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# Treatment Integrity in Conjoint Behavioral Consultation: Active Ingredients and Potential Pathways of Influence

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## Treatment Integrity in Conjoint Behavioral Consultation: Active Ingredients and Potential Pathways of Influence

Susan M. Sheridan, Kristin M. Rispoli, and Shannon R. Holmes

The statistical precision by which intervention outcomes are evaluated has increased in recent years in an effort to improve their viability in addressing emotional, social, behavioral, and academic issues. Despite these advances, *treatment integrity*, a vital aspect in evaluating the merit of a given intervention, remains largely overlooked. Definitions of treatment integrity include the accuracy and consistency with which an intervention is implemented (Wolery, 2011) and whether the intervention is delivered as intended (Knoche, Sheridan, Edwards, & Osborn, 2010). For our purposes, we share the perspective of Dane and Schneider (1998), who defined treatment integrity as the extent to which treatment agents deliver an intervention as intended with sufficient precision, reliability, and distinction.

School-based interventions are often implemented by natural treatment agents (e.g., teachers) through indirect service delivery (e.g., consultation). Behavioral or problem-solving consultation is a service delivery model whereby a consultant with expertise in data-based problem solving and intervention development works with a consultee (e.g., teacher, parent) to identify and analyze specific targets for intervention and develop, implement, and evaluate strategies to address identified concerns (Sheridan & Kratochwill, 1992). Unique to consultation is its indirect nature, whereby treatments are implemented by individuals who are part of children's natural environments (e.g., teachers, parents) and

not trained behavioral therapists in a “pull-out” (e.g., small group therapy, individual therapy) fashion. Contextual factors inherent in consultation-based intervention implementation in schools (e.g., lack of specialized intervention training, environmental disruptions, resistance from students) pose threats to treatment integrity that, if undetected, may lead to erroneous conclusions regarding intervention effectiveness (Elliott, Witt, Kratochwill, & Stoiber, 2002). In this chapter, we introduce conjoint behavioral consultation (CBC) as a coordinated, cross-system approach to consultation; identify and describe active ingredients of CBC (including those representing both collaborative problem solving and behavioral intervention plan implementation); explore the various dimensions of treatment integrity for CBC research; articulate integrity variables in need of investigation; and offer specific research directions.

CBC (Sheridan & Kratochwill, 2008) is a variant of behavioral consultation involving a similar structured problem-solving procedure and implementation of behavioral interventions by parents and teachers in a coordinated and collaborative (i.e., conjoint) fashion. CBC is predicated on ecological-behavioral theory (Bronfenbrenner, 1977) and a belief that positive connections between individuals from the primary ecological systems in a child’s life maximize developmental progress. CBC seeks to improve child concerns that disrupt learning, enhance the capacity of families and schools to foster child functioning, and bolster family-school relationships. To this end, embedded throughout CBC is the development of collaborative partnerships between families and schools to facilitate joint problem-solving interactions that maximize change in child behaviors across the home and school contexts. It aims to develop a sense of shared responsibility between parents and teachers, such that current and future needs are addressed through a cooperative problem-solving process (Sheridan, Eagle, Cowan, & Mickelson, 2001). Within this larger aim is the goal to increase communication between parents and teachers by fostering open and equal participation in the consultative process. Likewise, CBC focuses on improving relationships between parents and teachers such that all parties establish a sense of respect for the expertise and contribution of the other in addressing the child’s needs. With a focus on systems, CBC promotes the examination of needs as present across settings, leading to more accurate problem conceptualization and the development of comprehensive plans to address them (Sheridan & Colton, 1994).

Structurally, CBC is implemented through a series of four stages that guide the consultative process, with three of four completed via a structured interview. In the *problem (needs) identification* stage and the concomitant Conjoint Needs Identification Interview, the consultant guides the parent and teacher in discussing the child’s strengths and areas of need. With the support of the consultant, the parent and teacher identify a common priority and operationally define the target skill or behavior that becomes the focus of consultation. A goal is then developed, along with a plan to collect baseline data on the priority behavior. In the *problem (needs) analysis* stage (and Conjoint Needs Analysis Interview), data that have been collected are discussed, and team members examine possible contributing factors (e.g., setting events, antecedents, consequences, environmental conditions) that may be influencing behavior. Team members together develop a plan for home and school that includes the use of evidence-based strategies, and plan for ongoing data collec-

tion to assess behavior change. In the *treatment implementation* stage, the plan is implemented with agreed-upon strategies and procedures. Finally, in the *plan evaluation* stage (and Plan Evaluation Interview), the team discusses successes and difficulties encountered while implementing the plan across environments. Together members determine features of the plan that may need to be altered and whether continuation of the plan and future meetings are warranted. Methods for maintaining ongoing communication among team members are introduced and encouraged by the consultant (Sheridan & Kratochwill, 2008). Although structured and designed in a specific sequence, the practice of CBC often mandates flexibility and recurring movement between stages (Sheridan et al., 2001).

