



Improving Student Outcomes: Data-driven Instruction and Fidelity of Implementation in a Response to Intervention (RTI) Model

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Abstract

As teachers, administrators, and members of intervention teams use student performance data to inform instructional decisions and monitor implementation of tiered instruction in a Response to Intervention (RTI) model, assuring fidelity of implementation or treatment integrity continues to be a challenge. This article describes how one school district established a model of RTI including three mechanisms to enhance data-driven instruction and fidelity of implementation through the use of: (1) a student intervention tracking form, (2) reading coaches, and (3) teacher-made video clips.

Keywords

Response to Intervention, fidelity of implementation, teacher fidelity

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Background: Scenario

Three years ago, Ms. Sullivan and Ms. Easton submitted their lesson plans each week to their school principal for their co-taught second grade class. They had clear, behavioral objectives for each lesson. They taught the lessons, recorded students' grades, and determined the next objectives in the curricular scope and sequence. Ms. Sullivan saw herself as the second grade teacher responsible for most of the students, while Ms. Easton, as the special education teacher, saw herself responsible for students struggling with academic or behavior challenges. If a student had significant academic or behavioral challenges, the teachers would refer the student to the child study team for a comprehensive evaluation.

Today, the portion of this scenario that remains the same is the teachers submit weekly lesson plans. Over the past three years much has changed for Ms. Sullivan and Ms. Easton and their colleagues in improving instruction for all students in their school. Neither sees herself as the general or special education teacher. Rather, they see themselves as two, fully empowered teachers in this co-taught class. In addition, they assess each student's skill level in the critical elements of reading three times per year (benchmark assessment data). For the four students in their class not making the anticipated growth in reading decoding and fluency, the teachers maintain additional documentation (progress monitoring data) and the students receive extra and more intense instruction, individually or in small groups in this general education setting. Ms. Sullivan and Ms. Easton, using the school's student intervention tracking form located on a clipboard in front of them, document student progress and fidelity of im-

plementation by noting (1) instructional interventions, (2) frequency (# of days/week), (3) duration (# of minutes/session), (4) intensity (individual or # of students/group), and (5) how, if at all, they deviated from the intervention plan.

In this group of four, second graders who are struggling with reading decoding and fluency, Ms. Sullivan and Ms. Easton are particularly concerned about Gregory's progress. They are so concerned that they have referred him to the school's Intervention Team made up of a general educator, special educator, child study team member, and, in this case, a reading specialist, to review and discuss (1) whether or not his level or tier of intervention should continue, (2) if other strategies should be implemented, or (3) if Gregory should be considered for more intensive instruction. In all likelihood, three years ago Gregory would have just been referred

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for classification as a student eligible for special education. Now, Ms. Sullivan and Ms. Easton look forward to colleague's feedback on possible next steps to better assist Gregory within their classroom and to collaboratively discuss his needs based upon specific data about his reading decoding and fluency performance. In short,

Gregory is provided with several opportunities to receive more intense, documented instruction. In other cases, clear evidence will exist that a direct referral for a comprehensive evaluation to determine if special education services is warranted (CEC, 2007).

Establishing and Piloting RTI

Ms. Sullivan and Ms. Easton's instruction for Gregory is part of tiered instruction. This is an essential part of the Response to Intervention (RTI) model being implemented in this 8,000 pupil, lower- middle socioeconomic status school district in southern New Jersey. This is the fourth year their district has used RTI, a multi-tiered approach to meeting students' academic and behavioral needs.

RTI has three basic required features (Brown-Chidsey & Steege, 2005; Fuchs & Fuchs, 2001; NASDSE, 2005; NRCLD, 2003). The first component is matching high quality research-based intervention to student's educational and behavioral needs. Second, progress monitoring is used to assess the need for changes in instruction or goals. Third, student response's from progress monitoring data is the basis of important educational decisions, which might include additional levels or tiers of instructional intensity or possibly eligibility for special education.

The RTI model moves students to progressively higher tiers of intervention, if they are not successful in the general education classroom using research-based or Tier I instruction. If Tier I in the general education classroom is not producing sufficient enough success, students are moved to subsequently higher tiers until progress is achieved at a rate sufficient enough to show progress toward a predetermined goal. This is called Tier II.

Finally they are moved in order to receive more intense intervention or to determine if they are eligible for specialized services. This final level is called Tier III.

RTI is a system of educational re-design based upon a hierarchy of interventions. For this school district it is designed to meet the needs of students who demonstrate underachievement in literacy. This district's RTI model will eventually be broadened to encompass other academic subject areas and behavioral issues as the district's knowledgebase increases, skills are honed, and teachers, parents, administrators, and staff establish a level of success and comfort. Professional development is now underway in this district to enable RTI to address mathematics as well as behavioral issues.

