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The “I” in RTI

Research-Based Factors for Intensifying Instruction

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Changes in the 2004 Individuals With Disabilities Education Improvement Act (IDEA, 2004) opened the door for wide use of response to intervention (RTI) as a model for identifying students with learning disabilities (see box, “What Is Response to Intervention (RTI)?”). These legislative changes coincide with recent trends of school-wide reform, in which schools implement research-based instruction and evaluate the responses of students to that support. This considerable reform calls for new skills for educators and a conceptual shift in the ways students’ difficulties are viewed (Tilly, 2008). One new skill for some educators is examining instruction and modifying instructional factors associated with improving student outcomes (Al Otaiba, 2005). Therefore, a question to answer is: What research-based instructional factors can educators modify to intensify students’ instructional supports?

RTI: Background and Description

The law frames RTI as a model for special education identification; conceptually, RTI is a multitiered approach to providing services to students that matches the students’ level of academic need to a corresponding level of instruction (Barnes & Harlacher, 2008).

In this sense, RTI is a general education initiative defined as a new method of service delivery. Within the RTI model, schools create a range of increasingly intensive levels of instructional supports, and educators place students into these levels on the basis of screening and progress-monitoring data (Cummings, Atkins, Allison, & Cole, 2008; Gersten et al., 2008; NASDSE, 2005). Educators monitor the growth of each student's academic skills over time to ensure that each student receives appropriate instruction that is based on his or her need. By establishing varying levels of support and using frequent assessment to check students' progress, schools ensure an appropriate match among a student's skills, the level of instruction, and the curriculum (Barnes & Harlacher, 2008).

The continuum of support offered by RTI has multiple tiers; the most common conceptualization uses a three-tiered model (NASDSE, 2005; Tilly, 2008). Within a three-tiered model, all students receive Tier 1 instruction that consists of differentiated instruction with a scientifically based core curriculum. Designed to prevent the development of learning difficulties, this core curriculum—which is implemented daily—teaches all the essential skills, or big ideas, within an academic area and typically lasts between 90 and 120 minutes (Haager, Klingler, & Vaughn, 2007). Students who have mild skill deficits receive Tier 2 support that uses 20 to 45 minutes more instructional time each day than Tier 1 and includes approximately six to eight students in a group (Haager et al., 2007; Joseph, 2008). Within Tier 2, educators can use a standard treatment protocol in which each student who needs Tier 2 services receives the same instructional plan that targets the same skills, or the students may receive a problem-solving protocol that considers the individual needs of each student and instructional plans that are coordinated to meet those individual needs (Barnes & Harlacher, 2008).

Students who demonstrate a substantial and sustained need for additional support to achieve critical goals receive Tier 3 support, the most intensive level of support (Joseph, 2008; NASDSE, 2005; Tilly, 2008). Students receive Tier 3 support in a small instructional group of four or fewer students. The instruction is more explicit and intense, and attempts to individually meet the needs of each student (Harn, Kame'enui, & Simmons, 2007). Educators with extensive background and training in working with students with severe learning difficulties (e.g., special education teachers, reading specialists) often lead Tier 3 instruction, which is implemented for a longer time period than Tier 2 (e.g., 20 weeks vs. 10 weeks; Vaughn, Linan-Thompson, & Hickman, 2003).

A necessary tenet of RTI is that all students receive research-based instruction that matches their need for support (Cummings et al., 2008). Students who perform below expected levels of performance receive additional instructional support. Educators monitor their progress by using formative assessments (i.e., assessments that educators administer during or after a lesson to give teachers information about the effectiveness of instruction and the skills that students are acquiring before the teachers expect the students to have mastered instructional objectives) as opposed to summative assessments (i.e., assessments that provide information after the teachers expect the students to have mastered instructional objectives; Gersten et al., 2008). Educators intensify instruction for students who fail to make adequate progress toward goals, leading to a continuous cycle of evaluating instruction and student progress. The end result is a seamless system in which educators measure students' growth continuously and modify instruction accordingly. When students demonstrate substantial and sustained difficulty despite research-based instruction, educators may refer them to special education (Barnes & Harlacher, 2008).

What Is Response to Intervention (RTI)?

Response to intervention (RTI) is a model of service delivery that requires both implementing a research-based continuum of instructional supports and continuously monitoring students' progress toward goals. Instruction changes while educators monitor students' growth to ensure that students meet those goals. When a student does not make sufficient progress, RTI requires a change in instruction to increase the student's growth rate.

