

REMEDIATING READING DIFFICULTIES IN A RESPONSE TO INTERVENTION MODEL WITH SECONDARY STUDENTS

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The research on Response to Intervention (RtI) with secondary students is scant; however, a recently conducted, multiyear, large-scale implementation of RtI with middle-school students provides findings that inform practices and future directions for research. This article provides an overview of the findings from each of the 3 years of an intensive, tiered reading intervention with middle-school students. In Year 1, students were provided with a Tier 1 and Tier 2 intervention. In Year 2, minimal responders were provided with another year of intervention (Tier 3), and again in Year 3, minimal responders to the 2-year intervention were provided with a third year of intervention (Tier 4). Using students' responsiveness to intervention as a prerequisite for a subsequent year of intensive instruction, minimal responders received a total of up to 3 years of intervention. The efficacy of an enhanced primary (Tier 1), secondary (Tier 2), and tertiary (Tier 3) intervention, and an individualized, intensive reading intervention (Tier 4) are discussed, as well as the logistics of implementing an RtI model with secondary students. © 2012 Wiley Periodicals, Inc.

Response to Intervention (RtI) is a multitiered framework for delivering interventions to students who continue to demonstrate low performance and inadequate response to high-quality, research-based instruction (National Association of State Directors of Special Education [NASDSE], 2005; Vaughn & Fuchs, 2003). According to the 2004 reauthorization of Individuals with Disabilities Education Improvement Act, students exhibiting learning difficulties can receive immediate assistance to enhance their academic growth with an RtI approach, without a special education designation. The essential components of an RtI model (see Table 1) include screening, an increasingly intensive multitiered school-wide system for preventing school failure, progress monitoring, and data-based decision making to allow for movement within the tiered model and disability identification aligned with state legislative requirements (National Center on Response to Intervention [NCRTI], 2011). Considering the application of RtI varies for numerous reasons, a substantial body of current research exists that explains how educators can implement an RtI approach with students in the early elementary grades. There are drastically fewer studies available that identify how to design and implement RtI with secondary students who demonstrate reading challenges. Yet, some states, including Colorado, Florida, and Illinois, among others, are adopting an RtI framework as the only process for identifying students with a specific learning disability (SLD; NCRTI, 2010), and the majority of states are adopting an RtI framework as a prevention and an intervention model from kindergarten through 12th grade, in addition to the IQ/Achievement Discrepancy model. However, there is a need for additional research at all grade levels, but particularly secondary levels, to inform the use of RtI.

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Table 1
Application of RTI With Secondary Students

Components	Promising Practices
Screening	<ul style="list-style-type: none"> ● State assessment measure ● Standardized measure of reading comprehension ● Curriculum-based measure
Tier 1	<ul style="list-style-type: none"> ● Align with state standards ● Articulate across grade levels (vertical) and within grade levels (horizontal) ● Differentiate curriculum and instruction ● Supported by school-based professional development ● Direct and explicit evidence-based instruction in: <ul style="list-style-type: none"> ○ Academic, content area vocabulary ○ Reading comprehension ○ Discussion of text meaning and interpretation ○ Motivation and engagement
Progress Monitoring	<ul style="list-style-type: none"> ● Curriculum-based measure ● Content area protocols related to reading in social studies and science ● Written expression ● Maze comprehension ● Passage fluency
Tier 2	<ul style="list-style-type: none"> ● Evidence-based ● Match the reading component with the student's need ● Ensure a structured scope and sequence of instruction ● Align with core curriculum of Tier 1 ● Vary pacing to respond to the student's needs ● Vary text (content and levels) to increase opportunities to generalize skills ● Vary grouping (not too small) to increase opportunities to respond to and receive feedback
Data-Based Decision Making	<ul style="list-style-type: none"> ● Use to make instructional decisions and intervention planning ● Use to determine movement within the multitiered system ● State assessment measure ● Disability identification that is aligned with the state law
Tier 3	<p><i>May Be Considered Special Education Supports and Services:</i></p> <ul style="list-style-type: none"> ● Evidence-based ● More intense application of successful practices in Tier 2 with continuous individualization based on the student's needs ● Monitor regularly and evaluate performance based on established learning trajectories

Note. Aligned with the Institute of Education Sciences Adolescent Literacy Practice Guide (Kamil et al., 2008) and the High Schools Tiered Interventions Initiative (National High School Center, National Center on Response to Intervention, and Center on Instruction, 2010).