### **Dual Components, Objectives, and Active Ingredients of CBC**

Within behavioral consultation, two parallel components function together to influence a child's behaviors: (a) the structured problem-solving procedures invoked by consultants to guide the team in plan development and evaluation (i.e., collaborative problem solving) and (b) the intervention that is implemented by treatment agents in the child's environment (i.e., behavioral intervention plan). An important caveat within the context of assessing CBC treatment integrity as compared with other forms of behavioral consultation is that each aspect of the problem-solving and plan implementation process must be implemented collaboratively in a manner that considers the inputs and perspectives of both home and school. This approach reflects the emphasis in CBC on joint ownership, mutual decision making, and coordination and continuity in an effort to maximize the impact of the intervention.

To examine the integrity with which the CBC intervention (including collaborative problem-solving and behavioral intervention plans; see table 11.1) is implemented, it is necessary to identify the unique criteria that define it as an intervention. By extension, observation of these criteria is necessary to determine that the CBC intervention is in place. These criteria are thought to be the active ingredients of CBC, reflecting the fundamental elements that operate to produce positive effects in accordance with the objectives of the CBC intervention. Thus, they are conceptualized as necessary to define CBC implementation. If not present, conclusions regarding the efficacy of CBC will not be possible, nor will a determination that changes observed in students, parents, or teachers are attributable to CBC. It should be noted that the active ingredients reported here are presumed to be related to important consultation outcomes; they have not been tested empirically and require systematic investigation to determine their functional role in producing desired effects.

Table 11.1 outlines the active ingredients of CBC organized according to common objectives of the model within the collaborative problem-solving and behavioral intervention plan components. Strategies used by consultants are also discussed to illustrate behavioral indicators that allow for the evaluation of the integrity of the model's active ingredients.

Objective	Active ingredients	Strategies
<i>Component 1: Collaborative problem solving</i>		
Foster, develop, and maintain a working partnership	Encourage active participation and cooperation/collaboration among participants Demonstrate sensitivity and responsiveness to participants Reinforce participants' skills and competencies	Provide supportive, affirming, and validating statements (e.g., use active listening, empathetic statements) Work to understand and consider the influence of family and school culture (e.g., tailor treatment content to teachers' and parents' values, beliefs, and practicing styles)
Communicate effectively	Establish effective communication channels; engage in multidirectional communication Share information with the team that is pertinent to the child's development and that facilitates the consultation process	Use clear and inclusive language Use nonverbal and verbal communication to establish a friendly and supportive atmosphere Provide feedback and relevant developmental information Establish method by which families and schools continue communication following consultation (e.g., home-school notes, e-mail, phone calls)
Determine and maintain roles and responsibilities	Establish joint responsibility among participants Make joint decisions throughout the consultation process	Emphasize the contribution of all participants by discussing and defining roles at the outset of consultation Ensure roles are maintained throughout the relationship Encourage parents and teachers to provide their insight throughout the process

Determine current level of performance through data-based means	<p>Discuss strengths and needs of the child</p> <p>Select and define a target behavior based on family and teacher priorities</p> <p>Establish and agree upon data collection procedures</p> <p>Ensure that data are collected, shared, and reviewed</p> <p>Identify/confirm the function of the behavior through use of baseline or related data</p> <p>Agree on a goal for behavior change</p>	<p>Use expertise in child development to aid team in determining developmental appropriateness of behavioral priorities</p> <p>Build on parents' and teachers' expertise, perspectives, and relevant experiences to determine child's competencies and deficits</p> <p>Guide parents and teachers to operationally define the target behavior in observable and measurable terms</p> <p>Check in with parents and teachers about data collection through phone calls and/or classroom visits</p> <p>Aid in determining the function of the behavior by emphasizing the antecedents and consequences of the behavior</p> <p>Encourage parents and teachers to set goals that are challenging yet attainable for the child</p>
Develop and implement plan	<p>Develop an intervention plan with specific procedures regarding implementation (who, when, where, how)</p> <p>Support implementation of intervention plan across settings</p>	<p>Work to integrate evidence-based practices into plans</p> <p>Invite parents and teachers to express opinions regarding plan viability across home and school</p> <p>Complete classroom observations, home visits, and data collection</p> <p>Provide feedback on plan implementation; support to improve implementation (e.g., modeling, role play)</p>
Evaluate efficacy of plan through data-based means	<p>Determine if the goal for behavior change was met across settings</p> <p>Evaluate the effectiveness of the plan at producing change in the target behavior</p> <p>Determine the need to continue, change, or <i>remove</i> the plan</p>	<p>Facilitate sharing of data collected, anecdotal observations, and feedback</p> <p>Use data-based decision-making procedures to guide team in evaluation of plan</p>

*Component 2: Behavioral intervention plans*

Verify that research evidence exists supporting use of the intervention at addressing the target behavior for students at a similar developmental level	Observe the child in his or her natural setting to clarify function of behavior and link intervention components to functional assessment
Ensure intervention includes a motivational component to build new skills	Brainstorm and cocreate appropriate reinforcers to support the child's use of desired behavior and/or discourage engagement in negative behavior
Determine match between the function of the behavior and intervention selection	Establish communication mechanisms between home and school to promote regular family-teacher contact regarding child's behavioral progress
Provide support and/or training of consultees' implementation of coordinated strategies across home and school	Maintain contact through phone calls, school observations, and home visits throughout implementation
Consider treatment modifications as necessary to facilitate goal attainment	Provide training regarding intervention implementation, including role plays or modeling, review of collected data, and provision of feedback and suggestions
	Acknowledge and work to <i>overcome</i> barriers related to contextual or environmental issues that may interfere with implementation

