

Intervention Integrity: Methods to Track the Quality with Which Interventions Are Carried Out

As schools implement academic and behavioral interventions, they strive to implement those interventions with consistency and quality in classrooms that are fluid and fast-evolving instructional environments. On the one hand, teachers must be prepared to improvise moment by moment to meet classroom needs that suddenly arise: for example, reordering their lesson plans on the fly to maintain student engagement, spending unanticipated extra time answering student questions, or responding to sudden behavior problems. On the other hand, it is a basic expectation that specific RTI interventions will be carefully planned and carried out as designed.

So how can a school ensure that interventions are implemented with consistency even in the midst of busy and rapidly shifting instructional settings? The answer is for the school to find efficient ways to track 'intervention integrity'. After all, if the school lacks basic information about whether an intervention was done right, it cannot have confidence in the outcome of that intervention. And uncertainty about the quality with which the intervention was conducted will prevent the school from distinguishing truly 'non-responding' students from cases in which the intervention did not work simply because it was done incorrectly or inconsistently.

There are three general sources of data that can provide direct or indirect information about intervention integrity: (1) work products and records generated during the intervention, (2) teacher self-reports and self-ratings, and (3) direct structured observation of the intervention as it is being carried out. Each of these approaches has potential strengths and drawbacks.

- ❑ *Work products and records generated during the intervention.* Often student work samples and other records generated naturally as part of the intervention can be collected to give some indication of intervention integrity (Gansle & Noell, 2007). If student work samples are generated during an intervention, for example, the teacher can collect these work samples and write onto them the date, start time, and end time of the intervention session. Additionally, the teacher can keep a simple intervention contact log to document basic information for each intervention session, including the names of students attending the session (if a group intervention); date; and start time and end time of the intervention session.

An advantage of using work products and other records generated as a natural part of the intervention is that they are easy to collect. However, such work products and records typically yield only limited information on intervention integrity such as whether interventions occurred with the expected frequency or whether each intervention session met for the appropriate length of time. (The Intervention Contact Log is an example of a documentation tool that would track frequency, length of session, and group size for group interventions—although the form can also be adapted as well for individual students.)

- ❑ *Teacher self-reports and self-ratings.* As another source of data, the teacher or other educators responsible for the intervention can periodically complete formal or informal self-ratings to provide information about whether the intervention is being carried out with integrity. Teacher self-ratings can be done a variety of ways. For example, the instructor may be asked at the end of each intervention session to complete a brief rating scale (e.g., 0 = intervention did not occur; 4 = intervention was carried out completely and correctly). Or the teacher may periodically (e.g., weekly) be emailed an intervention integrity self-rating to complete.

One advantage of teacher self-ratings is that they are easy to complete, a definite advantage in classrooms

where time is a very limited resources. A second advantage of self-ratings, as with any form of self-monitoring of behaviors is that they may prompt teachers to higher levels of intervention compliance (e.g., Kazdin, 1989). A limitation of teacher self-reports and self-ratings, though, is that they tend to be biased in a positive direction (Gansle & Noell, 2007), possibly resulting in an overly optimistic estimate of intervention integrity. (The attached *Intervention Contact Log* includes a teacher self-rating component to be completed after each intervention session.)

- ❑ *Direct observation of the intervention steps.* The most direct way to measure the integrity of any intervention is through observation. First, the intervention is divided into a series of discrete steps to create an observation checklist. An observer would then visit the classroom with checklist in hand to watch the intervention being implemented and to note whether each step of the intervention is completed correctly (Roach & Elliott, 2008).

The direct observation of intervention integrity yields a single figure: 'percentage of intervention steps correctly completed'. To compute this figure, the observer (1) adds up the number of intervention steps correctly carried out during the observation, (2) divides that sum by the total number of steps in the intervention, and (3) multiplies the quotient by 100 to calculate the percentage of steps in the intervention that were done in an acceptable manner. For example, a teacher conducts a 5-step reading fluency intervention with a student. The observer notes that 4 of the 5 steps were done correctly and that one was omitted. The observer divides the number of correctly completed steps (4) by the total number of possible steps (5) to get a quotient of .80. The observer then multiplies the quotient by 100 (.80 X 100), resulting in an intervention integrity figure of 80 percent.

