

## RECONCEPTUALIZING INTERVENTION INTEGRITY: A PARTNERSHIP-BASED FRAMEWORK FOR LINKING RESEARCH WITH PRACTICE

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Prevention and intervention research studies often fail to include an assessment of program integrity, and when they do, it is often examined in a limited way. Further, despite efforts to reform the intervention research process to include community stakeholders more actively in every phase of investigation, current practice generally employs a hierarchical model of integrity that fails to be responsive to community needs and priorities. In this article, we describe the traditional, hierarchical model of integrity and contrast this framework with a partnership model of treatment integrity. The limitations of the hierarchical model are illustrated through the description of two school-based prevention programs. Core features of the partnership model and steps for implementing this framework in research and practice are described. Although the partnership model has limitations when conducting efficacy research in clinical trials, it has clear advantages over the hierarchical model in conducting effectiveness research and research that is directly linked with practice. © 2005 Wiley Periodicals, Inc.

The monitoring of integrity is a central feature in the evaluation of any prevention or intervention program. *Integrity* is defined as “the degree to which an intervention is implemented as planned” (Gresham, Gansle, Noell, Cohen, & Rosenblum, 1993, p. 254). The term *fidelity* is similarly defined and often used interchangeably with the term *integrity* (Moncher & Prinz, 1991). The monitoring of integrity provides data regarding the extent to which an intervention is being applied according to design, which can then be used to determine whether alterations in implementation are needed to improve effectiveness. The importance of intervention integrity is highlighted by the strong relationship that has been demonstrated between integrity and effectiveness. For example, in a meta-analysis of studies reporting empirical evidence related to integrity, Gresham et al. (1993) found significant, moderate correlations (range of .51 to .58) between level of integrity and magnitude of treatment effect. Monitoring treatment integrity also provides a direct measure of the internal validity of an intervention (see Gresham, MacMillan, Beebe-Frankengerger, & Bocian, 2000).

Efforts to reform the research process to make it more responsive to practice have affirmed the importance of participatory or partnership-based forms of investigation (U.S. Department of Health and Human Services, 2001). The core element of participatory research is the active inclusion of all major stakeholder groups at each step of the research process (Nastasi et al., 2000;

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Schensul & Schensul, 1992). The use of participatory research methods requires a shift in the conceptualization of integrity, because it challenges conventional practice about how interventions are designed, what information is important to monitor intervention integrity, and the process of collecting integrity data. The purpose of this article is to (1) review current conceptualizations and practices with regard to monitoring intervention integrity, (2) present the limitations of the current model with regard to its applicability for participatory forms of inquiry and research linked with practice, and (3) propose an alternative approach based on participatory models of investigation that strongly connects research and practice.

### *Integrity as a Multivariate Construct*

Dane and Schneider (1998) have identified five distinct dimensions of intervention integrity: adherence, exposure, quality of delivery, participant responsiveness, and program differentiation. *Adherence* refers to the extent to which specific program objectives are met and is generally measured through checklists completed by evaluators during live observations of program sessions or by the interventionists themselves following each session (Dusenbury, Brannigan, Falco, & Hansen, 2003). *Exposure*, or dosage, indicates the number, length, or frequency of sessions implemented. *Quality of delivery* refers to the qualitative aspects of the intervention, including interventionist effectiveness, enthusiasm, and preparedness. *Participant responsiveness* reflects the degree to which intervention participants are engaged in the program. *Program differentiation* is defined as the identification of unique program components to (1) distinguish between programs and (2) ensure that the program incorporates best practices while excluding contraindicated or irrelevant elements (Dusenbury et al., 2003). Program differentiation is particularly important when comparing the effects of different programs or program components.

Several researchers have advocated for the systematic examination of multiple dimensions of integrity when evaluating intervention programs (Dusenbury et al., 2003; Moncher & Prinz, 1991). An important first step in meeting this goal is to adopt a framework for classifying the various aspects of integrity. The five dimensions of integrity identified by Dane and Schneider (1998) can be classified as measuring either the quantity or the quality of the implementation. Quantity reflects how much of the intended program was covered or how much of the *content* was implemented, whereas quality addresses how well the intended program was delivered or how well the *process* unfolded over the course of the intervention (Resnicow et al., 1998). Gresham and colleagues (1993) provide another useful framework within which to consider intervention integrity. They recommend two strategies for estimating integrity: (1) component integrity, which is an estimate of the average integrity for a specific program component, and (2) daily integrity, which is the average integrity of all program components combined. The five dimensions of integrity differentiated according to content versus process and the two estimates of integrity (component integrity and daily integrity), which are viewed as global constructs that can be applied to the monitoring of both content and process dimensions, are organized in Figure 1.