The Effect of RTI on Special Education

Making sound instructional decisions for students who are receiving additional support is particularly relevant to special education personnel. Intensifying the instruction delivered to students within an RTI model is an important step in ensuring that students have received research-based instruction before educators evaluate whether they demonstrate a learning disability (Lichtenstein, 2008). Further, increasing the effectiveness of tiered instruction benefits a large number of students so that many students need less intensive intervention. In turn, this model increases the availability of resources to allocate to students who need the most substantive support. Special education teachers must therefore be able to offer support to general education teams regarding intensifying instructional factors within all tiers of instruction, but particularly in Tiers 2 and 3. The RTI model is moving schools away from working within "silos" to one in which collaboration between general and special education staff is critical throughout the RTI process (Cummings et al., 2008).

The Challenge of Implementing RTI

Because information gathered throughout the tiers can guide special education decisions, the quality of implementation and the decisions made about instructional changes are important factors in distinguishing students

What Are the Five Critical Elements of Reading?

- 1 Fluency with text.
- 2 Vocabulary.
- 3 Comprehension.
- 4 Phonemic awareness.
- 5 Alphabetic principle.

with true disabilities from students who have not received appropriate instruction (Lichtenstein, 2008). School personnel must therefore understand how to make effective and powerful decisions about instruction. Identifying research-based interventions may be a new skill for many educators (Al Otaiba, 2005), but one of the challenges with RTI is determining which instructional factors to modify within an intervention. Further, school personnel may lack important knowledge about evidence-based practices. The National Council on Teacher Quality (2006), for example, found that most general education teacher preparation programs surveyed across the United States failed to provide training in research-based reading instruction in the five critical elements of reading (see box, "What Are the Five Critical Elements of Reading?").

To identify instructional factors linked to improved academic performance for students in kindergarten to 12th grade, we conducted a literature review. We used keywords related to academic instruction (e.g., differentiated instruction, instructional variables, reading instruction, intervention) to search for articles about psychology and education search engines (e.g., PsycINFO, ERIC). Although the factors identified are not exhaustive, the concise summary of alterable variables shows factors that educators can modify to intensify an effective instructional foundation. The compiled list can serve as a menu for teams and teachers to use when intensifying instruction within Tier 2; however, educators can consider these factors within any tier. For example, the factor "opportu-

nities to respond" (OTRs) refers to the number of times that a student can respond to an academically oriented question. Although this discussion focuses on Tier 2 instruction, educators can easily examine the number of OTRs that a student has during instruction in Tier 1 or Tier 3.

Prerequisite Factors for Effective Instruction

From the literature review, three factors—the *curriculum* used, *fidelity* of implementation, and *behavior management*—were identified as critical to the success of a multitiered model of instruction (e.g., Barnes & Harlacher, 2008; Fuchs & Fuchs, 2007; Glover & DiPerna, 2007). These prerequisite factors form a base that can increase the success of instruction and any adjustments made to instruction. These factors should be in place within all tiers within RTI, because their absence can make altering instruction significantly less effective (Elliott, Witt, Kratochwill, & Callahan-Stoiber, 2002; Haager et al., 2007; Horner, Sugai, Todd, & Lewis-Palmer, 2005).

First, educators should ensure that research supports the curriculum. By using an evidence-based curriculum, educators give students the best possible chance to be successful because the methods have been effective with other students in controlled research studies. Educators should also structure the curriculum to teach the big ideas of the academic skill for which it is designed (Kame'enui, Carnine, Dixon, Simmons, & Coyne, 2002; Watkins & Slocum, 2004).

Next, educators should monitor that program to determine whether they are implementing it with fidelity or implementing it as intended. By checking fidelity, educators can avoid attributing low student growth to the student's skills or the level of support when poor implementation is actually the culprit. Many curricula come with descriptions indicating how to use them, so educators can use that information to create a brief fidelity checklist or they can conduct direct observations of the components of the curriculum being used.

Finally, educators should create an effective learning environment by adopting an instructional approach to behavior management (Darch, Miller, & Shippen, 1998). Such an approach calls for proactively and explicitly teaching positively stated expectations to students and then providing frequent reinforcement (e.g., "caught being good" tickets) for demonstrating those expectations. The goal is to decrease problem behaviors, thereby increasing instructional time that educators previously spent responding to misbehavior. Together, curriculum, fidelity, and behavior management support an environment conducive to learning and help ensure improved instructional decision making (see box, "Case Study: Early January").

Factors to Intensify Instruction

Educators can use the following nine factors to intensify instruction:

- Time allotted for instruction.
- Instructional grouping.
- Repetitions for success.
- Amount of judicious review.
- Interventionist facilitating the group.
- Pacing.
- Praise-to-corrective-feedback ratio.
- Precorrection.
- Error correction

These factors fit into two categories: instructional planning and instructional delivery. Some of the factors might fit into both of these arbitrary categories. *Instructional planning* refers to factors established before the delivery of instruction, such as the time allotted for instruction. *Instructional delivery* refers to such dynamic factors that occur during instruction as pacing and error correction.