The district initiated the RTI process four years ago in kindergarten and has added an additional grade level each year. Third grade is on-board this year for the first time. For a year prior to initiating RTI, administrators and teachers in general and special education met to marry the best of both general and special education. All agreed on a need for a new paradigm, endorsing the RTI model. The district provided professional development to teachers and staff in their pilot school for a year prior to implementation. The professional development included review of protocols for evidenced-based practices: curriculum-based measurement (including progress monitoring), benchmark assessments, and a problem-solving approach to RTI. As the district expanded RTI to include subsequent grades they have provided additional and refined training. For example, this year in second grade, the district added

data collection for reading comprehension, using guided reading.

The district conducted research to find a measure designed to elicit the data necessary to make informed decisions about student progress in early reading (Elliott, Lee, Tollefson, 2001; and Good, Simmons, & Kame'enui, 2001), and Dynamic Indicators of Basic Early Literacy (DIBELS) was selected. DIBELS (University of Oregon Center on Teaching and Learning, n.d.) is a set of standardized, individually administered measures of early literacy. The measures are designed to be short (one minute) and are used to regularly monitor the development of pre-reading and early reading skills. The DIBELS measures include: Initial Sound Fluency (ISF), Letter Naming Fluency (LNF), Phonemic Segmentation Fluency (PSF), Nonsense Word Fluency (NWF), Oral Reading Fluency

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(ORF), and Retell Fluency (RF). Three times per year, reading teachers administer appropriate DIBELS subtests (universal screening) and on a bimonthly basis, they assess students receiving more intense or tiered instruction (progress monitoring).

Data-driven Instruction and Fidelity of implementation

The need and methodology for data-driven instruction in general, and with RTI

specifically, has been well documented (CEC, 2007; and Mellard & McKnight, 2006). Although much work remains in this area (e.g., especially skill areas other than literacy), research-based methodologies and protocols are available. However, an area of continuing concern for many professionals implementing RTI is fidelity of implementation or treatment integrity. Here the effort is to ensure that teachers are delivering instruction or a program in the way in which it was designed or intended (Gresham, MacMillan, Boebe-Frankenberger, & Bocian, 2000).

1. Data-driven Instruction

As a veteran general education teacher, Ms. Sullivan had used a best practice cycle of instruction: pre-assess, teach, post-assess, and reflect for years. But, in the past, she made those decisions based upon a class score, a group mean score, selected student scores, and observations. She assigned test or course grades and moved on to the next chapter or unit of study. Today they do not say, I taught the material.” Or “I gave the grade.” Now, Ms. Sullivan and Ms. Easton want to know how much each student learned and to identify what is necessary to improve student’s skill levels. This paradigm shift has taken time and effort on everyone’s part and it continues to be refined.

Benchmark assessment in the five, essential elements of reading occurs (National Reading Panel, 2000) using the DIBELS and the Fountas and Pinnell Benchmark Assessment System (BAS). This process caught students before they failed a subject and referred them for further assessment or more intense instruction.

2. Fidelity of Implementation

Probably the most challenging goal the district initially established was to maintain and assure fidelity of implementation. Fidelity of implementation is the delivery of instruction in the way in which it was designed and intended to be delivered (Gresham, MacMillan, Boebe-Frankenberger, & Bocian, 2000). Fidelity of implementation or treatment integrity requires that teachers provide instruction and progress monitoring according to the research-based method prescribed or to a best-practice protocol.

Some researchers have called for the need for research in the area of teacher fidelity within the RTI model. Noell and Gansle (2006) reveal that implementation of interventions have received little attention in the RTI literature and emphasize the necessity of documenting that interventions were in fact implemented. They further assert that even with high quality pre-intervention assessments, intervention design, progress monitoring, and data evaluation, the system must guarantee implementation of the intervention as intended. Without this the system becomes a hollow shell that produces meaningless outcomes. Failure to truly implement the required interventions subverts RTI's main goal of providing services at the point of concern without having to wait for a formal assessment or evaluation.

Similarly, Fuchs and Deshler (2007) contend there are many unanswered questions that need to be examined and considered when implementing RTI. These researchers urge districts, schools, and administrators to set expectations for the implementation of RTI, provide adequate resources, and support the use of procedures that ensure fidelity of intervention. Further, Fuchs and Fuchs (2006) and the Instructional Research Group (2006),

and others argue that implementation fidelity is a key issue in RTI.