### *Current Practice*

A major problem with prevention and intervention research is that researchers often fail to monitor integrity or do so only in a cursory and limited manner. To examine the status of research with regard to the monitoring of treatment integrity, Gresham et al. (1993) reviewed published behavioral intervention studies conducted in school settings during the period from 1980 to 1990. In their synthesis, they found that only 14% of the studies provided data regarding level of treatment integrity. An additional 10% of the studies mentioned that integrity was monitored; however, they did not provide data pertaining to integrity. Research investigating educational interventions

<b>Estimates of Integrity</b>	
<u>Component Integrity</u> – average rating for a specific intervention component	
<u>Daily Integrity</u> – average rating for all intervention components combined	
<b>Dimensions of Integrity</b>	
<b>Content:</b> How much of the intervention was implemented?	<b>Process:</b> How well was the intervention implemented?
<i>Adherence</i> – the extent to which specific program objectives are implemented	<i>Quality of delivery</i> – the quality of the interventionist’s delivery of the program
<i>Exposure</i> – the number, length, or frequency of sessions implemented	<i>Participant responsiveness</i> – the level of participants’ engagement in the intervention
<i>Program differentiation</i> – the extent to which essential program components are implemented and extraneous components are excluded during implementation	

FIGURE 1. A framework for monitoring intervention integrity indices for estimating integrity and components dimensions of integrity. (Sources: Dane & Schneider, 1998; Gresham et al., 1993)

and prevention programs has revealed a similar pattern of findings. For example, Gresham et al. (2000) conducted a review of the published studies (between 1995 and 1999) related to interventions for learning disabilities and found that only 18.5% of the studies reported data regarding the integrity of their interventions. Similarly, Dane and Schneider (1998) found that less than 25% of the prevention studies they reviewed (between 1980 and 1994) reported data related to program integrity. When integrity data were collected, Dane and Schneider (1998) found these data were obtained most frequently from the self-reports of program implementers (61%) and less frequently by trained observers ( 44%) or research participants (26%). With regard to the specific type of integrity data collected, among those studies reporting these data, 54% reported on exposure, 46% on adherence, 28% on quality of delivery, 26% on program differentiation, and 8% on program responsiveness.

Given the general failure to adequately assess intervention integrity, Dane and Schneider (1998) recommended that intervention research include strategies to conduct a comprehensive assessment of integrity, incorporating all five dimensions of integrity, when appropriate. Further, they stressed the importance of collecting data using multiple methods and informants. Gresham et al. (1993) offered several additional recommendations, including (1) operationally defining intervention components, (2) calculating multiple estimates of integrity (i.e., indices of component

and daily integrity), and (3) requiring that level of intervention integrity be reported in manuscripts submitted for publication. To summarize, there is a critical need for intervention and prevention research to include a rigorous, comprehensive approach to integrity assessment; and such an approach ought to incorporate multiple informants and multiple methods of measurement and analysis.

### *Prevailing Approach to Integrity Monitoring: Hierarchical Model*

When prevention and intervention programs are conducted in a research context, they typically are provided in a standardized, prescribed, manual-driven manner to facilitate the process of integrity monitoring and to promote replication and generalization. Procedures incorporated into manuals are generally based on validated theories and empirically supported practices related to the variables being targeted for change. Interventionists typically receive intensive training and supervision to ensure that they apply the procedures outlined in the manual with high levels of integrity. This practice is based on a hierarchical model in which there is an uneven balance of power between researchers and interventionists: Researchers develop the intervention program, enlist interventionists (e.g., research assistants, clinicians, teachers, parents, or peers), prescribe a set of predetermined intervention procedures, and instruct the interventionists in the proper way to implement program procedures. Within the context of this top-down framework, integrity checks are conducted to evaluate whether interventionists are adhering to expectations of the program as it was prescribed. When interventionists fail to apply a procedure, or do so in a manner that was not prescribed, researchers offer feedback to correct the behavior in the future.

