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## From Good Intentions to Great Implementation

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### Good Intentions

Artists, filmmakers, musicians, and authors have made famous the saying: “The road to hell is paved with good intentions.” Despite the hyperbole, this might also be true for teachers, support staff, school-employed mental health staff (e.g., psychologists, social workers, counselors), and clinicians from collaborating community agencies charged with implementing evidence-based practices and interventions. The beginning of the school year brings about an optimistic energy for adults and students alike, and school staff are eager and ready to implement new ideas with a new group of students. As the school year drags on and the energy fades, however, teachers and school staff must balance a multitude of competing demands while striving to keep instruction and interventions sharp. In the midst of the daily grind that is the K-12 school day, it is possible that what we think we are doing does not match what we are actually doing. This disconnect between intention and implementation indicates, in scientific terms, a lack of treatment integrity. For students with significant social, emotional, or behavioral (SEB) issues, it is critical that the evidence-based instruction and interventions they are entitled to receive are implemented with integrity so that they have the maximum opportunity to achieve the intended positive outcomes.

### Treatment Integrity

“Treatment integrity,” a phrase that can be used interchangeably with “implementation fidelity,” is defined as implementing instruction or intervention as originally intended (Yeaton & Sechrest, 1981). For students with significant SEB issues, we cannot expect their problems to improve when an intervention is not implemented consistently and correctly. Although fidelity does not guarantee successful outcomes, it does give students an opportunity to benefit from intervention and increases the likelihood that accurate decisions about the intervention and student responses to it are made. Given the importance of treatment integrity for establishing evidence-based practices and making accurate decisions about students’ responses to an intervention (see Sugai et al., in this issue), this article seeks to promote understanding about treatment integrity and how it may be improved so that

students have an increased chance of benefiting from intervention. Specifically, we first discuss dimensions and assessment of treatment integrity. Next, we describe why treatment integrity is important, particularly in the data-based decision-making process. Finally, we discuss factors affecting treatment integrity and provide recommendations for troubleshooting when treatment integrity is low, so that even when the beginning-of-the-year energy recedes, evidence-based instruction and intervention are still delivered with quality and accuracy as originally intended.

## Dimensions and Assessment of Treatment Integrity

As described by Dane and Schneider (1998), dimensions of treatment integrity include adherence, exposure, quality of delivery, participant responsiveness, and program differentiation. These dimensions of treatment integrity may be assessed quantitatively or qualitatively. Adherence is the dimension most commonly measured; it consists of assessing whether or not, or to what extent, program components have been delivered. Without adherence to the delivery of intervention components, assessing other dimensions such as exposure (e.g., dosage), quality (e.g., traits of the implementer such as enthusiasm and preparedness), participant responsiveness (e.g., the degree and quality of participation), and program differentiation (i.e., different from other interventions that may be in place) is likely unnecessary (Schulte et al., 2009).

Researchers and practitioners may use both indirect and direct methods to assess treatment integrity to find out if the intervention is being delivered as originally designed (Keller-Margulis, 2012). Indirect methods may include permanent products and self-report. A permanent product represents a tangible or concrete product resulting from a behavior performed by the student or staff. For instance, a teacher may implement a self-monitoring intervention with a student who is struggling with on-task behavior during whole group instruction. Every two minutes for 20 minutes (i.e., 10 intervals), the student writes “yes” or “no” on a form to indicate whether or not he or she is on task. The self-monitoring form can serve as a permanent record indicating that the student has (or has not) complied with the intervention. If all 10 intervals were completed by the student, that would provide evidence that the student was adhering to the intervention. If only a few intervals were completed and the student had the opportunity to complete them, that would indicate partial implementation and a lack of treatment integrity.

In terms of self-report, the instructor or interventionist may complete a checklist or rating scale noting the components he or she implemented. For example, a school counselor may conduct a social skills intervention group. As the lesson is being taught, or after the lesson, the counselor might answer a series of questions such as: Was the skill defined and taught to students using examples and nonexamples? Was the skill modeled? Were students given an opportunity to practice using the skill? Did students receive feedback during practice? Answers to these questions, which are recommended practices for teaching social skills (Maag, 2006; Simonsen & Myers, 2015), indicate the degree to which the social skills intervention was implemented as perceived by the teacher.

