A Model for Supplementing Reading Instruction for Young Children With Behavioral Risk Factors

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Children with behavioral challenges are at the greatest risk for chronic school failure (Lane et al., 2002). The response-to-intervention (RTI) model was written into law through the Individuals with Disabilities Education Act of 2004 as a means to identify children with learning disabilities. The RTI model provides for increased intervention based on students’ response to instruction. Another important application of this problem-solving model is to intervene with children who demonstrate academic and/or behavioral need prior to a referral for special education (Vaughn & Fuchs, 2003). Using RTI, educators can begin to screen students’ academic progress in kindergarten. Some children show signs of learning and behavior problems from an early age (Kamps et al., 2003; Lane, O'Shaughnessy, Lambros, Gresham, & Beebe-Frankenberger, 2001) so intervening in the first years of school is critical.

Specific learner characteristics have been found to affect a child’s response to early literacy instruction (Al Otaiba & Fuchs, 2002). Nelson, Benner, and Gonzalez (2003) conducted a meta-analysis to determine the effect of each of these factors. The characteristics that had the greatest effect on RTIs were difficulties with rapid naming, phonological processing, and problem behaviors. In this study, an integrated intervention was designed to teach reading while providing specific behavioral supports. Each component of the research intervention was chosen by the researchers to address the top three characteristics of students found to be resistant to interventions.

In this article, we describe a research study conducted to explore delivering instruction in a tiered model that addresses the reading and behavioral needs of students who are poor readers in the primary grades. Our study begins with students in the winter of first grade and continues through the end of second grade. We also explore the duration of intervention cycles needed for students with risk in reading and behavior to make meaningful gains that change their reading trajectories. Our model included using universal screenings for both reading and behavior to identify students with dual risk, teaching directly to both reading and behavioral needs, and using frequent curriculum-based measurement (CBM) monitoring to document student growth.

A Method for Teaching Reading and Behavior

Screening for Reading and Behavioral Risk in an RTI Model

Universal reading screening. The RTI model for reading calls for universal reading screenings in kindergarten through third grades (Torgesen, 2002). Dynamic Indicators for Basic Early Literacy Skills (DIBELS; Good & Kaminski, 2002) was used in our study as the general reading screening measure for children in the primary grades because it was in place at the host school. Other tools that meet the scientific rigor required by the National Center on Student Progress Monitoring sponsored by the U.S. Office of Special Education Programs may also be used for whole-school screening purposes (see http://www.studentprogress.org/chart/chart.asp).

Our study began when students were screened in the winter of first grade. Three DIBELS subtests served as predictors of end-of-year reading progress. Each subtest was a 1-minute probe to measure nonsense word fluency (NWF), phoneme segmentation fluency (PSF), and oral reading fluency (ORF). Composite scores determine overall reading risk (Good & Kaminski, 2002). DIBELS offers decision rules and instructional recommendations for establishing cutoffs that predict the meeting of early literacy goals. If students’ scores fell below the 15th percentile, the students were determined to have intensive reading needs; students scoring between the 15th and 39th percentile were identified with strategic reading needs; and those with scores greater than the 39th percentile were considered at benchmark or being at low risk for reading difficulties (see Good & Kaminski, 2002). This screening process was used to determine which students required additional instruction in reading and identified potential participants in our study.

Once identified on the screener as needing additional reading interventions, students moved to Tier 1 in the RTI model. The host district differentiated core reading instruction from Tier 1, thus using a four-tiered process. All students received core reading instruction, which consisted of instruction using a basal series. Instruction was provided in phonics, phonological awareness...
(i.e., rhyming, segmenting, and blending activities), weekly vocabulary, reading practice, and comprehension strategies for 45 minutes per day. Students who scored in the intensive need category on DIBELS were targeted for additional reading instruction. This instruction, identified as Tier 1, was delivered by the classroom teacher in small groups with regular (biweekly) progress monitoring with DIBELS probes (National Joint Committee on Learning Disabilities, 2005). Tier 1 instruction was in addition to the core program and focused on phonemic awareness, phonics, and reading practice. Students who did not respond with adequate reading progress during Tier 1 (after 8–12 weeks of instruction) moved to a more intensive level of reading interventions, Tier 2. Adequate progress was defined as a rate and level of progress that predicted achievement of end-of-year reading benchmarks. The second tier intervention occurred outside the classroom with the reading specialist. The Tier 2 intervention was of increased intensity and included weekly progress monitoring (National Joint Committee on Learning Disabilities, 2005). This study describes the Tier 2 intervention.