This model has some definite advantages for the monitoring of intervention integrity. When program procedures are delineated clearly, it is relatively easy to monitor adherence to the protocol and the degree of exposure to the intervention. Furthermore, the specification of the intervention protocol facilitates the monitoring of program differentiation, that is, the extent to which the experimental treatment contains specified components and the comparison treatment does not. A hierarchical model is especially suited to efficacy trials conducted in highly controlled contexts for the purpose of demonstrating that an intervention has the potential to be successful in changing critical target behaviors. Efficacy research has the advantage of enlisting interventionists (i.e., research assistants) and participants (i.e., families seeking services who provide their consent) who are likely to be highly invested in the research program. By so doing, this approach may increase the probability that the intervention will not only be provided as intended, but that it will also be received as intended (Dodge, 2001; Power, DuPaul, Shapiro, & Kazak, 2003).

However, a hierarchical approach to assessing integrity is associated with a number of limitations, in particular the failure to include the perceptions and beliefs of service providers in planning interventions and monitoring integrity. As such, a hierarchical approach is typically not suited for effectiveness research, that is, the type of research conducted in naturalistic settings that is closely linked with practice. To illustrate some of these shortcomings, we present two examples of prevention/intervention programs that have been implemented in schools situated in a very large urban school district.

*Nutrition education program.* This program, which targeted kindergarten and first-grade students, was designed to educate children about the importance of eating fruits and vegetables and to increase their consumption of these foods. The program was based on nutrition principles delineated by the Centers for Disease Control (CDC, 2002; Havas et al., 1994). The program had two major components: a classroom-based component designed to educate children about healthy eating behavior and a lunchtime component intended to increase children's consumption of fruits

and vegetables. A comprehensive description of the program is described elsewhere (Blom-Hoffman, Kelleher, Power & Leff, 2004). This section focuses on the lunchtime component of the intervention.

The lunchtime component was implemented in the classroom, because the students ate lunch in that setting. Paraprofessionals in the classroom, who supervised students during lunch, were enlisted to implement this element of the program. The purpose of the lunchtime component was to further educate children about information shared during the classroom component and reinforce fruit and vegetable consumption during lunchtime by using the “cafeteria as a laboratory” model for promoting healthy eating behaviors (CDC, 1996). The lunchtime component consisted of three steps: (1) lunchtime assistants asked the children where the fruit and/or vegetable are located in their school lunch, (2) lunchtime assistants praised children for eating fruits and vegetables, and (3) lunchtime assistants provided the children with stickers contingent on fruit or vegetable consumption. Prior to the implementation of the intervention, lunchtime assistants were trained in the use of these procedures, using instruction, modeling, and in vivo coaching.

To determine whether the lunchtime component of the program was being implemented as intended, intervention adherence was evaluated within the context of a hierarchical framework. Specifically, the research team prescribed a set of intervention procedures and monitored whether the paraprofessionals adhered to the procedures. Lunchtime assistants were observed by research assistants across 21% of the lunch periods to determine adherence to the three steps of the lunchtime intervention. An intervention component was recorded as being implemented if the lunchtime assistant applied the component with any child under her supervision during the observation period.

An examination of integrity data revealed that adherence to lunchtime intervention procedures was highly variable (see Table 1). Although the assistants usually asked students to identify fruits and vegetables in their lunches and provided stickers to students, they infrequently praised them for eating fruits or vegetables and often failed to provide stickers following fruit or vegetable consumption. Despite the variable levels of adherence, all of the paraprofessionals endorsed the lunchtime program as highly acceptable ( $M = 5.4$ , range = 5.13 to 5.89 on a scale from 1 to 6).