Because the majority of reading difficulties can be prevented through adequate instruction in the primary grades, it is critical that reading teachers be well prepared and highly knowledgeable, receiving ongoing support to provide evidence-based instruction, which will likely reduce the number of older students with reading problems (Boardman et al., 2008; Snow, Burns, & Griffin, 1998). There are indications illustrating that older readers can also be responsive to intensive and targeted reading interventions (Edmonds et al., 2009; Scammacca et al., 2007). In other words, there is initial evidence that treating students with reading difficulties in the secondary grades is not too late, particularly if they are given the opportunity to receive extensive and long-term reading interventions (Vaughn et al., 2008).

READING INSTRUCTION PRACTICES WITH SECONDARY STRUGGLING STUDENTS

The growing body of research on instructional methods and intervention approaches with adolescent struggling readers suggests five skill areas necessary for proficient reading performance for older readers: (1) word study, (2) fluency, (3) comprehension, (4) vocabulary, and (5) motivation (Boardman et al., 2008; Roberts, Torgesen, Boardman, & Scammacca, 2008). The research shows that for each skill area, there are several effective teaching strategies to develop student mastery, for example, daily review, explicit modeling and teaching, targeted instruction, guided and independent practice, positive and corrective feedback, teaching for generalization, monitoring student learning, and multiple opportunities for practice (Swanson & Deshler, 2003). Educators should tailor general education instruction to meet students' needs in the five skill areas and implement evidence-based reading practices to improve reading outcomes (Denton, Bryan, Wexler, Reed, & Vaughn, 2007).

Not only are these instructional principles applicable to high-quality instruction, they can be applied to intensive reading interventions. Interventions implemented with secondary, struggling readers need to teach vocabulary explicitly and apply comprehension strategies (Kamil et al., 2008; Vaughn et al., 2008). If students lack the foundational reading skills (e.g., phonics, word reading), then the basic elements of word reading should be combined with vocabulary and comprehension instruction, creating a multicomponent reading intervention to target each skill deficit (Boardman et al., 2008, Vaughn et al., 2008). In an extensive reading comprehension meta-analysis conducted by Edmonds and colleagues (2009), multicomponent reading interventions were shown to be effective (effect size [ES] = .72) for struggling students' reading comprehension in Grades 6 to 12. Scammacca et al. (2007) conducted a meta-analysis of all reading-related outcomes for struggling readers in Grades 4 to 12 and found multicomponent reading interventions to be almost as effective (ES = .56) overall on reading measures, compared with only reading comprehension interventions, as in the Edmonds et al. (2009) analysis. Additionally, results were extremely encouraging (ES = 1.05) for intervening in the middle grades, Grades 4 to 8. Lastly, Wanzek, Wexler, Vaughn, and Ciullo (2009) showed that multicomponent reading interventions were more effective for struggling students in Grades 4 to 5 than for struggling students in the no-treatment comparison condition. These findings suggest that reading interventions that target multiple skill deficits may be beneficial with upper-elementary, middle-school, and high-school-aged struggling students.

RtI With Secondary Students

The essential components of an RtI model are presented in Table 1, and procedures included intend to address the needs of struggling secondary students. In the High School Tiered Interventions Initiative (National High School Center et al., 2010), 20 high school principals who implemented RtI were interviewed. Results showed that there are unique features of an application of RtI in secondary settings that vary from elementary settings. For instance, the focus of RtI in the elementary grades is on early intervening, prevention, and SLD identification, with the outcomes being to help students to achieve and appropriately identify students for special education services and supports. In contrast, the focus of RtI in secondary settings is on remediation, supplemental support, and content recovery, with the outcomes being to pass core courses/examinations and to graduate. This initiative further identified the specific challenges of implementing an RtI framework in secondary settings, such as the roles and responsibilities of staff members, schedules and structures, graduation requirements, and school culture, including the expected practice of teachers discussing how to meet students' needs to support all students in a tiered approach. In addition to these school-level challenges are individual student characteristics, such as reading multiple years behind grade level or a lack of motivation in school due to consistently low achievement, that exacerbate the necessity to read for understanding in highly rigorous content area courses required for promotion to high school and then for graduation.