***Component 1: Collaborative Problem Solving***

*Foster, Develop, and Maintain a Working Partnership*

The first objective of CBC is to foster, develop, and maintain a working partnership between parents and teachers. There are several active ingredients of the CBC process organized under this objective. Specifically, a working partnership between parents and teachers is achieved through (a) active participation and cooperation among participants, (b) sensitivity and responsiveness to participants, and (c) reinforcement of participants' skills and competencies. The presence of these active ingredients is indicated by a host of consultant strategies such as providing supportive, affirming, and validating statements to participants. The use of positive feedback by the consultant fosters a sense of competence in parents and teachers by reinforcing parents' and teachers' expertise regarding the child's needs and their contributions to the consultation process. Other strategies may include the consultant's efforts to understand and consider the culture of the family and school, remain sensitive to the potential influence of cultural background in shaping the relationship between families and schools, and tailor treatment content to the values and

beliefs of participants (Webster-Stratton, Reinke, Herman, & Newcomber, 2011). Additionally, consultants define the roles of each participant and discuss their importance early in the process as a strategy to ensure that all participants view themselves as active contributors in CBC. The important contribution each participant will make with his or her expertise is emphasized.

*Communicate Effectively*

The second objective of CBC is to foster effective communication between home and school. This objective is obtained through active ingredients, including (a) establishing effective communication channels and demonstration of multidirectional communication and (b) sharing information that is pertinent to the child's development and facilitative of the consultation process. A strategy used by consultants that reflects these active ingredients includes the use of clear and inclusive language. That is, consultants who avoid the use of technical jargon and instead use terms that can be easily understood by parents and teachers are practicing in a manner consistent with this criterion. Moreover, consultants may use nonverbal and verbal communication as a strategy to establish a friendly and supportive atmosphere that invites participation by all parties involved. Consultants also foster collaboration between families and schools by providing feedback and relevant factual (e.g., developmental) information when appropriate. Consultants practicing CBC with high treatment integrity also aim to establish a partnership between families and schools that will continue following termination of CBC, and as such establish means for families and schools to continue communication following CBC completion.

*Determine and Maintain Roles and Responsibilities*

The third CBC objective involves determining and maintaining roles in the problem-solving partnership. The active ingredients subsumed under this objective require that (a) the responsibility for problem solving is shared among participants and (b) decisions are made jointly throughout the consultation process. Strategies used by consultants that are indicative of these active ingredients include defining roles early in the process; ensuring roles are maintained throughout the relationship; and encouraging both families and school personnel to provide insight regarding efforts to change the behavior, the outcome of such efforts, and the need for ongoing support. Consultants practicing with high treatment integrity ensure that participants are engaged throughout the process in ways that uniquely and collaboratively support change (i.e., they contribute to target behavior identification, data collection, and behavioral plan implementation consistent with their roles).

*Determine Current Level of Performance Through Data-Based Means*

The fourth CBC objective is to determine the current level of student performance through data-based means. The active ingredients characterizing this objective require that (a) the strengths and needs of the child are discussed; (b) a target behavior based on family and teacher priorities is selected and defined; (c) data collection procedures are established and agreed upon; (d) data are collected, shared, and reviewed; (e) the function of the behavior is determined; and (f) a goal for behavior change is agreed upon. Strategically, CBC con-



sultants use their expertise in child development to aid the team in determining the developmental appropriateness of behavioral priorities, simultaneously building on parents' and teachers' expertise, perspectives, and relevant experiences to determine the child's competencies and areas of need. After a behavioral priority has been determined, consultants guide parents and teachers to operationally define the target behavior in observable and measurable terms, and support data collection by checking in with parents and teachers through phone calls and/or classroom visits. Using the data collected by parents and teachers, consultants support the team in determining the function of the behavior by emphasizing the antecedents and consequences of behavior, and encourage parents and teachers to set goals that are challenging yet attainable for the child.

#### *Develop and Implement the Plan*

The fifth objective of CBC concerns the specification of a treatment plan to be implemented by parents and teachers. There are several criteria associated with this objective that collectively depict active ingredients. Specifically, it is necessary that (a) an intervention plan with specific procedures regarding implementation (i.e., who, when, where, how) is developed and (b) implementation of the intervention plan across settings is supported by the consultant and evident via the actions of teachers and parents. Strategies employed by consultants include conducting classroom observations and home visits and assisting with data collection. Consultants can ensure that the agreed-upon strategies will be feasible across home and school by inviting parents and teachers to express their opinion regarding the viability of the intervention plan.