To better understand the variability in adherence, members of the research team conducted a focus group with several of the lunchtime assistants who participated in the project. The assistants reported that the most challenging aspect of implementation was remembering to use all of the procedures during this hectic time of the day. Of note, they indicated that the students themselves played a major role by reminding aides to pass out stickers and spontaneously volunteering to identify the fruits and vegetables in their lunches. This information was consistent with observations during integrity checks, demonstrating that students asked for the stickers after the lunches were

Table 1  
*Implementation Integrity for the Lunchtime Intervention Component of the Nutrition Education Program*

Intervention Step	Level of Implementation
Asks students to identify fruits/vegetables	73%
Praises students for eating fruits/vegetables	19%
Provides stickers to students	85%
Provides stickers to students on contingent basis	46%

*Note.* The percentages represented the number of times each intervention step was actually implemented, divided by the total number of intervention sessions observed and multiplied by 100. Integrity data for all intervention sessions, both those provided to the experimental group and those provided to the wait-list group when the intervention was implemented, are included in this table.

cleaned up, and aides often did not know which children had actually eaten their fruits or vegetables. The lunchtime assistants suggested that in the future children could be engaged more actively in assisting with the intervention by appointing a “fruit and vegetable helper of the day.” These helpers would identify the fruits and vegetables in the lunches at their tables, and then help the assistants to distribute stickers on a contingent basis.

This feedback highlighted for the research team the importance of collaborating with interventionists on a regular and frequent basis throughout the course of intervention implementation. A major purpose of these collaborations would be to discuss challenges in implementation and to identify mutually agreeable strategies to improve intervention integrity. In this case, if there had been ongoing collaboration between the research team and the interventionists, adjustments in the implementation of the protocol could have been made, which in all likelihood would have improved adherence to the intervention.

*Literacy development program.* This program is a partnership-based literacy initiative for children in kindergarten and first grade at risk of developing persistent reading problems (Power, Dowrick, Ginsburg-Block, & Manz, 2004). The curriculum is based on research outlining best practices in reading instruction (Torgesen, 2002) and includes the following program components: phonemic awareness training (adapted from Torgesen & Bryant, 1993), repeated reading of age-appropriate storybook passages, and letter-naming instruction. The curriculum includes 40 half-hour lessons administered over a 3-month period. Each lesson includes a phonemic awareness component as well as either the repeated reading or the letter-naming component, which are administered on alternating days. Lessons are organized in a manual, indicating the specific objectives and activities to be accomplished for each component of the lesson. Interventionists typically receive a minimum of 6 hours of training before the start of the intervention.

Recently, this program was implemented with kindergarten children in a public elementary school located in a very large city in the Northeast. The ethnic composition of the school is more than 80% African-American, and more than 80% of the student body qualify for free or reduced-price school lunch. This program employed paraeducators from the community, known as Community Partners, to provide tutoring to students in small groups (i.e., two per group) during the regular school day. A primary reason for involving Community Partners as interventionists was to build strong relationships with students by linking the cultures of the school and the community (Dowrick et al., 2001). To further promote a sense of partnership among the community, school, and research team, Community Partners were involved in the design and organization of the intervention and participated in regular meetings with research staff and school personnel to discuss student progress over the course of the intervention.

Throughout the intervention, a major goal was to balance the research team’s need to provide intervention in a standardized, systematic manner with the needs of the Community Partners, who sought to establish and maintain strong relationships with the children and to adapt the program to meet the individualized needs of students. Initial efforts to monitor integrity reflected a traditional, hierarchical model. In other words, the research team specified the manner in which the intervention should be implemented and evaluated the extent to which the interventionists complied with the prescribed program. Two dimensions of integrity were monitored, namely, exposure and adherence. Community Partners monitored program exposure in their manuals by recording the dates that they delivered the intervention and the names of students participating in each lesson. This information was verified by teacher reports. Community Partners were instructed to monitor adherence by placing a check mark in the appropriate space in the manual after completing each specified activity. In addition to obtaining interventionist self-reports of integrity, a member of the research team was responsible for conducting direct observations of the tutoring sessions and



recording level of adherence to the curriculum. The observer used a multi-item integrity checklist to note whether each objective was met for the specific components of the lesson (e.g., phonemic awareness and storybook reading or letter naming). Information gathered from these live observations was generally not discussed directly with Community Partners on an individual basis. Instead, integrity was discussed in the context of research team meetings with several Community Partners present.