Instructional Planning

In the category of instructional planning, the authors identified five factors that educators can modify to change the intensity of the instruction that a student receives: time allotted for instruction, instructional grouping, repetitions for success, amount of judi-

Case Study: Early January

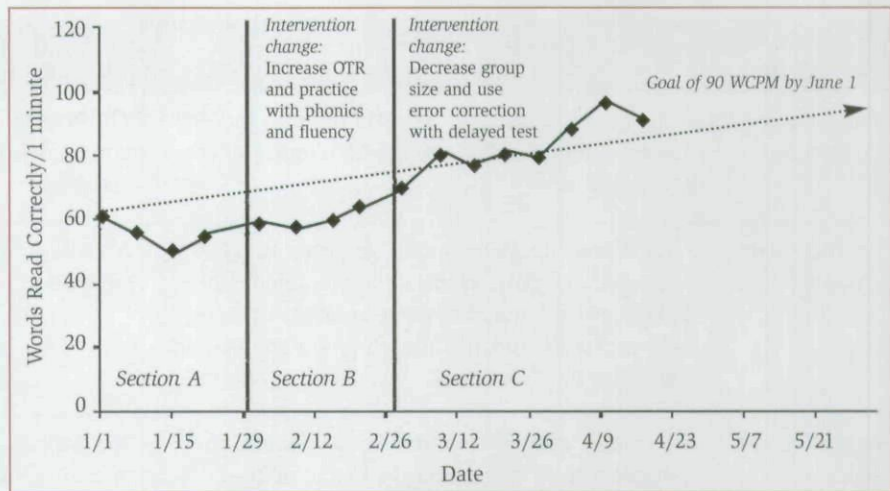
Sammy is a second-grade student at DeMarco Elementary, and he is currently receiving Tier 2 intervention in reading. In January of second grade, he read 59 words correctly per minute (WCPM) with 80% accuracy on an oral reading-fluency measure, which is below the benchmark criterion of 68 WCPM for winter of second grade (DIBELS, n.d.). Sammy receives 90 minutes of differentiated instruction in the five critical areas of reading from the evidence-based core program—that is, 30 minutes of whole-group instruction focused on fluency, vocabulary, and comprehension; as well as 60 minutes of small-group instruction focused on phonemic awareness, phonics, and fluency. As a Tier 2 intervention, he receives 30 minutes of additional instruction daily with a group of eight students. Sammy's Tier 2 group receives 15 minutes of phonics and phonemic awareness, 5 minutes of fluency, and 10 minutes of instruction in comprehension and vocabulary.

Mr. Reid, Sammy's general education teacher, teaches this group within Sammy's classroom. Sammy has received Tier 2 instruction for 6 weeks, and Mr. Reid has been monitoring Sammy's progress toward his end-of-year goal of reading 90 WCPM. During a meeting in late January, the RTI team at DeMarco Elementary noted that Sammy had three consecutive progress-monitoring probes below his aimline and that the educators needed to modify his instruction to help Sammy reach his end-of-year goal (see Figure 1, Section A).

cious review, and interventionist facilitating the group (see Table 1).

Time allotted for instruction. Schools can add more instructional time to enhance the intensity of instruction by increasing the amount of time scheduled and by increasing academic learning time (ALT) within the scheduled time of the intervention.

Figure 1. Progress Monitoring Graph for Case Vignette



Note. OTR = opportunities to respond. WCPM = words read correctly per minute.

Increasing scheduled time is straightforward but is often difficult to implement because of the school's schedule and because of limited resources. ALT refers to the amount of time that students are actively engaged in instruction and are successful (Caldwell, Huitt, & Graeber, 1982). It implies being on task and correctly responding to the task. To improve ALT, schools can decrease the transition time, teach behavioral expectations to increase on-task time (Darch et al., 1998), or adjust the difficulty of the task to match student ability (Kame'enui & Simmons, 1990). Although educators can increase ALT with fewer resources, increasing it often requires professional development and coaching to increase teachers' skills in maintaining high levels of engagement and success. We encourage educators to examine ALT before adding more time, because adding time may not be helpful if students are not engaged and successful.