Direct methods of assessing treatment integrity involve an outside observer watching and collecting data on implementation. In the case of the self-monitoring intervention described above, the outside observer could set a timer concurrent with the student's timer (i.e., every two minutes) and record if the student self-monitored at each interval. In the social skills intervention example, the outside observer could complete the same form as the counselor's self-report form. The observer and counselor could then compare forms to see if they agreed or not. Generally, a multi-method/multi-informant approach is recommended for assessing treatment integrity (Bruhn et al., 2015; Keller-Margulis, 2012; Roach & Elliott, 2008). This means that both indirect and direct methods are used, and that informants may include a variety of people with knowledge or experience with the intervention, such as teachers, behavior analysts, school psychologists, administrators, and the students themselves.

## Treatment Integrity and Data-Based Decision Making

Assessing treatment integrity and understanding the factors that affect it are essential for several reasons, but perhaps the most significant reason is because it is impossible to know if an intervention is effective without knowing the degree to which it was implemented (Yeaton & Sechrest, 1981). If a student appears nonresponsive to an intervention, but it is discovered that treatment integrity was less than optimal, then it is plausible that she or he needs further intervention exposure to increase the likelihood of a positive response. If integrity was high, however, but the student did not demonstrate positive changes, then practitioners (e.g., teachers, mental health providers, school psychologists, counselors, social workers) can be confident that the intervention was likely ineffective for that student. For interventions that were delivered with integrity but were ineffective, practitioners may decide to adapt the intervention, discontinue the intervention and try something else, or refer the student for further assessment.

Understanding responsiveness and non-responsiveness is particularly pertinent to data-based decision making, in which data are used to determine how resources are allocated, who receives what type of intervention, and whether targeted supports are warranted. Gage and McDaniel (2012) describe data-based decision making as a framework for teachers and school staff to determine whether or not a student responds to a specific intervention. Analyzing intervention data alongside treatment integrity data enhances the potential to inform instruction by measuring how implementation of an intervention affects student performance (Schulte et al., 2009). In practice, a combination of student outcome data and treatment integrity data can be used to determine how to proceed with helping a student (Bruhn et al., 2014). For example, in a study on the effects of a function-based intervention on stereotypical behavior, a teacher was to deliver specific praise every two minutes (Bruhn, Balint-Langel, et al., 2015). When integrity was low, the student's behavior did not improve. When integrity was high—that is, when the teacher was providing frequent, specific praise—stereotypical behavior decreased substantially. Because treatment integrity data were available, the researchers and teachers were able to analyze those data in conjunction with the student's behavioral data to determine that when intervention was implemented with integrity, the student responded positively. Had treatment integrity data not been available, the researchers might have incorrectly concluded that specific praise was ineffective.

Given the need for understanding the relation between student outcomes and treatment fidelity, we created the Treatment Fidelity Model for Intervention to help teachers and school staff interpret intervention results and determine next steps (see Figure 1). Using the Treatment Fidelity Model for Intervention, the first question to ask is: According to student data, is the student responding to intervention? The second question is: Is the intervention being implemented with fidelity? If the answers to these questions are: no, the student is not responding to the intervention and the intervention is not being implemented with fidelity, then the current intervention should be adjusted so that it is implemented with fidelity before placing a student in a different or more intense level of intervention. This enables practitioners to understand whether the intervention is or is not effective for a particular student. Conversely, if the intervention was implemented with fidelity but the student was not responsive, then the model indicates the student may need (1) a different or more intense intervention or (2) further assessment and evaluation. If the answers to both questions are yes, the intervention was being implemented with integrity and the student was responding positively to the intervention, the intervention should continue as designed, and then fading procedures that promote maintenance and generalization can begin when appropriate.

These procedures will depend on the type of intervention. In Check-In/Check-Out (CICO), for example, students begin and end the day with a mentor who checks to see how they are doing, if they have their necessary materials, and who goes over the student's daily progress report (DPR; Hawken, 2006). The DPR is a form for teachers to provide frequent ratings of student behavior and feedback. Students set DPR goals for their behavior and often receive contingent reinforcement for meeting those goals. These components can be adjusted slowly over time to sustain behavioral change. Suggestions for promoting maintenance in CICO include gradually reducing teacher feedback (Campbell & Anderson, 2011), moving toward a more variable schedule of reinforcement (Miller et al., 2014), and raising goals incrementally (McDaniel & Bruhn, 2016). In a study of CICO by McDaniel and Bruhn (2016), an initial DPR goal was set based on baseline DPR scores. Once the students obtained their DPR goal consistently throughout the week, the goal was raised about 10% above the mean DPR score of the current week for the following week. This systematic, incremental increase resulted in slow and sustained positive behavioral change. Other interventions may use different fading procedures. In self-monitoring interventions, for example, students may begin monitoring their on-task behavior every two minutes, then every five minutes, 10 minutes, and so on, until they are on-task consistently with very infrequent monitoring.