Once this hierarchical process of integrity monitoring had been in effect for a month, it became clear that Community Partners were beginning to deviate from the intended program by introducing new activities and omitting specified components. For example, several Community Partners chose to emphasize letter-sound correspondence when using flash cards designed to improve letter identification and fluency skills rather than focusing on phonemic awareness and letter-naming components separately. A special meeting was called to discuss the need to maintain consistency across students and to adhere to the curriculum as it was designed. However, after another month had passed, it was evident that the Community Partners were still not achieving acceptable levels of integrity. In terms of exposure, only 19% of the participating students ultimately received the intended 40-session program, and 44% of students received less than 75% of the lessons. The relatively low number of sessions received by many of the students resulted primarily from the failure on the part of Community Partners to conduct sessions on days when students were present, which appeared to be related to concerns about the acceptability of the intervention procedures. Ratings of component and daily integrity related to adherence with the tutoring protocol, obtained from direct observations and self-reports, are presented in Table 2. Community Partners indicated that they were adhering to all program components, but the research team observed wide variability in adherence across the steps of the program (from 46% to 83%). This type of discrepancy is consistent with other research using teachers as interventionists (Resnicow et al., 1998; Wickstrom, Jones, LaFleur, & Witt, 1998). Clearly, the Community Partners' self-assessments were not consistent with observer ratings, and the students did not appear to be receiving the complete intervention on a consistent basis.

Given the observed problems with integrity and the discrepancy between direct observations and self-reports of integrity, the research team convened a second meeting to try to understand the discrepancies and to address issues related to integrity. Community Partners expressed a number of concerns about the process of integrity checking. They felt that the pressure to maintain a high degree of adherence limited their ability to be flexible and creative with lessons and responsive to students' unique needs. Also, they reported that the rigidity of the tutoring process strained the

Table 2  
*Observer Ratings and Interventionist Self-Reports for Each Component of the Literacy Intervention Program and Average Daily Integrity Across All Components*

	Observer Ratings	Self-Reports
Component integrity		
Phonemic awareness activities	82%	100%
Story book reading activities	83%	100%
Letter naming activities	46%	100%
Daily integrity	70%	100%

*Note.* The percentages reflect the total number of activities that Community Partners implemented, divided by the total number of activities that could have been implemented across all sessions observed and multiplied by 100.

relationships they had with their students. Their dissatisfaction with the emphasis on adherence was leading to a lack of enthusiasm for the program and, for some, a reluctance to continue serving as interventionists. Finally, Community Partners noted that strict adherence to the lessons at times resulted in students becoming bored and disengaged. In sum, it appeared that the strong emphasis on the content of the intervention was negatively impacting the quality of intervention implementation and the acceptability of the program to Community Partners.

The lessons learned through the process of collaborating with the Community Partners raised several new directions for monitoring integrity in the future. First, the research team recognized that integrity monitoring should occur in a formative, collaborative manner, as opposed to a hierarchical, summative manner. Data obtained through integrity monitoring should be discussed openly with Community Partners, not for the purpose of evaluating their performance but to understand the reasons why Community Partners might deviate from the planned curriculum, and to ultimately refine the program to increase sustainability and effectiveness. Second, the research team recognized that not all aspects of the intervention protocol were equally important and that collaboration with Community Partners is needed to differentiate essential from nonessential elements of the program. Subsequently, our team worked with Community Partners to develop a menu of options for addressing the essential elements of the program. Community Partners understood that it was critical for them to address essential objectives, but they had multiple options for doing so. In this way, the program was able to provide the flexibility, novelty, and creativity that Community Partners and students desired, while maintaining a degree of systematization necessary for research purposes. Third, the research team realized that two critical elements of integrity, quality of delivery and participant responsiveness, were not being measured. A major reason for using Community Partners as interventionists was to promote a strong relationship with the student to foster engagement in learning. However, the team's traditional approach to monitoring integrity neglected to focus on the extent to which Community Partners were connecting with students and students were engaged in the process. Both of these dimensions of integrity could be assessed through direct observations and Community Partner self-report ratings. Having learned these lessons, the research team now maintains ongoing collaboration with Community Partners to monitor both the content and the process of the program implementation. The integrity data collected are used by both the research team and Community Partners in a formative manner to adapt the intervention so that the procedures are acceptable to them and responsive to the developmental needs and cultural backgrounds of the students (see Power et al., 2004 for a description of how researchers and Community Partners collaborate in this literacy development initiative.)

*Summary of limitations.* These two examples illustrate how a hierarchical approach to integrity monitoring limits opportunities for interventionists to review integrity data as it is being collected and to suggest changes in implementation. As a result, the intervention may not be responsive to their needs and may not capitalize on the unique assets they bring to the intervention (e.g., creativity; a unique understanding of the environment, community and the child; and commitment to the children being served). Consequently, the program may fail to engage children and to be responsive to their individualized needs. Although the hierarchical model has considerable utility for efficacy research, it has limited value for effectiveness research, in which the focus is on conducting investigations in naturalistic settings in a manner that is responsive to the needs of major stakeholders (e.g., interventionists and participants) and directly linked with practice.