The advantage of directly observing the steps of an intervention is that it gives objective, first-hand information about the degree to which that intervention was carried out with integrity. However, this approach does have several drawbacks. The first possible hurdle is one of trust: Teachers and other intervention staff may believe that the observer who documents the quality of interventions will use the information to evaluate global job performance rather than simply to give feedback about the quality of a single intervention (Wright, 2007).

A second drawback of direct observations tied to an intervention checklist is that this assessment approach typically assigns equal weight to all intervention steps—when in actual fact some steps may be relatively unimportant while others may be critical to the success of the intervention (Gansle & Noell, 2007). Schools can construct interventions more precisely at the design stage to improve the ability of intervention-integrity checklists to distinguish the relative importance of various intervention elements. When first developing a step-by-step intervention script, schools should review the research base to determine which of the steps comprising a particular intervention are essential and which could be considered optional or open to interpretation by the interventionist. The teacher would then clearly understand which intervention steps are 'negotiable' or 'non-negotiable' (Hawkins, Morrison, Musti-Rao, & Hawkins, 2008). Of course, the intervention integrity checklist would also distinguish between the critical and non-critical intervention elements. (The *attached Intervention Script Builder* is a form that guides schools to break an intervention down into its constituent steps and to identify specific steps as 'negotiable' or 'non-negotiable'. The form also has an 'Intervention Check' column that an independent observer can use to observe an intervention and verify that each step is correctly carried out.)

As schools develop procedures to measure the quality with which interventions are implemented, the majority will probably come to rely on an efficient mix of different data sources to verify intervention integrity-- including products generated during interventions, teacher self-ratings, and direct observations. (Schools can use the attached form

Selecting Methods to Track Intervention Integrity to brainstorm various ways to collect intervention integrity data on a particular student.)

Let's consider an intervention integrity example: The integrity of a small-group time-drill math computation intervention (Rhymer et al., 2002) could be measured concurrently in several ways. The teacher might maintain an intervention contact log (*record generated during the intervention*) that documents group size as well as the frequency and length of intervention sessions. As a part of each contact log entry, the teacher may be asked to rate the degree to which she was able to implement the intervention that day (*teacher self-rating*). The teacher could also collect examples of student worksheets (*work products*): saving at least one computation-drill worksheet per student from each intervention session and recording on each worksheet the date, start time, and end time for the computation time drill. These work products would supply at least indirect evidence that the intervention was being administered according to research recommendations (Rhymer et al., 2002) for math time drills. And finally, an observer might drop into the class at least once per week (*direct observation*) to observe the math time drill intervention using a step-by-step integrity checklist customized for that intervention. Collectively, these various direct and indirect measures would assure the school that the intervention plan is being implemented with sufficient integrity to inspire confidence in the outcome.

References

- Gansle, K. A., & Noell, G. H. (2007). The fundamental role of intervention implementation in assessing response to intervention. In S. R. Jimerson, M. K. Burns, & A. M. VanDerHeyden (Eds.), *Response to intervention: The science and practice of assessment and intervention* (pp. 244-251). New York: Springer Publishing.
- Hawkins, R. O., Morrison, J. Q., Musti-Rao, S., & Hawkins, J. A. (2008). Treatment integrity for academic interventions in real- world settings. *School Psychology Forum, 2*(3), 1-15.
- Kazdin, A. E. (1989). *Behavior modification in applied settings* (4th ed.). Pacific Gove, CA: Brooks/Cole.
- Rhymer, K. N., Skinner, C. H., Jackson, S., McNeill, S., Smith, T., & Jackson, B. (2002). The 1-minute explicit timing intervention: The influence of mathematics problem difficulty. *Journal of Instructional Psychology, 29*(4), 305-311.
- Roach, A. T., & Elliott, S. N. (2008). Best practices in facilitating and evaluating intervention integrity. In A. Thomas & J. Grimes (Eds.), *Best practices in school psychology V* (pp.195-208).
- Wright, J. (2007). *The RTI toolkit: A practical guide for schools*. Port Chester, NY: National Professional Resources, Inc.