Finally, if the intervention is not being implemented with fidelity but the student demonstrates a positive response, it is likely there are factors beyond the intervention that are affecting the student's progress (e.g., changes in home life, relationships with others, maturation). Because fidelity is low, the positive response cannot be attributed to the intervention. In this case, practitioners could decide to improve fidelity or just to discontinue the intervention, given that it is likely not the cause for student improvement but, rather, a result of other things going on in the student's life.

## Factors Affecting Treatment Integrity

Although assessment of treatment integrity may provide a quantitative measure of how an intervention is being implemented, the assessment may not take into account factors that can adversely affect treatment integrity. For example, function-based interventions, which are highly individualized interventions with multiple components (e.g., environmental adjustments, reinforcement contingencies) designed to address the underlying purpose for a student's behavior (e.g., access attention, escape task), may be more difficult to implement than a simple intervention with only one or two components (Dusenbury et al., 2003)—that is, the complexity of the intervention may affect how well the intervention is implemented. This is why interventions should be designed to be practical and feasible.

Similarly, in school-wide Positive Behavior Interventions and Supports (PBIS), there are core components, such as clearly defined expectations, which have been taught, modeled, and practiced in every setting of the building; a system for acknowledging positive behaviors (e.g., praise, tickets); and systematic data collection and analysis. Given that there are multiple components that will be implemented by all the adults in the building, it is plausible that implementation across a school building could look very different—that is, high integrity in one classroom and low integrity in another. Whether the intervention is highly individualized or a general intervention delivered school-wide, when there are multiple components and personnel involved, training is especially critical.

Initial and ongoing training plays an important role for all staff, but particularly for those interventionists who may lack experience, those who are implementing a complex intervention, or those whose students have significant problems. If initial training has not been sufficient and interventionists do not yet have adequate skills, then implementation may not be sufficient either, particularly without ongoing support (Bellg et al., 2004). Initial training may be used to introduce an intervention, practice implementation, and check for understanding, but it should always be followed by follow-up trainings or check-ins to monitor how the implementation is progressing and to make adjustments as needed.

Another factor that can affect treatment integrity is social validity, or buy-in (Hieneman et al., 2005). If the people charged with implementing an intervention believe the intervention will be effective and they view the procedures as feasible, they are more likely to implement with integrity (Gresham et al., 2000). Conversely, without buy-in, intervention quality will almost always be compromised. Assessing implementer buy-in on the front end may be beneficial. It may be that a teacher believes certain components of an intervention are too intrusive and disruptive to the flow of regular classroom instruction. If this is known and acknowledged on the front end, the teacher can work with others to (1) make adjustments to the problematic components so that they are more feasible to implement, (2) access additional implementation support, or (3) obtain additional training. Similarly, it may be beneficial to include those charged with implementing an intervention in the planning process prior to implementation.

A third possible way to increase buy-in is through reinforcement of implementation behaviors. If, for example, a teacher is implementing an intervention in the classroom, an

administrator or other faculty may do a casual walk-through and provide specific praise to the teacher for implementation. Or, in PBIS programs that rely on tickets to reinforce students when they are displaying positive behavior, those tickets could also be used to reinforce teachers. A potential way of doing this could involve monthly drawings in which students' tickets are drawn for a prize and the teacher's name that appears on the students' ticket could also earn a reward. In this way, the teacher is being reinforced for implementing a core component of PBIS (e.g., acknowledging a student's positive behavior with a ticket).

Similar to social validity, contextual fit can affect the extent to which interventions are implemented successfully (Benazzi et al., 2006). Contextual fit refers to the extent to which an intervention's procedures fit with the environment as well as the interventionist's values, skills, resources, and administrative support (Benazzi et al., 2006). Measuring contextual fit during the initial implementation phase provides valuable information on the elements and skills needed to implement a plan. Interventions with high fit ratings are more likely to be implemented with integrity. Asking interventionists to complete a self-assessment during intervention development will provide information on whether an intervention is a good fit. Further, when designing interventions, involving those charged with implementing the intervention may increase contextual fit because the intervention can be designed to match the interventionist's knowledge, skills, and values. In addition, a team-based approach rather than an individual approach to intervention design may be the most effective because no one person has all of the information necessary to ensure contextual fit (Benazzi et al., 2006).