Table 2
Overview of Findings From an RtI Model With Secondary Students

Year	Research Question(s)	Finding
1	1. What are the relative effects of a secondary intervention (Tier 2) provided in relatively large groups (10–15 students) on the reading-related outcomes of individuals with reading difficulties?	Treatment students showed small gains on measures of decoding, fluency, and comprehension over the course of the year (median $d = 0.16$).
	2. Do students who are assigned to small-group ($n = 5$ students) instruction outperform students in large-group ($n = 10$ students) instruction?	No statistically significant differences were found for students who were taught in a small group versus students who were taught in a larger group.
2	1. What are the relative effects of a tertiary intervention (Tier 3) provided in an individualized versus a standardized approach in groups of 5 students on reading-related outcomes of individuals with reading difficulties?	Treatment students did not demonstrate statistically significant differences between the standardized or the individualized treatment over the course of the year.
	2. What are the relative effects of a tertiary intervention (Tier 3) provided in groups of 5 students on reading-related outcomes of individuals with reading difficulties?	Treatment students showed statistically significant gains on a reading comprehension measure over the course of the year (median $d = 0.23$).
3	1. What are the effects of an intensive, individualized intervention (Tier 4) provided in groups of 2–4 students on the reading outcomes of students with significant reading difficulties who had demonstrated very low growth in 2 years on previous small-group reading intervention, relative to low-growth students in a comparison condition, who received whatever instruction was typically provided to low-performing readers in their schools?	Treatment students demonstrated significantly higher scores than comparison students on reading comprehension (ES = 1.20) and word identification (ES = 0.49), although most students continued to lack grade-level proficiency in reading despite 3 years of intervention.

Note. Research questions and findings cited in Vaughn, Cirino et al., 2010; Vaughn, Wexler, Leroux et al., 2011; and Vaughn, Wexler, Roberts et al., 2011.

Given that a minimal number of robust studies have focused on effective RtI models with secondary students, the purpose of this article is to: (a) provide an overview of an increasingly intensive, tiered reading intervention model implemented with severely struggling middle-school students; (b) discuss the efficacy of an enhanced primary (Tier 1), secondary (Tier 2), and tertiary (Tier 3) intervention, and an individualized, intensive reading intervention (Tier 4), as one alternative for addressing a number of challenges presented at the secondary level; and (c) offer guidelines for the logistics of implementing RtI practices with secondary students. The overall focus of this 3-year research study was to measure the effects of differing intensity on the reading achievement of middle-school struggling readers. The primary research questions investigated each year are presented in Table 2.

AN RTI MODEL WITH SECONDARY STUDENTS

With funding from the National Institute of Child Health and Human Development (NICHD; Fletcher, Francis, Vaughn, & Denton, 2005), researchers studied a multiyear implementation of an RtI model with severely struggling middle-school students. This article summarizes the findings from the 3-year study of interventions with middle-school students (Vaughn, Cirino et al., 2010; Vaughn,

Wexler, Leroux et al., 2011; Vaughn, Wexler, Roberts et al., 2011), which aimed to contribute to the research knowledge about how RtI might be effectively conceptualized and implemented in secondary settings. An overview of the design and findings of this study is included in the following sections: screening; progress monitoring; research-based classroom instruction (Tier 1); and secondary (Tier 2), tertiary (Tier 3), and individualized, intensive interventions (Tier 4). For further exploration of this project, please review the primary efficacy papers found on the Texas Center for Learning Disabilities Web site (<http://www.texasldcenter.org/>) and identified in the reference section of this article.

Screening

Students ($N = 1,867$) in Grades 6 to 8 in middle schools participated for 3 years (2006–2009). The students represented all struggling readers ($n = 1,083$) in seven urban, rural, and suburban middle schools in two large cities in the Southwest. Students were defined as struggling readers if they did not pass (or scored within 1 standard error on) the state's accountability reading comprehension measure, *Texas Assessment of Knowledge and Skills (TAKS)* or were exempt due to special education status. Students receiving special education supports and services were only excluded from the identification procedure if they had more pervasive difficulties and did not receive the majority of their programming in general education. Also, a random selection of typical readers ($n = 784$) was followed to represent the majority of students who passed *TAKS*. The demographic characteristics of the student participants in the treatment and in the comparison condition combined are outlined in Table 3.