Intervention Script Builder

Student Name: _____ Grade: _____

Teacher/Team: _____ Intervention Start Date: ____/____/____

Description of the Target Academic or Behavior Concern: _____

Intervention Check	Intervention Preparation Steps: Describe any preparation (creation or purchase of materials, staff training, etc.) required for this intervention.	Negotiable? (Hawkins et al., 2008)
This step took place Y__ N__	1. _____	<input type="checkbox"/> Negotiable Step <input type="checkbox"/> Non-Negotiable Step
This step took place Y__ N__	2. _____	<input type="checkbox"/> Negotiable Step <input type="checkbox"/> Non-Negotiable Step
This step took place Y__ N__	3. _____	<input type="checkbox"/> Negotiable Step <input type="checkbox"/> Non-Negotiable Step
Intervention Check	Intervention Steps: Describe the steps of the intervention. Include enough detail so that the procedures are clear to all who must implement them.	Negotiable? (Hawkins et al., 2008)
This step took place Y__ N__	4. _____	<input type="checkbox"/> Negotiable Step <input type="checkbox"/> Non-Negotiable Step
This step took place Y__ N__	5. _____	<input type="checkbox"/> Negotiable Step <input type="checkbox"/> Non-Negotiable Step
This step took place Y__ N__	6. _____	<input type="checkbox"/> Negotiable Step <input type="checkbox"/> Non-Negotiable Step
This step took place Y__ N__	7. _____	<input type="checkbox"/> Negotiable Step <input type="checkbox"/> Non-Negotiable Step
This step took place Y__ N__	8. _____	<input type="checkbox"/> Negotiable Step <input type="checkbox"/> Non-Negotiable Step

Research Citation(s) / References: List the published source(s) that make this a 'scientifically based' intervention.

Intervention Quality Check: How will data be collected to verify that this intervention is put into practice as it was designed? (Select at least one option.)

- Classroom Observation: Number of observations planned? _____

Person responsible for observations?: _____

- Teacher Intervention Rating Log: How frequently will the teacher rate intervention follow-through?

Daily___ Weekly ___

- Teacher Verbal Report: Who will check in with the teacher for a verbal report of how the intervention is progressing? _____

Approximately when during the intervention period will this verbal 'check in' occur? _____

- Intervention Checklist: Select either the classroom teacher/team or an outside observer to use the completed *Intervention Script Builder* as a checklist to rate the quality of the intervention. Check the appropriate set of directions below:

___ *Teacher Directions*: Make copies of this intervention script. Once per week, review the steps in the intervention script and note (Y/N) whether each step was *typically* followed. Then write any additional notes about the intervention in the blank below

___ *Independent Observer Directions*: Make copies of this intervention script. At several points during the intervention, make an appointment to observe the intervention in action. While observing the intervention, go through the steps in the intervention script and note (Y/N) whether each step was typically followed. Then write any additional notes about the intervention in the space below

Intervention Observation Notes: _____

Reference

Hawkins, R. O., Morrison, J. Q., Musti-Rao, S., & Hawkins, J. A. (2008). Treatment integrity for academic interventions in real- world settings. *School Psychology Forum, 2*(3), 1-15.

Intervention Contact Log

Staff Member(s) Implementing Intervention: _____

Classroom/Location: _____ Intervention Description: _____

Students in Group: (Note: Supplemental intervention groups generally should be capped at 6-7 students.)

- A. _____ D. _____ G. _____
- B. _____ E. _____ H. _____
- C. _____ F. _____ I. _____

Date: _____ Time Start: ____ : ____ ^{AM} Time End: ____ : ____ ^{AM} Students Absent _____

To what degree were you able to carry out the intervention as designed? Comments: _____

1	2	3	4	5	6	7	8	9
Not at all			Somewhat			Fully		

Date: _____ Time Start: ____ : ____ ^{AM} Time End: ____ : ____ ^{AM} Students Absent: _____

To what degree were you able to carry out the intervention as designed? Comments: _____

1	2	3	4	5	6	7	8	9
Not at all			Somewhat			Fully		

Date: _____ Time Start: ____ : ____ ^{AM} Time End: ____ : ____ ^{AM} Students Absent: _____

To what degree were you able to carry out the intervention as designed? Comments: _____