## Troubleshooting Practices

If data indicate that treatment integrity is less than optimal, and it is likely students could benefit from the assigned intervention given previous evidence of effectiveness, practitioners should commit to improving implementation. A plan for increasing treatment integrity includes:

1. Prioritizing areas for improvement;
2. Creating additional professional development opportunities;
3. Coaching faculty and staff; and
4. Self-monitoring implementation.

The following section provides an overview of these four troubleshooting practices.

It is important to note that all of these troubleshooting practices come with their own resource- and logistical-related challenges, which is why execution of such practices is dependent upon a school-site team that meets regularly and is dedicated to data-based decision making and professional development (Collier-Meek et al., 2013). The team, which should include a variety of personnel (e.g., teachers, school psychologists, administrators, social workers), will need to make time to gather and analyze assessment data, plan for training, and potentially seek out experts beyond those who are already in the school (e.g., district-level personnel, consultants, university personnel). Collectively, the team can share the time, resource, and personnel load associated with these tasks by creating an action plan

that delineates the responsibilities of each person and specifies when those responsibilities will be carried out.

## Prioritizing Areas for Improvement

To start, we recommend that practitioners review current implementation data to identify and prioritize improvement areas. For example, schools implementing a multi-tiered system of support such as school-wide PBIS, often use office discipline referral data to identify who is having difficulty, where and when behavior problems are occurring, and the possible motivation for behavior. These data may reveal a problematic time of day (e.g., morning transitions) or location (e.g., playground). This information may be combined with direct observation of treatment integrity during these problematic times and locations to provide a clearer picture of the concern. Depending on pre-established observation norms for the school, teachers may be notified ahead of time that a treatment integrity observation will be conducted. However, some have suggested a balance of prescheduled observations with random, unscheduled observations (Keller-Margulis, 2012). That is, whoever is being observed for implementation may be notified in advance for some treatment integrity assessments, and at other times, those assessments may occur without prenotification. Observers should be familiar with what delivering PBIS looks like: Are teachers supposed to provide prompts for making transitions? Are teachers supposed to praise students on the playground when they observe them meeting or exceeding behavioral expectations? If direct observations indicate that these key components of PBIS are not occurring during morning transitions and on the playground, then taken together with the office discipline referral data, the school could prioritize improving fidelity during these times and locations with the goal of reducing the number of students referred to the office.

Another option is to gather information through surveys to help identify concerns and narrow down the target topic, time, or settings that need improvement. Identifying and focusing on a specific concern is important because schools have limited time and resources. A survey can be administered during a faculty meeting or shared electronically. Both allow for anonymity, which may result in more candid feedback because respondents will be free from fear of reprimand or administrators' evaluations. Further, collecting several data sources such as a survey and direct observation is beneficial for helping practitioners recognize a pattern. Using multiple sources also allows an issue to surface on one assessment that might not be apparent on another measure.

Returning to the previous example, a school implementing PBIS may administer treatment integrity protocols such as the School-wide Evaluation Tool (SET; Sugai et al., 2001), which requires an outside evaluator to conduct interviews with administrators, PBIS team members, teachers, and students, as well as to observe a variety of school settings and conduct a review of school materials and resources. Another tool is the Effective Behavior Support (EBS) Self-Assessment Survey (Sugai et al., 2003). Unlike the SET, the EBS Survey provides schools with information on faculty implementation and their views about which areas of the PBIS plan should be prioritized for improvement. Specifically, the EBS results indicate the degree to which faculty view PBIS components as being in place, partially in place, or not in place, and whether those components are high, medium, or low

priorities for improvement. Conceivably, when a majority of faculty rate certain components as not in place and as having a high priority for improvement, then an action plan can be developed for moving forward with professional development in those high priority-low fidelity areas.

## Creating Additional Professional Development Opportunities

Typically, traditional professional development has not been aligned with actual practice (Ball & Cohen, 1999). Instead, it is often based on the professional development provider's knowledge rather than attendees' needs (Hill, 2007). The goal of gathering data prior to developing professional development activities is to recognize areas needing improvement. Moreover, the data allow an administrator or professional development provider to refine and prioritize the professional development topic(s). If more than one area is identified, professional development can be delivered in stages or in small-group sessions based on common needs. Customizing or differentiating professional development topics to meet the individual needs of teachers could be helpful, especially if teachers are implementing some but not all components with fidelity. Additionally, as described by the Treatment Fidelity Workgroup of the National Institutes of Health, training sessions should include well-defined performance criteria indicating what must be done and to what level or degree (Bellg et al., 2004).