#### *Alternative Approach: Partnership Model of Intervention Integrity*

An alternative approach to the process of integrity monitoring, which is based on principles of participatory action research (see Greenwood, Whyte, & Harkavy, 1993; Schensul & Schensul,



1992) is a partnership-based model. The differences between a hierarchical and partnership model are summarized in Table 3. In a partnership model, authority over intervention implementation and integrity monitoring is shared by the research team and interventionists. In other words, there is an equal balance of power in a partnership model, whereas there is an unequal power structure in a hierarchical framework. Program development within a hierarchical framework is directed by the research team, using research on evidence-based practices. In contrast, program development within a partnership context is codirected by researchers and major stakeholders (including interventionists and participants), using evidence-based practices, as well as the identified needs and priorities of stakeholders. In this way, the intervention is grounded in research and also responsive to the unique needs, including cultural values, of important stakeholders (Fantuzzo, McWayne, & Bulotsky, 2003; Meyers & Nastasi, 1998). The partnership framework acknowledges the expertise of both researchers and community stakeholders in their respective domains. Researchers bring to the partnership an understanding of intervention development and evaluation and, hopefully, the ability to facilitate the formation and maintenance of collaborative relationships. Community-based practitioners and participants bring to the partnership an understanding of the history, culture, and needs of the school and community, a commitment to the development of children in the community, and an ability to relate to children and families from the surrounding neighborhoods. Through this process, researchers and community stakeholders become actively involved in the three major phases of intervention: participatory generation (design), natural adaptation (implementation), and essential changes (evaluation) (Nastasi et al., 2000).

Table 3 also summarizes differences between a hierarchical and partnership model as related to the monitoring of implementation integrity. In a hierarchical model, researchers determine which elements of the intervention are monitored for integrity, and researchers typically do most of the actual monitoring. Within this framework, there is a strong emphasis on what elements of the intervention get implemented (dosage and adherence) and much less emphasis on the quality of intervention and how the intervention is received by participants. In contrast, within a partnership framework, researchers and community stakeholders determine what gets monitored, and multiple informants (researchers, interventionists, participants) using multiple methods (direct observation, rating scales) monitor integrity. Further, in a partnership context, there is an emphasis on the quality of the intervention, as well as the content of the intervention, and there is an equal focus on how the intervention is received by participants (i.e., extent of engagement and motivation) and how the intervention is provided by interventionists.

Table 3  
*A Comparison of the Hierarchical and Partnership Models*

	Hierarchical Model	Partnership Model
Who develops the intervention?	Research team	Research and intervention teams with other stakeholders
What is the basis for intervention development?	Evidence-based practices	Evidence-based practices and experiences/needs of stakeholders
Who conducts integrity monitoring?	Research team	Multiple informants using multiple methods
What domains of integrity are assessed?	Exposure, adherence, differentiation	Emphasis upon quality of intervention and participant responsiveness
What is actually monitored?	Highly specific intervention steps	Critical components of intervention and intervention drift
How are integrity data used?	Summative evaluation	Emphasis on formative evaluation

Hierarchical and partnership models differ markedly with regard to what gets included in an integrity-monitoring protocol. In a hierarchical framework, researchers monitor whether a set of highly specified activities are included, and it is often important to examine the sequence in which the activities are implemented. Within this context, it is critical to determine whether each activity in the intervention is applied exactly as planned. In contrast, within a partnership context, the need to apply a specific set of intervention activities is called into question (Nastasi, Moore, & Varjas, 2004). For example, if a literacy intervention program includes a component focusing on identifying and producing rhyming words, is the use of a particular activity including specific words imperative, or is an alternative activity that includes the identification and production of rhymes also acceptable? The implementation of the critical components would seem to be most essential. Operating within a partnership framework, the role of the researcher is to identify and present the critical components of the intervention, and to ensure that any adaptations of the intervention incorporate these essential elements. One key role of the community stakeholders is to identify specific strategies that operationalize these critical elements for them. For example, to accommodate the range of interests and styles among interventionists and participants, a menu of potential strategies that effectively address essential intervention components can be developed. In this way, the intervention can simultaneously accommodate the researchers' need for standardization and the stakeholders' need to be creative and to actively engage children throughout the process of intervention. Using this model, integrity monitoring involves a multi-informant, multimethod examination of the extent to which critical components are addressed during the intervention, with documentation of specific strategies used by the interventionists to address each component. This conceptualization of intervention integrity is depicted in Figure 2.