Instructional grouping. RTI uses differentiated homogeneous grouping, which involves placing students with similar academic skills in the same group. Educators can then alter groupings of students in one of two ways to increase the intensity of instruction. Because students' skills change over time, educators can reshuffle the group to ensure that it is homogenous with respect to students' skills and needs. Another option is to reduce the number of students within the group. A typical Tier 2 group has approximately

eight students, and a Tier 3 group has five or fewer students. Reducing group size is a straightforward method of intensifying an intervention, because a smaller group ensures that students have more practice and opportunities to respond (Harn et al., 2007).

Repetitions for success. To intensify instruction, educators can also manipulate the number of repetitions needed for success. In this sense, repetition refers to the number of times that a student needs to practice a skill before he or she can independently use it. Reitsma (1983) analyzed how much repetition students needed in learning a new word. An average student required between three and eight repetitions, with advanced students needing fewer repetitions and lower-performing students needing more.

When teachers analyze the instruction of a student, they can adjust the amount of repetition that the student receives before introducing a new skill. For example, teachers may require a group of students learning to read words with the *r*-controlled vowel sound "ar" to read words with "ar" without errors for 5 consecutive days instead of 3 before they consider the students to have mastered the skill and before they introduce new letter-sound combinations. Teachers can also give students increased opportunities to practice targeted skills, and they can modify the method of response. For example, a teacher who gives a group of students 2 minutes to practice math

Table 1. Examples of Instructional Planning and Delivery Factors to Increase Student Learning

| Planning Factor | Reading Example | Math Example |
|---|--|--|
| Time allotted for instruction | The schedule includes 30 extra minutes for instruction in addition to the 90 minutes of core instruction. | The academic learning time (ALT) of a math intervention increases by moving the intervention into the classroom to decrease transition time. |
| Instructional grouping | Some students in the group are ready to move ahead in the curriculum, although others make many errors. Teachers move students to other groups so all students in each group are reading at about the same level. | A math group decreases from seven students to four students. |
| Repetitions for success | A teacher decides to introduce new words after students have successfully read and defined words for 5 consecutive days without error instead of 3 days without error. | Teachers ask students to answer math facts in unison to ensure that every student has a chance to practice. |
| Amount of judicious review | A teacher replaces the last 10 minutes of his intervention block with review of previously taught vocabulary words. | Students begin the group by practicing math facts on a "goodbye list" of the math facts that they missed the previous day. When they answer correctly, they wave "goodbye" to the math fact. |
| Interventionist facilitating the group | A general education teacher with extensive reading experience takes over a reading intervention group that a first-year teacher previously taught. | A special education teacher works with students on their math homework when they do not make adequate progress by working with an instructional assistant. |
| Delivery Factor | | |
| Pacing • Opportunities to respond (OTR) | A teacher increases the number of OTRs within a reading/writing group by having students state what they are writing before they write. | Students receive increased OTRs during a math group by using unison oral responding for questions to the group. |
| Pacing • Success rate of student responses | A teacher examines students' accuracy on end-of-unit tests. A student whose accuracy is less than 90% spends more time on the concepts missed during the next week of instruction. | Students spend 2 to 3 minutes at the end of each math intervention working on two or three problems that they learned that day or on previous days. |
| Praise-to-corrective-feedback ratio | A teacher provides stickers on individual cards during instruction when students demonstrate on-task behavior. | Students earn behavior reinforcement tickets for each problem that they answer correctly. |
| Pre-correction | To prevent further mistakes, a teacher underlines word segments on which students have made frequent errors. The teacher also points out the segments before reading the sentence or passage. | A teacher has students scan word problems together as a group to identify relevant versus nonrelevant information before the students work independently. |
| Error correction | A teacher adjusts her error-correction format within a reading group to make it simpler and more concise. Instead of saying "Look at the word. Think about it . . . what is it?" she says "That word is _____. What word?" | A teacher has a peer observe her or his group to make sure that she or he uses error correction each time that a student responds incorrectly. |

computation facts can increase the time to 5 minutes. Students can also practice skills through an increase in any combination of oral, written, choral, or partnered responding.

Amount of judicious review. Judicious review involves systematically incorporating opportunities for students to review material that the teacher has already taught (Hall, 2002; Kame'enui & Simmons, 1990). Judicious review should have sufficient duration; should represent the range of examples necessary for students to master the content; and should be cumulative, so that students continue to review previous topics while the instruction introduces new content (Hall, 2002). Two examples of ways to increase review time are providing additional examples and opportunities to practice within the intervention block (e.g., allocating 10 minutes each day to review previously taught skills) or adding time outside the intervention block (e.g., spending 10 minutes before school to review previously taught skills).