In addition to holding professional development sessions that include well-defined performance criteria to increase implementation fidelity (Bellg et al., 2004), we recommend providing faculty with written procedural plans. These plans should include specific or concrete steps that will be taken to improve implementation, especially for more complex or multicomponent interventions such as those that are function based (Dusenbury et al., 2003)—that is, “the more concrete the behaviors asked for in the professional development, the more likely teachers are to be high implementers” (Desimone & Stuckey, 2014, p. 476). This can be addressed by providing faculty with explicit, written procedures with corresponding treatment integrity checklists. Materials can be disseminated on paper or electronically. If choosing to share documents electronically, we recommend that participants review the document on their device (e.g., laptop, tablet) as part of the professional development session.

## Coaching Faculty and Staff

School-based instructional coaching is another method for increasing fidelity of specific instructional practices (Yoon et al., 2007; Youngs & Lane, 2014). During coaching, teachers work with an individual “coach” who is an expert or skilled peer to learn new practices while receiving performance feedback (Kretlow & Bartholomew, 2010). There are various coaching models including supervisory, side-by-side, and web-based virtual coaching.

The supervisory coaching model allows a coach to conduct an observation of the teacher following a general professional development training (Joyce & Showers, 2002). After the observation, the coach provides performance feedback to the teacher. During the performance feedback session, a coach typically provides direct feedback on the quality of

implementation, including the strengths displayed during the observation, areas for improvement, and strategies to improve implementation.

In the side-by-side coaching model, teachers may implement a new skill while the coach watches and then intervenes by modeling the skill and a rationale for correcting implementation (Kretlow & Bartholomew, 2010). The teacher is then given additional implementation opportunities and continues to receive immediate feedback “in-vivo.”

Finally, web-based, virtual professional development coaching is an emerging practice that relies on technology to provide immediate, real-time feedback to teachers (Rock et al., 2011, 2012). Virtual coaching incorporates both immediate and delayed feedback through the use of a Bluetooth headset, Bluetooth adapter, or Webcam to view the classroom and communicate. Some research has shown that individuals who received virtual coaching support significantly increased their use of evidence-based classroom management practices (e.g., instructional strategies, teacher praise) and decreased reprimands (Rock et al., 2012). Given the demands on schools (e.g., paperwork, planning, supervising students), virtual coaching is a promising solution for supporting teacher implementation of skills and increasing treatment integrity (Rock et al., 2011, 2012).

## Self-Monitoring Implementation

Unfortunately, professional development and coaching may not, on their own, support long-lasting, accurate implementation of SEB interventions (Desimone 2009; Fixen et al., 2005; Klingner, 2004). To shift away from “train and hope” practices, practitioners must consider practices that build long-term teacher capacity to increase implementation (Desimone, 2009; Klingner, 2004). One such practice is self-monitoring, which involves an individual thinking about a specific skill or behavior and then recording the degree to which the skill or behavior was performed. Cooper and colleagues (2007) recommend the following seven-step self-monitoring plan to increase fidelity of implementation:

1. Identify a skill(s) to target as the focus of the intervention;
2. Identify a time and setting for the selected skill(s) to target;
3. Set a quantifiable goal;
4. Identify a strategy to prompt the use of a skill;
5. Record data of implementation;
6. Graph data to determine whether the goal was met; and
7. Reward oneself for meeting the goal (Cooper et al., 2007).

In practice, a teacher may want to increase the number of opportunities to respond (OTR) that she or he provides during math class. After identifying this skill to target during math, the teacher sets a goal of providing 15 OTRs during the 20 minutes of whole group instruction. To self-monitor this strategy, the teacher makes tally marks on a clipboard while simultaneously teaching each time an OTR is delivered. At the end of class, the teacher adds up the tally marks and graphs them on a sheet of paper or electronic form. If the goal of 15

OTRs was met, the teacher may decide to raise the goal for the next day and also to self-reinforce (e.g., buying a cup of Starbucks on the way home from school).