#### *Evaluate the Efficacy of the Plan Through Data-Based Means*

The sixth CBC objective involves evaluating the efficacy of the plan through data-based means. Active ingredients essential to the attainment of this objective include the evaluation and determination of (a) the effectiveness of the plan at producing change in the target behavior; (b) whether the goal for behavior change was met across settings; and (c) the need to continue, change, or remove the plan. Strategies used by consultants that reflect these active ingredients include facilitating discussion of aspects of the plan that were successful and those that were not in an effort to identify strengths of the plan as well as elements that may require modification.

### **Component 2: Behavioral Intervention Plans**

The second component of the CBC intervention concerns the behavioral intervention plan implemented by parents and teachers in natural home and school settings. In addition to considering the integrity of the collaborative problem-solving process, the degree to which the behavioral plans are put into place in the home and school may predict the degree of behavioral change that can be expected. Thus, active ingredients of behavioral plans must be identified and measured in consultation research and practice. Although the specifics of each intervention plan vary according to the child's unique strengths and needs, certain active ingredients can be identified that are necessary for all intervention plans implemented by parents and teachers (see table 11.1). Specifically, within the CBC context, it is

important that there be (a) research evidence for the intervention to address the target behavior for students at a similar developmental level; (b) a motivational or skill-building component targeting desired behaviors; (c) a match between the function of the behavior and intervention selection; (d) consultant support and/or training of consultees' implementation of coordinated strategies across home and school; and (e) treatment modifications as necessary to facilitate goal attainment.

Strategies used by consultants in developing a behavioral intervention plan include observing the child in his or her natural setting to clarify the function of behavior and linking intervention components to the outcome of this assessment (Swanger-Gagné, Garbacz, & Sheridan, 2009), brainstorming and cocreating appropriate reinforcers to support the child's use of desired behavior and/or discourage his or her engagement in negative behavior, and establishing communication mechanisms between home and school to promote regular contact between the family and teacher regarding the child's behavioral progress. Additional strategies include ongoing contact through phone calls, school observations, and home visits throughout the implementation phase (Sheridan et al., 2001). During observations and home visits, consultants may review collected data and provide feedback and suggestions, provide training regarding intervention implementation through the use of role plays or modeling, and augment existing strengths and resources of families and school personnel through affirmations and validations (Sheridan, Clarke, Knoche, & Edwards, 2006).

It is noteworthy that treatment plans implemented across home and school do not necessarily need to be identical, but they should be based on the same behavioral principles and complement one another. In some cases, distinctive behavioral plans may be implemented in one setting only. Nevertheless, elements of treatment plan implementation across settings are always essential features of CBC, evidenced by programs such as home-school notes or communication systems, to ensure shared responsibility and partnership.

### **Dimensions of Treatment Integrity for CBC Research**

Within the treatment integrity construct are inbuilt dimensions critical for adequately determining the degree of implementation. These dimensions include adherence, quality, participant responsiveness, dosage, and program differentiation, and are typically assessed through participant and expert reports and ratings, interviews, direct observations, and permanent products (Dane & Schneider, 1998; Dusenbury, Brannigan, Falco, & Hansen, 2003; Sheridan, Swanger-Gagné, Welch, Kwon, & Garbacz, 2009). Evaluation of these implementation dimensions is a necessary consideration when determining a given intervention's effect on student outcomes (Derzon, Sale, Springer, & Braunstein, 2005; Webster-Stratton et al., 2011).

*Adherence*, also referred to as compliance or faithful replication (Durlak & DuPre, 2008), is concerned with whether key intervention components are implemented as originally proposed (Dane & Schneider, 1998; O'Donnell, 2008). In contrast, *quality* is the degree to which implementers deliver the intervention components effectively using given strategies, processes, or methods (Cordray & Pion, 2006; O'Donnell, 2008). *Participant responsiveness* is described as participants' level of engagement and interest in program activities

(Dane & Schneider, 1998; O'Donnell, 2008). *Dosage* refers to the total amount of the intervention to which individuals are exposed (Durlak & DuPre, 2008; Sheridan et al., 2009). Finally, *program differentiation* considers whether the program's key elements distinguish the treatment from comparison conditions during efficacy studies (O'Donnell, 2008; Sheridan et al., 2009). This dimension is typically restricted to comparisons across treatment and control groups in randomized clinical trials, and thus will receive little further attention here.

A multimethod, multisource framework for assessing the key dimensions of treatment integrity across the dual components of CBC research is presented in table 11.2. Treatment integrity (adherence, quality, participant responsiveness, and dosage) of both the collaborative problem-solving process and the behavioral strategies implemented at home and school are included to fully capture the scope of aspects comprising the CBC intervention.