Interventionist facilitating the group. Another option for increasing the intensity of instruction is changing the educator who is working with the students. For example, although the school may assign a general education instructional assistant to work with a Tier 2 group, the school can intensify the instruction by assigning a special education teacher or reading specialist who has more knowledge about teaching struggling readers. In general, more severe academic deficits in the instructional group require that an educator with more background and experience works with the group (Harn et al., 2007).

Instructional Delivery

Effective instructional planning lays the groundwork for a successful lesson, whereas instructional delivery ensures that the lesson is engaging and that students learn. The four factors in the category of instructional delivery are pacing (opportunities to respond and success rate), praise-to-corrective-feedback ratio, precorrection, and error correction (see Table 1).

Pacing (opportunities to respond). Pacing refers to two complementary components: (a) OTRs to instructional demands, and (b) the success rate that students have with the instructional material (Kame'enui & Simmons, 1990). In measuring the students' opportunities to respond to instructional demands, educators may measure pacing by counting the number of student responses during an activity. Although pacing recommendations vary across activities, strong pacing requires an average of 8 to 12 OTRs to individual or group academic prompts each minute (Brophy & Good, 1986). Staff can record the OTRs during instructional time (e.g., through self-monitoring, examining permanent products, having other staff conduct observations) and then increase the number of OTRs if it is low. Educators can increase OTRs by using unison oral responding (Carnine, Silbert, Kame'enui, & Tarver, 2006; Watkins & Slocum, 2004) when answers are short and the same or through partner responses when answers are longer or more varied. Using unison oral responding instead of calling on one student at a time can increase a student's opportunity to practice by six times in a group of six students, thereby increasing engagement and successful practice. Direct observation by another staff member, who counts the number of times that a given student responds during instruction, can help educators determine whether they are attaining a level of OTRs that maintains high levels of academic engagement and learning.

Pacing (success rate of responses). The second component of pacing refers to the speed with which teachers conduct instructional activities on the basis of student success rates (Kame'enui & Simmons, 1990). The

teacher calculates the student success rate by dividing the total number of student responses by the number of correct student responses. When students are successful at least 9 times out of 10 opportunities (90%) they reach mastery more efficiently (Brophy & Good, 1986; Watkins & Slocum, 2004) and reduce challenging behavior (Preciado, Horner, & Baker, 2009). Staff can gauge the student success rate through direct observation, examining permanent products, conducting 1-minute timed oral reading fluency probes and recording errors, or using self-tallying (e.g., the teacher records the specific errors that students make on separate pieces of paper during instruction).

If students are more than 95% accurate with the material, they can independently manage their knowledge and their comprehension of material improves (Tremptow, Burns, & McComas, 2007). Teachers can then incorporate harder, higher level content into lessons. If students are achieving less than 90% accuracy, educators have several options to increase the student success rate. The teacher can provide students with wait time of 3 to 5 seconds, depending on task complexity (Brophy & Good, 1986). Educators can also furnish precorrection, prime background knowledge (Kame'enui et al., 2002), or they can modify the difficulty of the task to better match the students' skill level; for example, a group that is struggling to learn multidigit addition with regrouping can focus on multidigit addition without regrouping until the success rate is higher than

Effective instructional planning lays the groundwork for a successful lesson, whereas instructional delivery ensures that the lesson is engaging and that students learn.

95% (see box, "Case Study, Late January").

Praise-to-corrective-feedback ratio. Praise refers to specific and contingent statements used to acknowledge and reinforce correct academic responses

Case Study: Late January

Before the RTI team meeting in late January, Mr. Reid asked the special education teacher, Mrs. Speck, to observe his group. Mrs. Speck observed that Mr. Reid used effective behavior management by teaching and then rewarding students for meeting expectations.

Mrs. Speck also confirmed that he used the evidence-based curriculum with fidelity and confirmed that the prerequisite factors were in place. Mrs. Speck also noticed that Mr. Reid called on students one at a time to read words and answer simple questions and that Sammy received only five or six turns to practice reading words during the first 5 minutes of instruction (about one turn per minute).

Mrs. Speck shared a strategy that she had used in her instructional groups. That strategy encouraged all students to respond at the same time by using signaling, so that Sammy and the other students in the group could have more OTRs during group instruction. She explained that she asked all the students to look at the word and think about it; and when she slid her finger under the word, every student read the word in unison. Mr. Reid liked the idea because he believed that Mrs. Speck's method would give the students more opportunities to practice and improve student engagement, leading to increased student learning. The team decided to implement that strategy to increase the academic learning time. After examining the accuracy of Sammy's oral reading fluency passages, the team also noted that Sammy was making several errors in reading words, so they decided that Sammy's group needed to spend more time on phonics and phonemic-awareness skills. The content focus of the group was changed to 20 minutes of phonics and structural analysis instruction and 10 minutes of fluency practice incorporating teacher modeling and repeated readings of the text.