Given that the *TAKS* was routinely collected on all students, the researchers explored its psychometric properties. It was determined that the *TAKS* measure had good reliability and validity; therefore, it was chosen as a screening assessment. For example, the Grade-7 test used in 2005 had an internal consistency (coefficient alpha) of .89 (Texas Education Agency, 2006). In a latent variable analysis, Cirino and colleagues (2010) found that the *TAKS* loaded with other reading comprehension assessments. There was a strong overlap of *TAKS* as an identification of struggling readers compared with other norm-referenced assessments in which students performed approximately below the 30th percentile. It was recommended that *TAKS* be followed with a fluency screening measure to help increase its sensitivity and because *TAKS* does not disaggregate students' data according to their reading difficulty; it was also recommended that additional measures be used to provide information about the nature or type of reading problem, for example, decoding.

Table 3
Demographic Characteristics of the Student Participants

	Tier 2	Tier 3	Tier 4
<i>N</i>	327	182	28
Male	48%	57%	69%
Hispanic	40%	47%	61%
African American	46%	40%	31%
Caucasian	12%	11%	8%
Free and Reduced Lunch	79%	86%	92%
Special Education	21%	35%	35%
Limited English Proficient	19%	23%	39%

Note. The *N* includes an intent-to-treat analysis on all available students in the treatment and comparison conditions combined.

Progress Monitoring

Once students qualified for the study based on failing the state test, struggling and typical readers in Grades 6 to 8 were administered several individual and group-based assessments using passage reading fluency and a maze procedure. The frequency and type of progress monitoring measures varied by year of intervention and are discussed in more detail within the following intervention sections. Generally, the *AIMSweb Reading Maze* and the *Passage Fluency* were administered in roughly 2-month intervals to monitor students' reading progress.

Extensive data collection and analyses were completed in this area, as this was also one of the four funded projects of NICHD. Barth and colleagues (2010, 2011, in press) led the analyses of fluency assessments with this population and determined that the students could be accurately subdivided based on instructional reading needs (i.e., decoding, fluency, and comprehension) by adding a 1-minute oral reading fluency probe to the information provided by *TAKS*. This evidence is critical to better understand the rates of growth and the difficulty level of the progress monitoring passages with secondary students.

Multitiered Intervention and Overview of Results

The conceptual definition of each Tier, as described in this study, is explained in the following sections. This RTI model presents one option for remediating reading difficulties in a multitiered intervention with severely struggling secondary students. Fidelity of implementation and quality was observed four times each year. The mean total fidelity ranking ranged from 2.26 to 2.56 on a 3-point Likert rating scale, ranging from 1 (low) to 3 (high). The findings follow the description of each tier and are presented with respect to the implementation of this RTI model.

Research-Based Classroom Instruction (Tier 1). The content area teachers of the assessed students (Grades 6 to 8) in the seven middle schools participated in a total of 6 hours of professional development, monthly meetings, and in-class coaching when requested. Because the focus on this research-based classroom instructional training was to enhance teacher knowledge of vocabulary and comprehension strategies within their content area, the professional development focused on integrating vocabulary and comprehension practices into classroom instruction in each teacher's respective discipline, including science, social studies, math, and English/language arts (see the *Adolescent Literacy Sourcebook*; Denton et al., 2007).

Secondary Intervention (Tier 2). Struggling readers who qualified for secondary intervention (Tier 2) due to failing *TAKS* were randomly assigned to either the (a) treatment condition provided by the research staff or (b) comparison condition provided by the school staff. A third group of students, typical readers, were identified and exposed to Tier 1 enhanced content area instruction, like the treatment and comparison students. The purpose of following the typical readers was to compare a group of students who were meeting the grade-level expectation in reading with struggling readers who were assigned to the treatment versus the comparison condition.