**Table 11.2.** Measurement of Fidelity Dimensions across the Dual Components of Conjoint Behavioral Consultation

Measure	Adherence	Quality	Participant response	Dosage
<i>Component 1: Collaborative problem solving</i>				
Observations/coding of parent-teacher meetings	X	X		
Parent Engagement in Consultation Scale			X	
Teacher Engagement in Consultation Scale			X	
Parent Participation in Problem Solving			X	
Teacher Participation in Problem Solving			X	
Contact logs (parent and teacher)				X
Consultant contact logs				X
<i>Component 2: Behavioral intervention</i>				
Self-report	X			X
Direct observations	X	X	X	X
Permanent products	X			
Classroom Environmental Scan Checklist			X	

**Note:** All measures are available by request from Susan M. Sheridan.

### ***Component 1: Treatment Integrity of Collaborative Problem Solving***

Adherence of collaborative problem solving is the dimension of treatment integrity assessed most commonly in CBC practice and research (e.g., Sheridan et al., 2006, 2009, 2012; Swanger-Gagné et al., 2009). It is often measured by determining the percentage of components implemented by treatment agents (Sheridan et al., 2009). As such, CBC adherence is often defined as the percentage of interview objectives met (i.e., verbalizations reflecting problem-solving objectives) as they pertain to home and school. This approach provides an initial determination of whether the CBC consultant adheres to the model as specified, and is often achieved via observation of consultant verbalizations during the CBC interview sequence. Previous research (e.g., Sheridan et al., 2001, 2006) has used simple checklists corresponding to the stated objectives of the CBC interviews (Sheridan & Kratochwill, 2008) to indicate adherence to the model as procedurally operationalized through a series

of conjoint problem-solving meetings. For example, each CBC interview can be described as composed of a number of statements or objectives. Adherence can be measured by self-report or observation (via recordings, transcripts, or interview protocols) of whether the objectives were met through the verbal exchanges in each meeting. An alternative approach lies in the specification of overall model criteria (i.e., active ingredients). Techniques associated with assessing adherence to the model are achieved in a global manner (vs. a system assessing discrete interview objectives) with a coding system that tracks the attainment of CBC active ingredients (see table 11.1).

Most previous CBC research studies that have included assessments of treatment integrity have focused on adherence only. To date, researchers have not explored issues of quality of CBC implementation. Quality, assessed through observer and implementer reports and ratings of use of recommended techniques (Hansen, Graham, Wolkenstein, & Rohrbach, 1991), extends the information gleaned from adherence in several ways. Rather than assess merely whether a CBC criterion (e.g., active ingredient) is met in a dichotomous (yes/no) fashion, as is the case with adherence ratings, quality assessments evaluate the extent to which relevant information is obtained in a manner that is useful to data-based problem solving, and whether information is obtained in a manner that supports the parent-teacher relationship. To generate such ratings, Likert scales can be developed wherein each anchor on a scale is defined to quantify and operationalize quality with numerical scoring criteria. Sample items from a rating scale that incorporates both adherence to and quality with which objectives are met in the Conjoint Needs Identification Interview (i.e., the structured interview that guides the problem identification stage) are in appendix 11.1.

Participant responsiveness is another important dimension of treatment integrity to be assessed in CBC. It has typically been assessed through examinations of implementers' understanding of and receptiveness to key intervention components (Hansen, 1996; Sheridan et al., 2009). Other methods for assessing responsiveness of the parent and teacher consultees to the collaborative problem-solving process are available. For example, coding systems can be used to assess parent and teacher engagement in CBC based on verbalizations made on the audio recordings or transcripts from CBC meetings. Such coding systems evaluate active participation, engagement, or collaboration as demonstrated by consultees. Scales assessing these and related constructs have been developed for research (Sheridan, 2005) and are available to evaluate responsiveness from multiple sources and utilizing multiple methods. For example, the Engagement in Consultation Scale (Parent and Teacher forms; Sheridan, 2005) has been used in research to measure the degree to which parents and teachers demonstrate engagement during each of the formal CBC meetings as manifested through behaviors such as sharing information, participating in decision making, communicating effectively, making supportive statements, responding to others in the CBC meetings, and following through on actions to facilitate positive child outcomes. The scale can be completed by consultants in practice or independent observers in research. Similarly, the Participation in Problem Solving Scale (Parent and Teacher forms; Sheridan, 2004) is also available to provide data on the degree to which parents and teachers participate actively in problem solving.

Finally, dosage of CBC represents a treatment integrity dimension that has rarely been considered in CBC practice or research. It can be measured by the number, length, frequency, and/or intensity of consultation sessions (Dane & Schneider, 1998), examined through contact logs and meeting checklists (Dusenbury et al., 2003). In most applications, CBC is considered an intensive intervention comprising participant meetings, on-site supports, databased monitoring functions, and evaluation practices. Variations in strength (e.g., time, effort) of CBC are likely, and may influence its efficacy at producing desired changes in child behaviors and parent-teacher relationships. Amount of support (dosage) provided by consultants can be documented by recording tangible actions, such as hours of meeting time, minutes spent in the classroom or conducting home visits, number of e-mail messages or phone calls to consultees, and time preparing behavioral interventions or assessing and documenting their effects on child performance. To date, no research has determined the optimal amount of support (and associated time and effort) needed to produce desired effects. Thus, as measures of dosage become available, researchers may pursue questions that can guide optimal levels of practice and link expended efforts to expected outcomes.