1	2	3	4	5	6	7	8	9
Not at all			Somewhat			Fully		

Date: _____ Time Start: ____ : ____ ^{AM} Time End: ____ : ____ ^{AM} Students Absent: _____

To what degree were you able to carry out the intervention as designed? Comments: _____

1	2	3	4	5	6	7	8	9
Not at all			Somewhat			Fully		

Date: _____ Time Start: ____ : ____ ^{AM} Time End: ____ : ____ ^{AM} Students Absent: _____

To what degree were you able to carry out the intervention as designed? Comments: _____

1	2	3	4	5	6	7	8	9
Not at all			Somewhat			Fully		

Date: _____ Time Start: ____ : ____ ^{AM} Time End: ____ : ____ ^{AM} Students Absent: _____

To what degree were you able to carry out the intervention as designed? Comments: _____

1	2	3	4	5	6	7	8	9
Not at all			Somewhat			Fully		

Date: _____ Time Start: ____ : ____ ^{AM} Time End: ____ : ____ ^{AM} Students Absent: _____

To what degree were you able to carry out the intervention as designed? Comments: _____

1	2	3	4	5	6	7	8	9
Not at all			Somewhat			Fully		

Selecting Methods to Track Intervention Integrity

Student Name: _____ Date: _____

Directions: Schools can use three general sources of data to obtain direct or indirect information about intervention integrity: (1) work products and records generated during the intervention, (2) teacher self-reports and self-ratings, and (3) direct classroom observation of the intervention as it is being carried out. Use this form to select an efficient combination of methods to measure the overall integrity with which an intervention is being implemented.

Work products and records generated during the intervention. Student work samples and other records such as intervention contact logs generated naturally as part of the intervention can be collected to give some indication of intervention integrity (Gansle & Noell, 2007). What work products or other intervention records can be collected to help to track the integrity of the intervention?

Type of Work Product/ Other Intervention Documentation	Person(s) Responsible	Frequency of Data Collection
_____	_____	_____
_____	_____	_____
_____	_____	_____

Teacher self-reports and self-ratings. The teacher or other educators responsible for the intervention can periodically complete formal or informal self-ratings to provide information whether the intervention is being carried out with integrity (Gansle & Noell, 2007).. Teacher self-ratings can be done a variety of ways. At the end of each intervention session, for example, the instructor may complete a brief rating scale (e.g., 0 = intervention did not occur; 4 = intervention was carried out completely and correctly). Or the teacher may periodically be emailed a short, open-ended intervention integrity questionnaire. What method(s) of teacher self-reports/self-ratings will be used to track the integrity of this intervention?

Type of Teacher Self-Report or Self-Rating	Person(s) Responsible	Frequency of Data Collection
_____	_____	_____
_____	_____	_____
_____	_____	_____

Direct observation of the intervention steps. The intervention is divided into a series of discrete steps to create an observation checklist. An observer then visits the classroom with checklist in hand to watch the intervention being implemented and to note whether each step of the intervention is completed correctly (Roach & Elliott, 2008). The direct observation of intervention integrity yields a single figure: 'percentage of intervention steps correctly completed'. To compute this figure, the observer (1) adds up the number of intervention steps correctly carried out during the observation, (2) divides that sum by the total number of steps in the intervention, and (3) multiplies the quotient by 100 to calculate the percentage of steps in the intervention that were done in an acceptable manner.

Who will be responsible for creating an intervention-integrity checklist containing the essential steps of the intervention?	Who will use the intervention-integrity checklist to conduct observations of the intervention?	How often or on what dates will classroom observations of the intervention be conducted?
_____	_____	_____

Gansle, K. A., & Noell, G. H. (2007). The fundamental role of intervention implementation in assessing response to intervention. In S. R. Jimerson, M. K. Burns, & A. M. VanDerHeyden (Eds.), *Response to intervention: The science and practice of assessment and intervention* (pp. 244-251). New York: Springer Publishing.

Jim Wright, Presenter

Roach, A. T., & Elliott, S. N. (2008). Best practices in facilitating and evaluating intervention integrity. In A. Thomas & J. Grimes (Eds.), *Best practices in school psychology V* (pp.195-208).