Tier 2 instruction occurred in place of an elective course, such as Art. Tier 2 consisted of a 50-minute period of additional, daily reading instruction taught by a trained teacher hired by the researcher staff. Sixth graders in the treatment condition were in groups of 10 to 15 (Vaughn, Cirino et al., 2010), and 7th and 8th graders in the treatment condition were in either small-group ($n = 5$) reading instruction or large-group ($n = 10$) instruction (Vaughn, Wanzek et al., 2010). The instruction was organized into three phases, and each had a different instructional skill emphasis, although each reading component was included in each phase. For example, Phase I largely emphasized word

study and fluency; Phase II emphasized vocabulary and comprehension; and Phase III focused on the application of reading strategies with expository text.

Results of Tier 2. During the implementation of Tier 2 instruction, the Tier 1 content area teachers participated in professional development to enhance their classroom instruction. Given that all Tier 1 students had teachers who participated in the vocabulary and comprehension professional development, the findings could not be disaggregated separately for the Tier 1 instructional effects. Tier 2 instruction was delivered to students who exhibited a risk for reading difficulties during a daily, year-long, multicomponent reading intervention in groups of 10 to 15 students. Students who received the Tier 2 treatment outperformed students in the comparison condition on several measures, including word attack, spelling, passage comprehension, phonemic decoding efficiency, and the state accountability comprehension test. Although gains were small (median $d = +.16$), treatment students improved reading outcomes on several standard score measures. Students in the comparison condition often participated in tutorials and after-school reading groups in preparation to pass the state reading test. This outcome is noteworthy, as other large-scale research studies found no effects or very small effects with secondary students with reading difficulties (Corrin, Sommers, Kemple, Nelson, & Sepanik, 2008; Kemple et al., 2008). Lastly, no statistically significant differences were found for students who were taught in a small group ($n = 5$) versus students who were taught in a larger group ($n = 10$).

Tertiary Intervention (Tier 3). After 1 year of secondary intervention, students' performance indicated whether they needed additional reading intervention or whether they did not based on a failing score on the *TAKS* measure or a score of less than 90 standard score points on the *Woodcock Johnson III Letter-Word Identification* assessment or the *GRADE Comprehension Composite* assessment at posttest. Students who were defined as "responders" did not continue to receive intervention. They were exited and enrolled in a typical elective course, as their peers were. Students who were defined as "minimal responders" received another year-long, daily, 50-minute reading intervention. This tertiary intervention (Tier 3) was designed to investigate whether students would benefit from a more intensive instructional approach to meet their needs, as is commonly expected in the special education teaching practices. The minimal responders to Tier 2 were randomly assigned to either an individualized instructional approach or a standard protocol instructional approach. Students in the comparison condition who were considered minimal responders remained in their condition and continued to be followed as they received the school-provided instructional supports.

Regardless of the individualized or standardized condition, students were taught the same research-based components of reading instruction (i.e., word study, fluency, comprehension, and vocabulary) in smaller groups, approximately 5 students per group, instead of 10 to 15, as in the secondary intervention. The individualized treatment included the flexibility for teachers to design and implement lessons that were tailored to meet individual student's needs. Emphasis was on interpreting progress monitoring data, diagnostic assessment data, and gathered information using student conferencing time to select texts, motivate students, and adjust instruction to respond to their reading needs. The standard protocol instructional approach followed a three-phase structure as described in the secondary intervention.

Results of Tier 3. Tier 3 instruction was provided to students who were considered minimal responders to secondary intervention and therefore received either an individualized treatment or a standardized treatment. Students in the individualized condition (the condition hypothesized to be most like special education) did not demonstrate statistically significant differences from those in the standardized condition. There were practically significant differences favoring word attack for students in the standardized treatment condition. It may be that using a scope and sequence

instructional approach is more important when influencing word reading outcomes. Possibly, teaching students word reading and word study strategies in an organized approach allows for review of more words and repetition.

However, when students in the individualized treatment condition were combined with the students in the standardized treatment condition, significant differences were found in the reading comprehension of students who received treatment (median $d = 0.23$) versus students in the comparison condition. This finding is considered meaningful because remediating reading difficulties with secondary, struggling students has had minimal or small effects (Kemple et al., 2008; Vaughn, Wexler, Roberts et al., 2011). This can be interpreted as the students who received Tier 3 instruction improved reading comprehension outcomes and made progress in closing the achievement gap of grade-level expectations.