### ***Component 2: Treatment Integrity of Behavioral Plan Implementation***

The second component of CBC involves implementation of behavioral interventions by parents and teachers in their respective home and school settings. The same treatment integrity dimensions of adherence, quality, participant responsiveness, and dosage are relevant. In the consultation literature, studies that have addressed treatment integrity of behavioral intervention implementation have tended to focus on adherence to plan steps by consultees (e.g., Sheridan et al., 2009). Multiple methods have been used, yielding basic information about the plan components delivered to students via CBC. For example, self-report measures typically require delineation of the steps comprising an intervention (i.e., treatment integrity criteria) on a checklist, on which consultees record completion of treatment steps. Self-report adherence assessments yield an estimate of consultees' compliance with intervention implementation, often computed as a percentage of steps completed. They typically require few resources for data collection and provide a simple and sometimes instructive approach (Sanetti & Kratochwill, 2008). The accuracy of self-report adherence data as reflecting intervention treatment integrity has been debated, with some researchers (Lane, 2007; Wickstrom, Jones, Lafleur, & Witt, 1998) suggesting that they overestimate implementation and others (Sheridan et al., 2009) reporting close concordance between self-reports and other objective methods (i.e., permanent products, direct observations).

Permanent products have also been used to provide tangible evidence of adherence to treatment plans. Examples of permanent products used for this purpose are intervention records (with intervention components clearly identified), charts, and tokens. When structured to specify treatment plan criteria, permanent products may yield a record of adherence quantified as the percentage of intervention steps completed. They offer a relatively simple measurement procedure by providing a natural source of data in many circumstances (as in the use of intervention tools such as home-school notes and reward charts) with little reactivity from parents and teachers (Sanetti & Kratochwill, 2008). However,

some intervention components may not yield a permanent product, and certain steps may be impossible to capture via this method (Sheridan et al., 2009).

Direct observation as a method to assess adherence involves a trained and reliable individual, ideally independent from the consultation and intervention team, assessing direct, objective implementation of treatment plan components in naturalistic settings. Despite their apparent objectivity, direct observations of treatment plan implementation are less common than other assessment methods, perhaps due to their resource-intensive nature. Specifically, additional individuals (e.g., independent observers) are often necessary to conduct direct observations, and depending on the complexity of the intervention, numerous observations may be required to capture all intervention components in practice. Observations may also produce reactivity among teachers and parents implementing the intervention.

Quality of treatment implementation is measured less often in consultation and CBC research, although it represents an important dimension to capture unique aspects of interventions being implemented. The quality of implementation by experts or independent judges can be rated through direct observations of implementation by treatment agents (live or via recordings; e.g., Jones, Wickstrom, & Friman, 1997; Mills & Ragan, 2000) or by self-report scales completed by individuals delivering or receiving the intervention (e.g., Weiner, Sheridan, & Jenson, 1998). Likert scales can be constructed to capture the quality with which treatment agents deliver an intervention, requiring careful specification of the criteria constituting qualitative ratings and mastery training by raters. Given that treatment plans delivered in consultation-based contexts are individualized and implemented with unique child- and setting-specific considerations, the feasibility of this approach in most practice settings is limited.

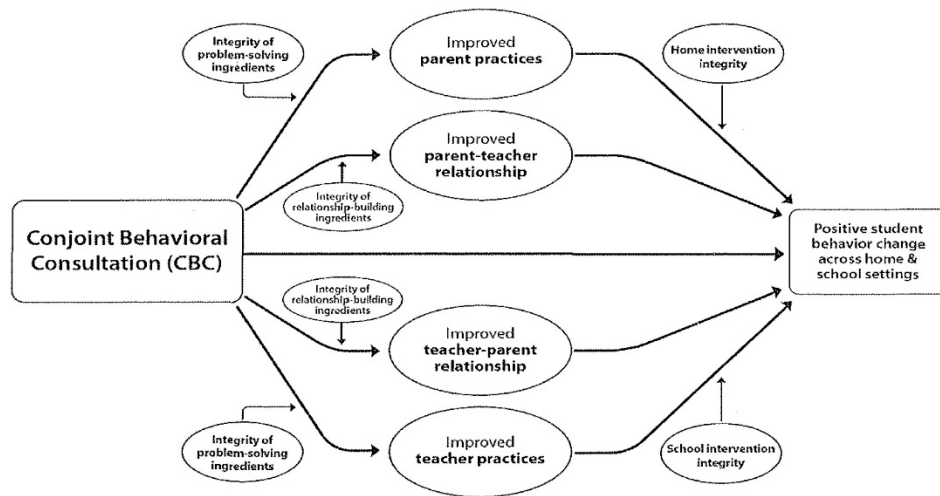
Participant responsiveness, or the degree to which children serving as clients in CBC respond to the behavioral interventions, is a relevant dimension variable worthy of consideration. Behaviors such as attending to and engaging in the plan elements (e.g., collecting stickers on a chart, moving tokens into a jar, receiving earned rewards) provide documentation of student "buy in" or responsiveness to the intervention. These can be collected via direct observation of permanent products. Global ratings of classrooms using a measure such as the Classroom Environment Scan Checklist (Sheridan, 2011) can also be assessed to determine the degree to which teachers respond to CBC by invoking effective behavioral or instructional strategies as a function of CBC structure and support.