This model has some potential advantages. By actively involving interventionists and participants in the process of developing, implementing, and evaluating integrity monitoring procedures, the process fosters creativity, initiative, and a sense of ownership among interventionists; and thus it is likely to promote high levels of acceptability. Such a process would likely maintain the involvement of interventionists, thereby promoting program sustainability. Further, because the process is responsive to the needs of interventionists who are highly committed to the development of children, the intervention is likely to be responsive to children's needs and highly acceptable to them. This model of intervention monitoring is particularly well suited to effectiveness research, in which there is an emphasis on conducting research in a manner that accounts for variables that are directly related to practice.

Another critical advantage of this model of integrity is that the reality of "therapist drift" (i.e., alterations in implementation; see Peterson, Homer, & Wonderlich, 1982) is embraced rather than vilified. In the community and in schools, interventionists generally need to make alterations to interventions to address the specific needs of the children they are serving and to respond to the constraints of the organizations within which they work. A partnership approach to intervention integrity allows for alterations in implementation to occur and then tracks such alterations for analysis. This aspect of the partnership model opens up a new avenue for intervention study. Specifically, the research and intervention teams need to consider what alterations are needed within a particular context and what effect these alterations have on treatment outcome. For example, in the case of the nutrition education project described earlier, the monitoring of integrity indicated that alterations to the intervention were needed, and a subsequent focus group suggested specific alterations to the intervention. As a next step, it is important to examine the altered intervention to determine its effect on treatment outcomes.

These advantages notwithstanding, the partnership model has potential challenges. First, research often has not been successful in identifying the critical components of treatment; researchers may only know that an intervention is effective when it is applied in a specific manner. In these