Individualized, Intensive Intervention (Tier 4). Similar criteria were used to determine minimal responders, applying a failing TAKS score or within one-half standard error of measurement of failing. Students who were minimal responders after 2 years of intervention (Tier 2 and Tier 3) received another year-long reading intervention in even smaller groups (approximately 2 to 4 students). This intensive intervention (Tier 4) was designed to provide students with a daily, 50-minute, individualized, intensive reading intervention to target their reading deficits. Students who were minimal responders in the comparison condition were followed for another year.

As in the individualized treatment approach in Tier 3, lessons were planned to remediate students' individual needs in phonics, word reading, fluency, vocabulary, and comprehension. Teachers were trained to use student performance data to inform instructional decision making. Biweekly progress monitoring measures addressed reading components that were emphasized during the timeframe, and teachers used this data to determine how to adjust instruction to meet their students' needs. Time requirements were established to ensure that teachers emphasized the necessary reading components based on students' Year 2 posttest scores. Students with below-average word reading scores were provided more minutes of intensive word study and text reading instruction, whereas students who were adequate decoders spent a majority of their instructional time focused on comprehension of narrative and expository texts (Vaughn, Wexler, Leroux et al., in press). Although teachers followed a scope and sequence when implementing research-based comprehension and word study instruction, they had the flexibility to vary the pacing and teaching practices according to a student's needs. Additionally, teachers addressed student motivation daily and presented students with opportunities to select text, set personal goals with their assistance, and receive positive phone calls home.

Results of Tier 4. Tier 4 instruction was delivered to students who were considered minimal responders to secondary and tertiary intervention. After 3 years of intensified reading intervention in an RtI model, these minimal responders showed improvement on word identification, word reading, and reading comprehension. Treatment students demonstrated statistically significantly higher scores than comparison students on word identification ($ES = 0.49$) and reading comprehension ($ES = 1.20$). This finding must be interpreted with regard to the following. Students in the comparison condition declined on nearly all of the reading measures. Although treatment students showed significant gains compared with comparison students, one must consider that these very low-performing readers participated in 3 years of reading intervention and remained poor readers. The results also suggest that this individualized, intensive intervention, followed by 2 years of daily reading intervention, did not close the achievement gap for students in the treatment group compared with typically achieving students. In spite of this, these minimal responders represent the most at-risk readers of the cohort of students who participated in the intervention from 6th grade and provide evidence that

continued remediation allowed them to maintain growth. These results are imperative, particularly when considering this outcome with respect to the intractable nature of reading difficulties exhibited by these secondary students.

DISCUSSION

This 3-year longitudinal research study sought to answer five major efficacy research questions (see Table 2). Each research question investigated the effectiveness of an evidence-based reading intervention implemented daily for 1 year with severely struggling middle-school readers in an RtI model. Specifically, during Year 1 implementation, content area teachers were provided professional development, defined as an enhancement to Tier 1, as qualified students in Grades 6 to 8 participated in a secondary intervention, Tier 2. The following year, students who continued to demonstrate minimal responsiveness were offered an additional year of more intensive reading instruction in groups of five in a tertiary intervention, Tier 3. A final year of individualized, intensive intervention, Tier 4, was offered to groups of 2 to 4 students who continued to exhibit minimal performance on the state reading assessment. Parallel to the treatment condition, a comparison condition of students continued in the study, applying the same cut-offs as for treatment students. The summary of findings is presented in Table 2, and an interpretation of the outcomes is represented in the promising practices of Table 1 to provide guidance on an application of the essential components of RtI with secondary students.

Screening and Progress Monitoring

As in this study, it may be appropriate to use the state reading assessment and a fluency measure as a screener for reading intervention. Before adoption of the state measure, it is essential to review the validity and reliability of the measure and determine the cut point and standard error. Hock et al. (2009) underscored the need for readily available student assessment data, particularly at the secondary level, that teachers can use for screening and purposes of reading instruction.