Another rationale for ensuring fidelity of implementation is that it paves the way for a more valid determination of the existence of a disability. Is Gregory a student with a specific learning disability? Or, does Gregory just need additional instruction in reading decoding and fluency? The intervention team needs to determine whether a student has received appropriate instruction in the general education classroom. Implementing instruction with fidelity satisfies one of IDEA's legal requirements for appropriate instruction (IDEIA, 2004). Several authors corroborate the importance of fidelity of implementation to maximize program effectiveness (e.g., Foorman & Moats, 2004; Gresham, et al., 2000; and Telzrow, McNamara, & Hollinger, 2000).

Although both common sense and research support the concept of fidelity of implementation to ensure an intervention's successful outcome, the practical challenges associated with achieving high levels of fidelity are well documented (Gresham, et al., 2000). Direct and frequent assessment of an intervention for fidelity is considered to be best practice. When researching the effectiveness of an intervention, it is critical to be able to report the fidelity with which it was implemented so that any resulting gains in student achievement can be accurately attributed to the intervention under investigation. Failure to make this attribution might block the replication of an important intervention. When implementing an intervention, it is critical to know whether it is being implemented as designed, so that if the

intervention is initially unsuccessful, schools can take appropriate measures to remedy the deficiency rather than abandoning the entire reform.

Three specific mechanisms were implemented to enhance fidelity of implementation in this district. Each mechanism was also

intended to support teachers' efforts to enhance data-driven instruction. The three supports to improve fidelity of implementation were use of: (A) a form to track what was occurring during instruction, (B) reading coaches, and (C) video clips.

Figure 1 - Student Intervention Tracking Form

Student: _____ Grade: _____ Teacher: _____

Beginning DIBELS Scores (list scores available):

ISF: _____ LNF: _____ PSF: _____ NWF: _____ ORF: _____ RF: _____ Tier: _____

Targeted Skill(s) for this cycle: _____

Week of	Date	Length Intervention Attempted in mins. any deviations	# of Students per group and	Observations of student's response to intervention	DIBELS Prog. Mon. Scores*		
							ISF: PSF: NWF: ORF:
							ISF: PSF: NWF: ORF:
							ISF: PSF: NWF: ORF:

Teacher's Summary of Student Response to Intervention:

Highlight any deviations from the intervention plan:

RTI Team – Tier Placement for Next Cycle: _____ Date of next meeting _____

A. Student Intervention Tracking Form

Building upon research of teacher logs and tracking of intervention techniques (Rowan, Camburn, & Correnti, 2004; and Telzrow, McNamara, & Hollinger, 2000), the *Student Intervention Tracking Form* was developed not only to provide specific student data upon which decisions of rate and slope of progress could inform decisions, but also to enhance teacher fidelity of implementation.

As noted above in Figure 1 - *Student Intervention Tracking Form*, teachers document for each student: (1) interventions attempted, (2) frequency (# of days/week), (3) duration (# of minutes/session), and (4) intensity (individual or # of students/group), and (5) student response to the intervention; thus, enhancing the chance that what was intended to be taught is taught and improving teacher fidelity of implementation. Further, the section entitled, "Highlight any deviations from the intervention plan." focuses the teacher on whether the instructional protocol was followed and requests identification of any changes in that protocol.

B. Reading Coaches

Another support for fidelity of implementation included the use of reading coaches. Each week, the Reading Coach (a former reading teacher or reading specialist) reviewed the *Student Intervention Tracking Form* of students receiving tiered instruction. If a teacher was particularly challenged with a student's lack of progress, was not implementing interventions as prescribed, or was not recording those interventions, the coach would offer assistance. Reading coaches can provide demonstration lessons, discuss alternate ways to enhance an intervention, or coach a teacher in any way they mutually

agree would enhance fidelity of instruction.

C. Video clips

In addition to the "Student Intervention Tracking Form" and Reading Coaches, and following the advice of Guskey (1999) and Knight (2009), school administrators built a partnership approach to increasing high-quality teacher implementation of best practices. One technique recommended by these researchers that was particularly powerful was the use of video clips taken of teachers in the pilot year as they implemented specific aspects of data-driven, tiered, research-based instruction. Specifically, since video cameras were readily available in the school, the school used the opportunity to train the teaching assistants to record lessons during tiered instruction. The school then took the video clips teachers felt were particularly instructive and burned them on disks, to be categorized, and shared throughout the district for easy viewing by peers. At the end of each marking period, the school distributed a list of the clips most helpful in selected areas. This provided encouragement for additional taping and to reinforce viewing.

Websites

Although they were not specifically a component of fidelity of intervention, the use of helpful websites provided, substantive support for implementing RTI. They provided numerous ideas for RTI implementation and research-based instructional methodologies. The school included these websites in most professional development sessions and encouraged teachers to share specific applications and

utilizations with grade-level teams and their school principal. School principals kept these suggestions and shared them bi-monthly. See

Figure 2 - Helpful, “free” (your tax dollars at work) Websites.