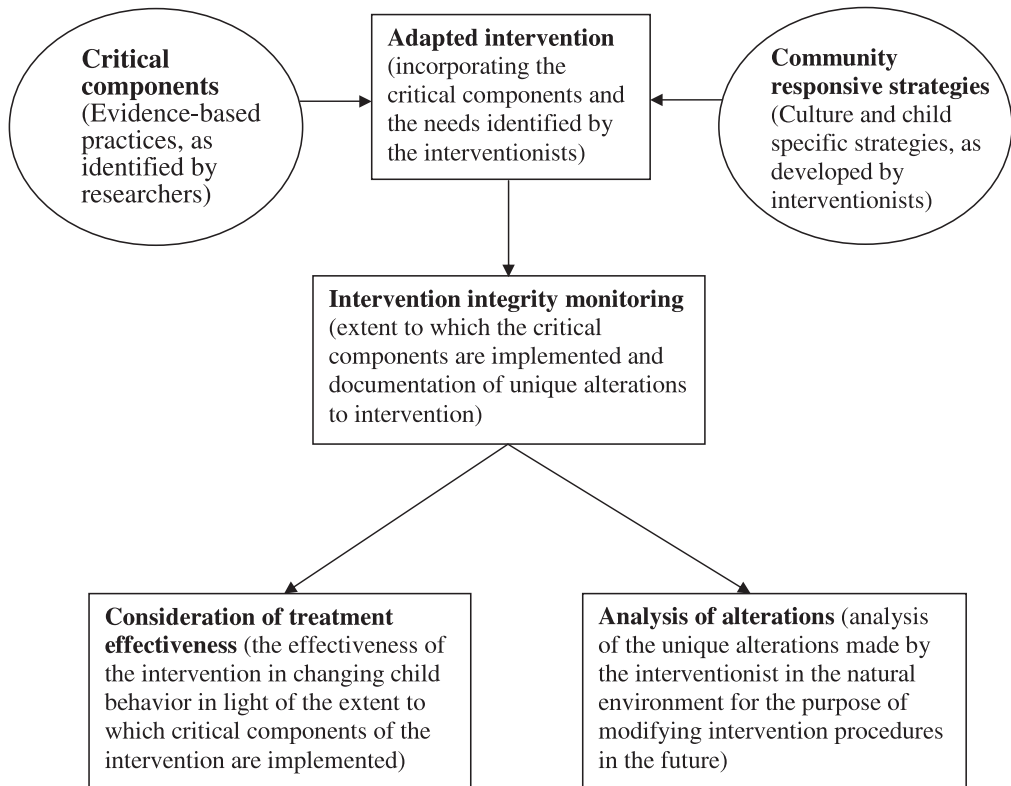


FIGURE 2. The process of integrating researcher and interventionist input in developing methods for monitoring integrity.

cases, the delineation of critical components may be somewhat speculative, requiring research to validate that an intervention approach can be effective when applied in alternative ways. Second, using a partnership model of monitoring integrity necessarily involves more time and resources than the hierarchical approach. Finally, by relinquishing some level of control over the monitoring of integrity, researchers might create a process that leads to even higher levels of inconsistency across children and change agents. One way to address this latter problem is in the data analysis phase of the study. That is, researchers can carefully document level of integrity and investigate the relationship between integrity and intervention outcomes using moderator and mediator analyses (see Baron & Kenny, 1986; Kraemer, Wilson, Fairburn, & Agras, 2002).

#### *Clinical and Research Implications: Steps in Implementing a Partnership Model*

Nastasi and colleagues (see Nastasi et al. 2000; Nastasi, Moore, & Varjas, 2004) have outlined 10 components of the participatory intervention model. The component of the model addressing issues of intervention implementation, including the assessment of integrity, is referred to as natural adaptation (phase 8). During this phase, the intervention is adapted as part of a formative process in response to data pertaining to the integrity of intervention implementation and participants' interpretation of these data. Intervention procedures may be adjusted to improve their responsiveness to participants, but the core elements of the intervention are retained. Building on this

framework, we have further specified the steps involved in implementing a partnership-based model for examining intervention integrity.

1. Form a partnership between the research and interventionist teams. In the context of this relationship, it is important to clarify the roles of each team, including the assets and limitations of each group with regard to intervention implementation and evaluation.
2. Identify the critical components of the intervention. Although the research team has primary responsibility for outlining critical components, based on research on evidence-based practices, the intervention team has an important role in questioning whether each component is actually essential to the intervention process, given the specific needs of the target population.
3. Create a menu of implementation options. Through ongoing collaborations, the research and intervention teams develop options for addressing each critical intervention component so that the intervention protocol is based on empirically based practice and responsive to the needs of the interventionists and participants being served.
4. Develop a plan for monitoring intervention integrity. It is important that the plan include strategies for collecting integrity data related to exposure, adherence, program differentiation, quality of delivery, and participant responsiveness. Also, the plan should incorporate multiple informants and multiple methods for collecting integrity data. Further, the plan should incorporate strategies for tracking implementation drift during the course of intervention.
5. Collaborate on a regular basis to review integrity data. The research team and intervention team ought to meet frequently to examine the various forms of integrity data, interpret the meaning of the data, and discuss strategies to alter intervention implementation.
6. Examine what alterations have been made to the intervention and determine if additional alterations are needed. Subsequently, it is important to evaluate the impact of the altered intervention on salient treatment outcomes.

#### FUTURE DIRECTIONS

The science of measuring intervention integrity is truly in its infancy. To date, the majority of prevention and intervention studies do not collect and record data pertaining to integrity, and those that do assess integrity often do so in a very limited way. In the future, prevention and intervention research needs to incorporate a more comprehensive model for assessing integrity, including strategies for assessing not only exposure, adherence, and differentiation but also quality of intervention application and participant responsiveness. Moreover, research investigating the validity and utility of a partnership-based approach to integrity monitoring, as described in this article, is needed. A critical question to address is, Does the use of a partnership model, as opposed to a hierarchical model, lead to higher levels of integrity, and which categories of integrity are most affected by the use of a partnership model? Another important question is, To what extent does the use of a partnership model improve levels of interventionist acceptability and participant responsiveness to intervention? Further, what is the impact of a participatory approach to integrity monitoring on outcome effectiveness? Addressing these questions is critical to improving methods for conducting effectiveness research, that is, research that is responsive to and has direct implications for practice in real-life community and school settings.

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