(Brophy & Good, 1986), as well as appropriate student behavior (Wolery, Bailey, & Sugai, 1988). In contrast, corrective feedback statements refer to identifying an error that a student makes when responding to academic demands or identifying inappropriate behavior. The recommended praise-to-feedback ratio is at least 5 to 1 to reinforce desired academic and non-academic behaviors (Flora, 2000), because increased specific praise is linked to higher task engagement, higher correct responding, and reduced inappropriate behavior (Sutherland, Alder, & Gunter, 2003). As with pacing, staff can use direct observations by other staff, self-monitoring, or self-tallying during instruction to measure their praise-to-feedback ratios. After examining the ratio of praise to feedback, teachers can modify this instructional factor by increasing the number of praise statements made relative to the number of feedback statements given and by increasing the specificity of their praise. Educators have an array of options to increase the ratio of praise to feedback.

Teachers can review behavioral expectations with students and then reinforce the expectations. One example is a "me-you game" in which students earn points for engaging in appropriate behavior and answering correctly and the teacher earns points when students engage in inappropriate behavior. Whoever has the most points wins the game. This game allows teachers to roughly monitor their praise-to-corrective-feedback ratios

through the point totals and allows teachers to flexibly give points to students without taking earned points away (i.e., in an overt and visual way by giving "you points" along with a praise statement, or silently, with mini-

mal disruption, by giving a "me point" for the teacher). Teachers can also increase the specificity and effectiveness of their praise statements by using specific behavior praise statements. Specific behavior praise statements are specific to a targeted behavior, contingent on performance of that behavior, and focus on the effort and strategies that the student uses (e.g., "I like that you kept working on that problem and then asked me for help"). In contrast, general feedback statements—such as "Good job!" and "Excellent!"—are vague statements that do not clearly communicate what the student did well, although they may help create a more friendly environment (Rathvon, 2008).

Pre-correction. A powerful way to increase student success rates is through pre-corrections. Pre-correction involves identifying areas in which errors commonly occur and purposefully designing instruction to ensure student success with the material (Carnine et al., 2006). Examples include reminding students of a rule before reading a word (e.g., "Remember that the letter 'e' at the end of a word makes a vowel say its name"), thereby drawing attention to features of instruction (e.g., highlighting math symbols), or having visual cues to ensure completion of a task (e.g., using a checklist to locate spelling and grammar errors when writing a paragraph).

Error correction. To prevent students from committing errors to memory, the teacher should furnish error correction as a response to student errors.

Specific behavior praise statements are specific to a targeted behavior, contingent on performance of that behavior, and focus on the effort and strategies that the student uses.

Carefully included error correction allows a teacher to succinctly correct students' mistakes and return the instructional focus to correctly presented material. In general, an error correction consists of immediately identifying

Case Study: Late February

Four weeks later, in late February, the RTI team met again to discuss Sammy's performance. After looking at the progress-monitoring data for all the students in the group, Mr. Reid noticed that all the students demonstrated improved performance with additional practice on phonics and structural analysis and the incorporation of unison responding for practice. Mrs. Speck also reported that Sammy and the other students had many more opportunities to practice, with about 60 opportunities to respond in the first 5 minutes of instruction (about 12 responses per minute). Although all the students were doing better, Sammy's progress was still consistently below the aimline, so the team continued to brainstorm other means for intensifying instruction (see Figure 1, Section B). The team thought that reducing the group size and using a more explicit error-correction procedure could be helpful. The team reduced the group size from eight to six, and Mr. Reid modified the error-correction procedure used during guided reading. Instead of having students reread the word correctly and then continue reading, he asked students to repeat the entire sentence in which they made an error (e.g., If the student misread the word "apple," the teacher would say, "That word is 'apple.' What word?" After the student's response, the teacher would say "Good, now read the sentence again.") The team decided to implement this intervention and monitor progress.

the error, providing the correct response (model), practicing the correct response (test), and then giving the student another opportunity to practice the response after a short delay (delayed test; Carnine et al., 2006; Kame'enui & Simmons, 1990). For example, in reading, the teacher

should immediately correct a student who misreads the word "canyon" by saying, "That word is canyon. What word?" After the student responds, the teacher should say, "Good. Go back to the beginning of the sentence and read it again." This sequence ensures that students know that the response was incorrect, know the correct response, and practice using the correct response (both immediately after the instructional prompt and later during the lesson). Staff can examine the specific language used when providing an error correction—it should be simple, direct, and succinct (Brophy & Good, 1986; Watkins & Slocum, 2004)—and should determine whether students receive corrective feedback and have an opportunity to demonstrate the correct response each time that they make an error (see box, "Case Study: Late February").