Progress monitoring measures, such as passage fluency and maze procedure, are traditionally administered as often as biweekly or monthly, with early elementary students receiving intensive interventions. Contrary to this body of literature (Stecker, Fuchs, & Fuchs, 2005), evidence from Barth et al (2010; 2011; in press), and Espin, Wallace, Lembke, Campbell, and Long (2010) suggest that oral reading fluency may be measured less frequently with secondary students because their reading growth is relatively small over the course of the year. Secondary students typically maintain a level of performance for extended periods, and it may be possible to monitor their progress less often, such as every month and possibly every semester. Furthermore, given that secondary students' reading growth typically plateaus in the later years, it may be more informative to administer proximal measures to monitor students' responsiveness to a task that was taught in a content area. Barth et al. (2010) positions this work with a caveat and notes that repeated and different passages may be useful with secondary students, as well as using curriculum-based measures that represent mastery assessments.

Multitiered Intervention

One of the main findings from this study is that secondary students with significant reading difficulties who were not provided intervention exhibited substantial declines in their reading performance, whereas students who were provided reading intervention maintained reading achievement and did not experience the same decline. Despite the fact that the minimal responders remained poor readers and they did not close the gap compared with their typically performing peers, these significantly struggling readers did not decline, as did their comparison counterparts. This is of major

importance and practically significant to provide a rationale for remediating secondary students with reading difficulties.

As concluded in this study, Hock et al. (2009) also found that secondary struggling readers need different levels of intensity of instruction in all reading components (i.e., word study, fluency, comprehension, and vocabulary). Increasingly intensive evidence-based reading intervention is necessary at the earliest point with secondary students and may require long-term remediation of reading difficulties to prevent further skill deficiency. Perhaps emphasis on preventative practices in an RtI model is of critical consideration in the earliest secondary grades. Secondary students may require a school-wide effort of high-quality research-based content area teachers and remediation reading instruction across multiple classes for multiple years.

Limitations and Implications of RtI With Secondary Students

When investigating students with significant reading disabilities, sample size is often smaller than desired, particularly in an RtI model where students who are “responders” are no longer continued in the treatment and comparison samples. Vaughn and Fletcher (in press) indicated that the traditional RtI model (i.e., 80% of students respond to Tier 1, 15% respond to Tier 2, and 5% require intensive interventions) at the elementary level lacks evidence to apply these same percentages of responsiveness and progress for remediation of students in the secondary grades. In middle and high school, it may be necessary to provide reading interventions throughout students’ schooling to avoid their reading decline and invest efforts in a whole-school model in an attempt to increase instructional practices, such as vocabulary and comprehension enhancements within content area instruction, with explicit, systematic word study approaches for those who need word study instruction.

Deshler (2009) agrees that RtI is different at the secondary level because students are developmentally different and so are the demands of the curriculum. Students must be able to read multisyllabic words, understand academic vocabulary, discuss abstract ideas, and demonstrate comprehension of core content in the form of high-stakes assessments and various writing prompts. These skill sets are required of all secondary students, including students who have demonstrated minimal responsiveness after multiple years of intensive remediation. In an RtI model at the secondary level, it is vital that teachers are able to address the wide range of student literacy needs. Of particular importance is professional development training to increase teachers’ knowledge of evidenced-based literacy enhancement strategies in their content areas, as well as how to efficiently and effectively collect and interpret student data to inform instruction.

Empirical and clinical evidence suggests severely discrepant secondary students can be placed in the most intensive level of the RtI framework (Fuchs, Fuchs, & Compton, 2010; Vaughn & Fletcher, 2010). Rather than waiting for students to demonstrate responsiveness and for some students to further widen the gap in reading, current performance and instructional need may be used to place students in secondary or tertiary interventions (Vaughn & Fletcher, in press). For example, a relevant indicator of a student’s reading performance may be gathered from his or her reading achievement scores. This application of RtI is fundamentally different from the implementation of RtI at the elementary level. It can be concluded that the approach to instruction and intervention is conceptually different in an RtI model with secondary students.

These studies provide several implications for school psychologists. First, school psychologists have a significant role in the successful implementation of RtI models at the elementary and secondary levels. School personnel often perceive the school psychologist as the educational leader, particularly related to issues of screening, progress monitoring, and assessment. School psychologists can capitalize on the findings from this study by establishing cut-off levels based on the

school, district, or state reading comprehension measures to determine the pool of students who might benefit from either further diagnostic testing and/or interventions. School psychologists can also advise educational personnel that students who are in middle school with significant reading difficulties are unlikely to make significant progress quickly and that many of these students will require reading interventions through middle school.

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