Self-monitoring checklists can be used to improve intervention implementation (e.g., Simonsen et al., 2014; Sutherland & Wehby, 2001) by pairing training with a follow-up self-monitoring plan. Self-monitoring also may serve as a prompt for implementation, which in turn may serve to improve implementation quality (Bruhn, Balint-Langel, et al., 2015). For example, if a teacher makes a goal to increase his/her rates of specific praise for a positive student behavior, the teacher can follow the previously described seven steps by keeping track of specific praise rates, continually monitor his/her progress, and adapting praise rate goals as necessary. This process can be used across a range of interventions, including foundational components of school-wide PBIS to highly individualized plans with individual students.

One challenge that teachers, school-employed mental health staff, and others encounter, is decreased fidelity during intervention maintenance. Researchers have used self-monitoring to help maintain high levels of implementation accuracy after didactic training on the Good Behavior Game (Oliver et al., 2015). Specifically, once implementation of the Good Behavior Game was stable and 100% of components were implemented with fidelity for five sessions, the researchers provided teachers with a self-monitoring checklist and discontinued performance feedback. The checklist contained components of the Good Behavior Game. The self-monitoring checklist provided a cost-effective and pragmatic tool to maintain teacher implementation after receiving high-quality professional development (Oliver et al., 2015).

Researchers also have used self-monitoring checklists to increase teachers' use of classroom management practices (e.g., behavior-specific praise; Simonsen et al., 2014). Following school-wide professional development on behavior-specific praise, Simonsen and colleagues (2014), tasked all teachers to monitor their behavior for a short period of time (e.g., one to two weeks). During this time period, the teachers selected a time of day (e.g., 10 to 15 minutes), method of recording (e.g., writing tally marks on paper, clicking a golf-counter), recorded their behavior, and reviewed their data. Results indicated that school-wide professional development with self-monitoring helped teachers increase and maintain implementation fidelity of behavior specific praise.

## Final Thoughts

Whether it is the exciting beginning, the monotonous middle, or the chaotic end of the school year, implementing evidence-based instruction and intervention as designed is imperative, particularly for those students with the most persistent and challenging social, emotional, or behavioral needs (Cook et al., 2016). When interventions that research has shown are effective when implemented with integrity *are actually implemented with integrity*, practitioners can be confident that a student's response to intervention is related directly to his/her experience of that intervention and not to other factors. Consequently, this allows for an accurate data-based decision-making process. As schools look to the future and focus on treatment integrity, they may consider the factors that can adversely affect

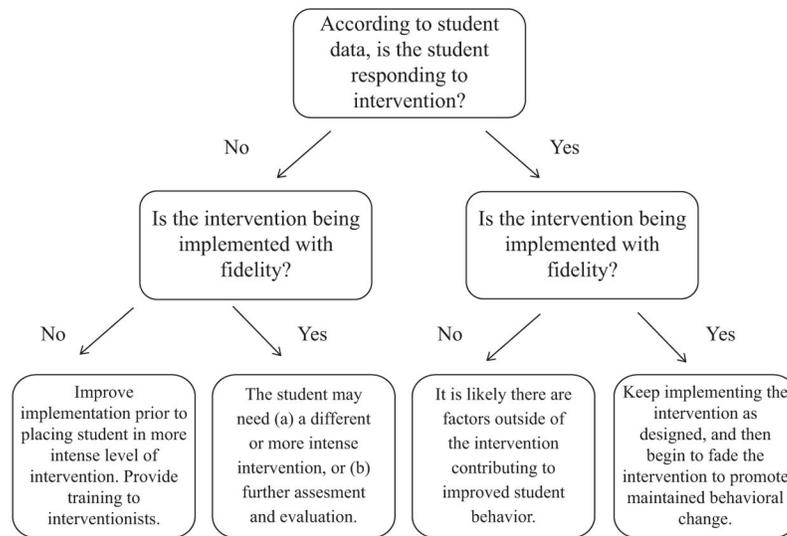
implementation and the presented troubleshooting practices to improve implementation. In addition, having data-based decision-making teams in place who can carefully account for logistical, personnel, and resource-related problems for implementation may be invaluable (Collier-Meek et al., 2013). This will require teams that represent a variety of stakeholders (e.g., general and special educators, school psychologists, social workers, related service providers), have strong administrative support, meet regularly to monitor treatment integrity and student outcome data, and are committed to supporting implementation that leads to positive student outcomes (Collier-Meek et al., 2013).

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**Figure 1. Treatment Fidelity Model for Intervention**

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