Measurement of dosage of behavioral intervention implementation is important to evaluate the level of effort expended by consultees to influence child behavior. Indices such as the amount of time spent by teachers and parents delivering interventions, monitoring child behavior, and providing documentation can all be considered aspects of treatment plan dosage. Measurement is possible through self-monitoring on intervention records or through the use of electronic methods such as time stamps denoting start and stop points, simple time-keeping devices, and other portable tools.

### Treatment Integrity Variables in CBC Research

The conceptualization of treatment integrity in consultation has focused primarily on its utility in practice, with much less attention to its role as a critical variable in consultation research. Whereas the importance of promoting and ensuring accurate implementation of intervention plans in practice is clear, an understanding of its function in affecting treatment outcomes is essential to advance the construct empirically.

The goals of CBC include improving behavioral outcomes for children for whom there are specific concerns, enhancing skills and practices among parents and teachers to promote children’s functioning, and strengthening parent-teacher relationships. To date, the processes by which these goals are achieved in a collective and integrated fashion, and the role of treatment integrity, have not been researched. By definition, CBC is composed of problem-solving practices led by a consultant to produce desired changes in a client indirectly. As an indirect model, it is implied that CBC operates through mechanisms other than consultants’ behaviors to produce the desired outcomes on children’s behaviors. Investigating the process by which CBC serves to produce desired changes in student performance requires the specification of experimental variables in CBC research. Figure 11.1 is presented as a theoretical model specifying these variables, including treatment integrity, and their hypothesized relationships within the CBC intervention. Next, we define the research variables requiring specification to advance an empirical understanding of the efficacy of CBC and the role of treatment integrity.



**Figure 11.1.** Theoretical model specifying independent, dependent, mediating, and moderating variables in conjoint behavioral consultation.

#### *Independent and Dependent Variables*

The aims of intervention research are generally concerned with determining a treatment’s effects on outcomes of interest. In consultation research, a common research question takes the form of “Does intervention *x* (in this case, CBC) produce outcome *y* (the ultimate goal

being changes in student performance)?” This classic research question calls for a design that considers CBC as an independent variable and student performance indicators (e.g., behavioral, academic, social-emotional, health outcomes) as dependent variables. Many CBC studies have followed this tradition (e.g., Galloway & Sheridan, 1994; Lasecki, Olympia, Clark, Jenson, & Heathfield, 2008; Sheridan et al., 2001; Wilkinson, 2005) and reported very favorable results.

Other potential dependent variables including parent and teacher practices and the parent-teacher relationship are also relevant in CBC research. That is, CBC is expected to produce indirect effects on clients and direct effects on parent and teacher practices and the parent-teacher relationship. For example, given the educational aspects associated with consultation-based interventions, changes in teachers’ knowledge and skills, including the use of evidence-based interventions in the classroom, are desirable outcomes and reflect direct effects of CBC. Improvements in home-school communication, parents’ effective use of praise, contingent reinforcement, and precision commands are similar examples of important outcomes (i.e., dependent variables) associated with participation in CBC.

### *Mediating and Moderating Variables*

Specification of CBC as an independent variable and measurement of parent and teacher practices and child performance as dependent variables provide an initial understanding of their relevance; however, the pathways by which these variables operate or cooperate causally has not been clarified. Exploration of pathways of influence allows one to identify mechanisms or mediators and how they work to effect change. Some proposed pathways or possible explanations for the impact of CBC on desired outcomes are specified in figure 11.1.

Recently, researchers have found that the parent-teacher relationship partially mediates the effects of CBC on the social and adaptive behaviors of students with externalizing concerns (Sheridan et al., 2012); however, the specific role of parent and teacher practices has not been investigated. It is possible that CBC directly influences parent and/or teacher practices, which leads to desired child outcomes (e.g., behavioral change). Treatment integrity of the problem-solving process (i.e., a consultant’s use of certain active ingredients that focus on problem solving, such as selecting and defining a target behavior based on family and teacher priorities, or supporting implementation of intervention plan across settings) may moderate parent and teacher skills and practices. That is, teachers’ and parents’ use of efficacious practices may depend on CBC consultants’ adherence to or quality of the use of these and other active ingredients addressing the problem-solving sequence. In like fashion, the treatment integrity with which parents and teachers implement behavioral strategies may moderate observed changes in student behavior across the home and school settings.

Similarly, a consultant’s use of active ingredients that promote a partnership between parents and teachers, such as making joint decisions throughout the consultation process and reinforcing participants’ skills and competencies, may moderate the development of a positive parent-teacher relationship. In other words, the development of a positive parent-teacher relationship may be possible only under conditions when consultants practice certain active ingredients to create a partnership (e.g., shared decision making and mutual



goal setting) with treatment integrity. In this case, it is possible to explore whether the goal of strengthening parent-teacher relationships is achieved under conditions wherein consultants adhere to the relationship-building ingredients of CBC, and do so with quality. To date, little to no research has explored these direct and indirect effects of CBC. Given their presumed importance, such investigation is necessary.

### **Research Directions**

As a first step in CBC treatment integrity research, it is necessary to explore the psychometric properties of measures used to assess the various features or dimensions of treatment integrity. There is some preliminary evidence of convergence across treatment integrity assessment methods (Sheridan et al., 2009); however, basic indicators of reliability, sensitivity, and generalizability have not been researched. Only through the availability of reliable and valid measures will researchers be equipped to explore the unique dimensions of treatment integrity, their relationship to desired outcomes, and their role as mediating and moderating variables.

