes</td>
<td>3 points = Large reward</td>
</tr>
<tr>
<td><strong>When did Johnny receive the reward?</strong></td>
<td><strong>Who delivered it?</strong></td>
<td></td>
</tr>
</tbody>
</table>

- What’s an appropriate large or small reward? When can it be delivered?
Slide 12

**Homework Checklist**

- To help track your completion of the homework program activities

<table>
<thead>
<tr>
<th>Homework Checklist</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monday</td>
</tr>
<tr>
<td>Did you complete your homework?</td>
</tr>
<tr>
<td>Monday</td>
</tr>
<tr>
<td>Did you plan out the homework steps?</td>
</tr>
<tr>
<td>Monday</td>
</tr>
<tr>
<td>Did you review the homework program report?</td>
</tr>
</tbody>
</table>

---

Slide 13

**It's All Organized in Your Weekly Homework Binder**

- Daily Homework Sheet
- Homework Steps Graph
- Homework Accuracy Graph
- Homework Program Reward Chart
- Homework Checklist

---

Slide 14

**Support for Your Implementation**

- Please send the binder to school once a week
  - I will review the binder and send blank sheets for the next week
  - What day should we plan on?

- I will meet with you weekly to talk about the Homework Program and Johnny's progress
  - What day and time should we plan on?
ANY QUESTIONS?
Appendix Y

Check In Meeting Script

BEFORE THE MEETING:

1. Prepare tape recorder.

AT THE MEETING:

2. Greet the parent and turn on the tape recorder.
3. Say: “Today is [Today’s date] and I am speaking with [Parent’s Name].
4. Evaluate intervention process

   Say: “How did the intervention go last week?”

   Record responses:

   ________________________________________________________________
   ________________________________________________________________
   ________________________________________________________________

5. Evaluate student responsiveness

   Say: “Would you say that the students were responsive to the intervention?”

   Record responses:

   ________________________________________________________________
   ________________________________________________________________
   ________________________________________________________________

6. Evaluate intervention process

   Say: “Do you have any questions or concerns about the intervention?”

   Record responses:

   ________________________________________________________________
   ________________________________________________________________
   ________________________________________________________________

7. Ask if the parent has any additional questions.

   Say: “Do you have any questions or concerns?”

   Record responses:

   ________________________________________________________________
Appendix Z
Performance Feedback Script

BEFORE THE MEETING:

1. Schedule time to meet with the teacher individually.
2. Fill out a graph of parent treatment integrity data.
3. Prepare tape recorder.

AT THE MEETING:

3. Greet the parent and turn on the tape recorder.
4. Say: “Today is [Today’s date] and I am speaking with [Parent’s Name].
5. Evaluate intervention process

Say: “How did the intervention go last week?”

Record responses: ____________________________________________________________
________________________________________________________________________
________________________________________________________________________

6. Evaluate student responsiveness

Say: “Would you say that the students were responsive to the intervention?”

Record responses: ____________________________________________________________
________________________________________________________________________
________________________________________________________________________

7. Evaluate intervention process

Say: “Do you have any questions or concerns about the intervention?”

Record responses: ____________________________________________________________
________________________________________________________________________
________________________________________________________________________

8. Review implementation data

Say: “Let’s look at your implementation of the intervention over the past week.”
“You had great implementation for steps(s) _____, ______, and ______ (as applicable) but I want to review your implementation for steps(s) _____, ______, and ______ (as applicable).

Show parent treatment integrity graph.

Say: “This graph shows the percentage of intervention steps you completed according to the intervention plan each day last week. You implemented ___% the intervention steps on Monday, ___% on Tuesday, ___% on Wednesday, ___% on Thursday, and ___% on Friday. It seems that you had the most difficulty implementing Step____, ____, ____ (repeat as necessary). Why have these steps been difficult to implement?”

Record responses: ___________________________________________
_________________________________________________________
_________________________________________________________

9. Review intervention step(s)

Say: “Let’s go over these steps.”

FOR EACH STEP THAT NEEDS TO BE REVIEWED:

Say: To implement (insert step number) according to the plan, you would (insert corresponding description from table below)

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
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<tbody>
<tr>
<td>1</td>
<td>Did parent fill in Daily Homework Sheet properly? (i.e., name, date, and prompted complete)</td>
</tr>
<tr>
<td>2</td>
<td>Did parent complete homework to home section properly? (i.e., all items completed, percentage calculated accurately)</td>
</tr>
<tr>
<td>3</td>
<td>Did parent update Weekly Cookie Jar Sheet?</td>
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<tr>
<td>4</td>
<td>Is reported start time within 5 minutes of agreed upon homework start time?</td>
</tr>
<tr>
<td>5</td>
<td>Is reported homework duration at least 10 minutes?</td>
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<tr>
<td>6</td>
<td>Is reported location the same as the agreed upon homework location?</td>
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<td>7</td>
<td>Is the reported noise level “quiet”?</td>
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<td>8</td>
<td>Is the reported distraction level “no distractions”</td>
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<tr>
<td>9</td>
<td>Did parent complete nightly reward section properly? (i.e., all items completed)</td>
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<tr>
<td>10</td>
<td>Was agreed upon nightly reward delivered at an appropriate time?</td>
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<tr>
<td>11</td>
<td>Did parent complete home to school section properly? (i.e., all items completed)</td>
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<tr>
<td>12</td>
<td>Did parent add bonus points to Weekly Cookie Jar Sheet?</td>
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<tr>
<td>10. Confirm parent understanding</td>
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<tr>
<td>Say: “Do you have any questions about how you would implement this/these steps?”</td>
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<td>Record responses:</td>
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<td>11. Confirm parent commitment to increasing implementation</td>
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<td>Say: “So, will you do your best to implement this/these steps?”</td>
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<td>Record responses:</td>
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<td>12. Ask if parent has any additional questions.</td>
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<td>Say: “Do you have any questions or concerns?”</td>
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<td>Record responses:</td>
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