Figure 2 – Gray Box item

Helpful, “Free” (your tax dollars at work) Websites

1. National Center on Response to Intervention
<http://www.rti4success.org/>
This free site is supported by the US Department of Education, Office of Special Education Programs, the National Center on Response to Intervention (RTI) provides information to individuals and technical assistance to state educational agencies across the country about RTI.
2. Institute of Education Sciences (IES) - National Center for Educational Evaluation and Regional Assistance
<http://ies.ed.gov/ncee/wwc/publications/practiceguides/#rti>
Spring of 2009 two practice guides on RTI were released, one on reading and one on mathematics. Other helpful information ranges from improving adolescent literacy to reducing behavior problems at the elementary school level.
3. National Center on Student Progress Monitoring
<http://www.studentprogress.org/>
This site provides information on the scientifically based practice of screening and monitoring students' skill development. Many different tools are available.
4. What Works Clearinghouse
<http://www.whatworks.ed.gov>
No Child Left Behind mandates evidence-based practices be used to assure use of research-based instructional methodologies in classrooms. This site is a source for evidenced-based practices.
5. Florida Center on Reading Research
<http://www.fcrr.org/Interventions/index.htm>
This site provides multiple intervention ideas linked to the five essential components of effective early reading instruction. Interventions for individuals or small groups can be printed in their entirety.

Conclusions

This school district has made four selected findings concerning the RTI model: (1) improved student outcomes in most areas of literacy, (2) declining rates of referral to the child study team for assessment, (3) decreasing numbers of students classified as needing of special ed., and (4) positive feedback from teachers who have worked with this RTI

model. These findings have maintained the momentum and justified the expansion on this RTI model into other skill and behavioral areas.

The percentage of increase in DIBELS scores for selected measures increased significantly over the past three years (multivariate ANOVA at the .05

level). The initial data coming from the use of the Fountas and Pinnell Benchmark Assessment System (BAS) are encouraging. BAS percentile scores have increased overall from the previous year by eight percentile points for students assessed in Tier II.

In addition, both the number of referrals requesting child study team evaluations

and the classification rates of students determined eligible for special education services has decreased. As seen in Table 1, the percents of decline for 2007- 2008, were -16% and -23% respectively with reductions in both rates.

Table 1 – Student Referral and Classification Rates

School year	Rate of Student Referral	Student Classification Rate
2005-2006	-2.25 %	-1.8%
2006-2007	-11.5%	-9.4%
2007-2008	-16.3%	-26.2%

Without the progress in reading benchmark scores, the decrease in the number of referral and classification rates might be attributed solely to those components of RTI that could be perceived as a delay tactic, a caution noted by CEC (2007). In light of the improved DIBELS and BAS scores, however, the decrease could, in part, be attributed to implementation of this RTI model. From the results of a survey, most administrators and teachers feel this is “largely” due to the (1) implementation of RTI, (2) use of benchmark assessments and progress monitoring, and (3) additional professional development and training.

Lastly, teachers were queried for anonymous feedback about their level of satisfaction with various aspects of the district’s RTI model. The results showed 83 – 91 percent “agree” or “very much agree” there had been significant progress. The one theme found in the comment section that continues to be addressed is the commitment of time required by teachers. Change is never easy and often requires teachers and administrators additional time and energy to achieve success.

Evaluators of RTI continue to be concerned about the difficulties with data collection and how it is used to inform instruction as well as with the fidelity of the implementation of interventions.

Status of Scenario for Gregory

After reviewing Ms. Sullivan and Ms. Easton’s *Student Intervention Tracking Forms* for Gregory and discussing his strengths and areas of need, the Intervention Team recommend his teachers, with support from the reading coach, provide instruction in sound-symbol recognition, blending of selected sounds identified by the tracking forms, and repeated readings of first grade level books to raise Gregory’s fluency from 23 to 53 words correct per minute. After eight weeks of instruction in these areas, the intervention team will meet again to review his progress and determine the next step.

Summary

As teachers, administrators, and members of intervention teams use student performance data to inform instructional

decisions and monitor the fidelity of implementation of tiered instruction in a Response to Intervention (RTI) model, ways to assure fidelity of implementation or treatment integrity continues to be a challenge. Three mechanisms to enhance data-driven instruction and fidelity of implementation in an RTI model in one school district include the use of: (1) a tracking form to document what was occurring during instruction and when, (2) reading coaches to support teacher's interventions, and (3) teacher-made video clips to provide models and documentation of instructional implementation.

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