Careful specification and effective measurement of treatment integrity (including treatment integrity of the dual components of the collaborative problem-solving process and behavioral strategies used by consultees) will advance intervention science in significant ways. Such careful attention will allow researchers to explore many facets of intervention design and implementation and ultimately result in the proliferation of effective interventions. To date, the active ingredients of CBC have not been empirically derived. By systematically analyzing the presumed active ingredients of CBC, researchers could determine with precision its critical and operative features. A related issue involves an empirical determination of whether each ingredient is required, optimal, or sufficient to treatment utility (defined in terms of its tactical role in producing desired treatment effects). This level of scrutiny has not been examined in CBC research and warrants careful attention.

Seemingly opposite to the dissection of an intervention for its active ingredients is a line of research aimed at determining threshold and saturation levels of an intervention. A global assessment of threshold levels can elucidate the intervention strength required for CBC to “take hold” (the level at which significant treatment effects can be expected), or the level required to produce optimal performance. Similarly, a global assessment can determine saturation, or the point at which effects of CBC may have reached and surpassed their peak effects and suggest the need for modifications focused on maintenance. To achieve this nuanced understanding of CBC dosage and its relationship to or effects on outcomes, the measurement of the treatment integrity of its critical implementation elements is necessary. Likewise, it is possible that interactions with certain child variables (e.g., target behavior, severity, disability status), parent-teacher variables (e.g., skill, knowledge, background), or relationship variables (e.g., history of joint problem solving, quality of relationship, communication) may influence both threshold and saturation, yielding yet another important line of research.

Methods for determining “treatment as usual” and treatment integrity indicators that differentiate active treatment and nontreatment conditions are necessary for randomized clinical trials. Aspects of the intervention on which programs may be differentiated include

interactions between parents and teachers and strategies used to support child development or manage behavior. Procedurally, this focus allows for the assessment of control or counterfactual conditions in experimental intervention research to determine empirically the uniqueness of the CBC intervention and its relative effects on outcomes of interest.

Despite a great deal of attention in the practice literature, little field-based research attention has attempted to identify factors that contribute to treatment integrity across both the collaborative problem-solving process and behavioral intervention implementation. This line of inquiry is critical as researchers move forward in designing, developing, implementing, and evaluating CBC-based educational interventions. Further investigation of factors that contribute to treatment integrity of both aspects of CBC will advance our ability to determine necessary or sufficient consultation intervention elements and how integrity of these components contributes to salient outcomes.

Finally, it is necessary to begin empirically examining the theory proposed in figure 11.1 by testing relationships and determining the mechanisms by which CBC operates, and the role of variations of treatment integrity. Specifically, it is possible that the treatment integrity with which the active ingredients are practiced serves as a moderator of parent and teacher practices. It is also possible that the success of promoting parent-teacher partnerships via CBC is a function of the strategies consultants use to build those relationships (e.g., inclusive questioning, joining statements, perspective taking, modeling). By testing treatment integrity as a moderator or independent variable in its own right, researchers may begin to explore whether parents' and teachers' practices and relationships are influenced by the integrity with which consultants utilize the active ingredients of CBC. As such, treatment integrity research serves a primary role in moving us closer to an understanding of the mechanisms by which CBC effects change and the conditions under which such effects are maximized.

**Appendix 11.1.** Sample Items for Measuring Adherence and Quality of Active Ingredients

Objective	Active ingredient	0 ( <i>not present or not effective</i> )	1 ( <i>present and moderately effective</i> )	2 ( <i>present and highly effective</i> )
Meeting participants collaboratively selected and defined a target behavior	Decided upon a specific priority behavior to target after understanding the general needs	Participants did not identify a target behavior <i>or</i> The target behavior was selected without being informed by a discussion of the needs	The target behavior was informed by the needs discussed <i>and either</i> Decided on by one participant (e.g., parent, teacher, facilitator) <i>or</i> Decided on by the facilitator and either the parent or the teacher but not both	The target behavior was informed by the needs discussed <i>and</i> Decided on by at least the parent and the teacher

Defined the target behavior objectively	Participants did not define the target behavior objectively and measurably (e.g., unobservable or subjective terms were used)	The target behavior was defined objectively and measurably (i.e., observable terms were used and subjective terms were clarified) <i>and</i> Either the teacher or the parent but not both contributed to, acknowledged, or agreed with the definition of the target behavior	The target behavior was defined objectively and measurably (i.e., observable terms were used and subjective terms were clarified) <i>and</i> Both the teacher and the parent contributed to, acknowledged, or agreed with the definition of the target behavior
Selected and clarified a priority setting in which to address the target behavior	Participants did not identify a target setting that included a specific time and place	A specific time and/or location was indicated <i>and</i> Either the teacher or the parent but not both contributed to, acknowledged, or agreed with the time and location	A specific time and/or location was indicated <i>and</i> Both the teacher and the parent contributed to, acknowledged, or agreed with the time and location

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