Final Thoughts

Educators can use several factors to intensify instruction for students (see Table 1). Although educators can consider these factors in any tier of instruction within an RTI model, this article has discussed these factors in the context of students receiving Tier 2 support. When students do not respond to Tier 1 instruction, educators must respond by providing the students with something more and something different from what they received in Tier 1 instruction. The students' need for additional support requires staff to consider numerous elements of instruction. The authors' purpose was to describe an array of powerful instructional factors that educators can manipulate to intensify instruction for a student or group of students. Any changes to instruction require a solid foundational program; therefore, emphasizing the importance of effective core instruction is necessary. Educators should examine the three prerequisite factors for instruction—curriculum, fidelity, and behavior management—in both core (Tier 1) and supplemental (Tiers 2 and 3) instruction. The list of instructional factors assumes that core instruction is effective, evidence based, rooted in the

Case Study: March and April

When the team reviewed Sammy's progress in March, after four additional weeks, the team noticed that his progress had accelerated and that he was on track for meeting his end-of-year fluency goal, but he had not yet attained the goal of 90 WCPM. The other students in the group were also making strong progress. The team decided to continue the intervention and reconvene after 4 more weeks to determine whether Sammy had met his goal or whether the intervention should continue.

In April, the group noted that Sammy had met his goal (see Figure 1, Section C). The team decided to discontinue the extra instructional support for Sammy so that other students who needed help could receive additional instructional time.

big ideas of the academic content, and implemented with fidelity. If core instruction does not meet these criteria, staff should examine the core instruction in conjunction with any supplemental changes to instruction.

We also encourage staff to make these changes on the basis of instructional data. Because a critical component of RTI is reliance on data to guide instructional decisions (Barnes & Harlacher, 2008), any changes to student programming should be based on reliable data that is valid for its purpose. To illustrate the focus on data-based decision making, the case study centers on this topic. Although the outlined instructional factors are a good starting point when examining methods to modify instruction in an RTI model, this list is not an exhaustive one, and readers should review additional research in the field. Last, while most of the examples discussed in this article are directly relevant to reading instruction, the instructional factors also apply to other content areas (see box, "Case Study: March and April").

References

- Al Otaiba, S. (2005). Response to early literacy instruction: Practical issues for early childhood personnel preparation. *Journal of Early Childhood Teacher Education*, 25, 201-209.
- Barnes, A. C., & Harlacher, J. E. (2008). Clearing the confusion: Response-to-intervention as a set of principles. *Education and Treatment of Children*, 31, 417-431.
- Brophy, J., & Good, T. L. (1986). Teacher behavior and student achievement. In M. C. Wittrock (Ed.), *Handbook of research on teaching* (3rd ed.; pp. 328-375). New York, NY: MacMillan.
- Caldwell, J., Huitt, W., & Graeber, A. (1982). Time spent in learning: Implications from research. *The Elementary School Journal*, 82, 471-480.
- Carnine, D. W., Silbert, J., Kame'enui, E. J., & Tarver, S. G. (2006). *Direct instruction reading*. Upper Saddle River, NJ: Prentice Hall.
- Cummings, K. D., Atkins, T., Allison, R., & Cole, C. (2008). Response to intervention: Investigating the new role of special educators. *TEACHING Exceptional Children*, 40(4), 24-31.
- Darch, C., Miller, A., & Shippen, P. (1998). Instructional classroom management: A proactive model for managing student behavior. *Beyond Behavior*, 9(3), 18-27.
- DIBELS Benchmark Goals. (n.d.). Retrieved from <https://dibels.uoregon.edu/benchmark.php>
- Elliott, S. N., Witt, J. C., Kratochwill, T. R., & Callahan-Stoiber, K. (2002). Selecting and evaluating classroom interventions. In M. Shinn, G. Stoner, & H. M. Walker (Eds.), *Interventions for academic and behavior problems II: Preventive and remedial approaches* (pp. 243-294). Bethesda, MD: National Association of School Psychologists.
- Flora, S. R. (2000). Praise's magic reinforcement ratio: Five to one gets the job done. *The Behavior Analyst Today*, 1(4), 64-69.
- Fuchs, L. S., & Fuchs, D. (2007). A model for implementing responsiveness to intervention. *TEACHING Exceptional Children*, 39(5), 14-20.
- Gersten, R., Compton, D., Connor, C. M., Dimino, J., Santoro, L., Linan-Thompson, S., & Tilly, W. D. (2008). *Assisting students struggling with reading: Response to intervention and multi-tier intervention for reading in the primary grades. A practice guide* (NCEE 2009-4045). Washington, DC: National Center for Education Evaluation and Regional Assistance, Institute of Education Sciences, U.S. Department of Education. Retrieved from <http://ies.ed.gov/ncee/wwc/publications/practiceguides/>
- Glover, T. A., & DiPerna, J. C. (2007). Service delivery for response to intervention: Core components and directions for future research. *School Psychology Review*, 36, 526-540.
- Haager, D., Klingler, J., & Vaughn, S. (2007). *Evidence-based reading practices for response to intervention*. Baltimore, MD: Brookes.
- Hall, T. (2002). *Explicit instruction*. Wakefield, MA: National Center on Accessing the General Curriculum. Retrieved from http://www.cast.org/publications/ncac/ncac_explicit.html
- Harn, B. A., Kame'enui, E. J., & Simmons, D. C. (2007). The nature and role of the third tier in a prevention model for kindergarten students. In D. Haager, J. Klingler, & S. Vaughn (Eds.), *Evidence-based reading practices for response to intervention* (pp. 161-184). Baltimore, MD: Brookes.
- Horner, R. H., Sugai, G., Todd, A. W., & Lewis-Palmer, T. (2005). School-wide positive behavior support: An alternative approach to discipline in schools. In L. Bambara & L. Kern (Eds.), *Individualized supports for students with problem behavior: Designing positive behavior plans* (pp. 359-390). New York, NY: Guilford Press.
- Individuals With Disabilities Education Improvement Act (IDEA), 20 U.S.C. §1400 et seq. (2004).
- Joseph, L. M. (2008). Best practices on interventions for students with reading problems. In A. Thomas & J. Grimes (Eds.), *Best practices in school psychology V* (pp. 1163-1180). Bethesda, MD: National Association of School Psychologists.
- Kame'enui, E. J., Carnine, D. W., Dixon, R. C., Simmons, D. C., & Coyne, M. C. (2002). *Effective teaching strategies that accommodate diverse learners*. Upper Saddle River, NJ: Prentice Hall.
- Kame'enui, E. J., & Simmons, D. C. (1990). *Designing instructional strategies: The prevention of academic learning problems*. Upper Saddle River, NJ: Prentice Hall.
- Lichtenstein, R. (2008). Best practices in identification of students with learning disabilities. In A. Thomas & J. Grimes (Eds.), *Best practices in school psychology V* (pp. 295-318). Bethesda, MD: National Association of School Psychologists.
- National Association of State Directors of Special Education. (NASDSE). (2005). *Response to intervention: Policy considerations and implementation*. Alexandria, VA: Author.
- National Council on Teacher Quality. (2006). *What schools of education aren't teaching about reading and what elementary teachers aren't learning*. Retrieved from http://www.nctq.org/p/docs/nctq_reading_study_exec_summ.pdf
- Preciado, J. A., Horner, R. H., & Baker, S. K. (2009). Using a function-based approach to decrease problem behaviors and increase academic engagement for Latino English language learners. *The Journal of Special Education*, 42, 227-240.
- Rathvon, N. (2008). *Effective school interventions: Strategies for enhancing academic achievement and social competence*. New York, NY: Guilford Press.
- Reitsma, P. (1983). Printed word learning in beginning readers. *Journal of Experimental Child Psychology*, 36, 321-339.
- Sutherland, K., Alder, N., & Gunter, P. L. (2003). The effect of varying rates of opportunities to respond to academic requests on the classroom behavior of students with EBD. *Journal of Emotional and Behavioral Disorders*, 11, 239-248.
- Tilly, W. D., III. (2008). The evolution of school psychology to science-based practice: Problem-solving and the three-tiered model. In A. Thomas & J. Grimes (Eds.), *Best practices in school psychology V* (pp. 17-35). Bethesda, MD: National Association of School Psychologists.
- Tremptow, M. A., Burns, M. K., & McComas, J. J. (2007). Reading at the frustrational, instructional, and independent levels: The effects on students' reading comprehension and time off task. *School Psychology Review* 36, 159-166.
- Vaughn, S., Linan-Thompson, S., & Hickman, P. (2003). Response to instruction as a means of identifying students with reading/learning disabilities. *Exceptional Children*, 69, 391-409.
- Watkins, C. L., & Slocum, T. A. (2004). The components of direct instruction. *Journal of Direct Instruction*, 3, 75-110.
- Wolery, M., Bailey, D. B., & Sugai, G. M. (1988). *Effective teaching principles and procedures of applied behavior analysis with exceptional students*. Boston, MA: Allyn & Bacon.

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