Universal behavior screening. To identify children with behavior challenges in the classroom, the Systematic Screener for Behavior Disorders (SSBD; Walker & Severson, 1999) was used. Gate 1 was used as the screener for the purposes of identifying children with challenging school behaviors. The tool distinguished between children with internalizing (i.e., “low activity level, shyness, unassertive, avoid or withdraw in social situations, not participating in games/activities”) and externalizing (i.e., “aggression, arguing, defiance, out of seat, noncompliance, tantrums, hyperactivity, not following rules, stealing”) behavioral challenges (Walker & Severson, 1999). Once students were identified by teachers using the SSBD, a list was compiled of the five students from each class whom teachers identified as having the greatest internalizing and externalizing risk characteristics.

Targeting Children With Dual Risk for Small-Group Instruction

The students on the behavior risk list were then cross-referenced with the list of students who were in need of Tier 2 reading intervention. Children who were on both lists were considered eligible participants for the study unless they were already receiving special education services in the area of reading. Parents were contacted by mail regarding the purpose of the study. Parental consent and student assent were obtained prior to instruction. Standardized, norm-referenced measures were administered to all participants to confirm and describe reading and behavioral challenges. The Social Skills Rating Scale (SSRS; Gresham & Elliott, 1990) was completed by the teachers and parents on each student participating in the study. The SSRS was used to describe the extent of each student’s behavior on a standardized scale.

The students on the behavior risk list were then cross-referenced with the list of students who were in need of Tier 2 reading intervention (see Figure 1).

Teaching Reading With Behavior in Mind

Our goal was to develop an intervention that could be implemented and sustained over time within the school’s current structure of Tier 2 interventions. We chose materials already in the school. Consequently, we used the Sonday System 1 (Sonday, 1997) for phonemic awareness and phonics instruction and Great Leaps (Campbell, 1998) for fluency practice.
There are other scientific research-based reading programs that could be used in these components of the intervention (see http://oregonreadingfirst.uoregon.edu/).

**Instructional Group Organization**

The intervention groups met for 30 minutes 4 days per week with progress monitored every 5th day. The group of four students and one teacher met in a room outside of the general classroom. Groups of four or fewer have been shown to be the most effective group size for interventions (Torgesen, 2002). A consistent procedure was taught so that the students entered the room, picked up their folder, took a seat around the table, and placed their behavioral self-monitoring sheet on the table in front of them. Student folders contained Great Leaps materials, sticker reward charts, and progress graphs. All teacher materials were ready prior to students' arrivals so that the full 30 minutes were used for instruction. These materials included: three countdown timers, Sunday teacher’s plan book and program materials, stickers, pencils, student progress-monitoring booklets, and sticky note pads. The teacher kept track of lesson progress by marking the teacher’s plan book; additional anecdotal notes (errors patterns and such) were made on a daily log sheet. A timer was used to ensure that there was adequate time so that all components of the lesson were delivered consistently.

**Lesson Component 1: Phonemic Awareness and Phonics Instruction**

The first component of the intervention package addressed the phonological needs of students with reading challenges. Sonday System 1 is a research-based reading program that teaches phonological skills in a direct and explicit format. The program is soft scripted in that it follows a daily sequence of structured lessons: spell sounds, read sounds, spell words, read words, new learning, and shared reading with suggestions and guidelines given in each category. Specific teacher wording, however, is not included. The curriculum spirals previously taught material so that skills are continually practiced and reinforced. Mastery checks are built into the program at regular intervals, with reteaching lesson plans provided for as-needed use. The Sunday lesson was used with students for 20 of the 30 allotted minutes.

**Lesson Component 2: Fluency Practice**

For the last 10 minutes of each intervention session, fluency was practiced using the Great Leaps program (Campbell, 1998). Students practiced reading passages in pairs. One child timed while the other read for 1 minute, then they switched roles. Students marked on their passage where they were when the timer sounded. Each time, the goal was to complete the passage with two or fewer errors in 1 minute. Students determined when they had practiced enough to accomplish the fluency goal, and then the teacher timed the student. After students passed their timings with the teacher, they marked the number of words in the passage on their fluency monitoring charts.

*Self-monitoring graph.* In addition to the reading probes, Great Leaps provides a graph for student progress that accounts for errors and correct responses per minute. Therrien (2004) found preliminary evidence that the charting component may have a positive effect on fluency gains. We incorporated self-graphing using a standard bar graph. The students could mark or color in the number of sounds or words correct during the fluency portion of each lesson.

**Lesson Component 3: Behavioral Teaching**

A critical element of this intervention was the behavioral teaching component. A structured behavioral reinforcement system was implemented to augment the reading instruction. This system was similar to the Student-Teacher Learning Game (Nelson, Benner, & Mooney, 2008). Students were positively rewarded for both reading and attending behaviors.

The distinction between reading and attending behaviors is an important one because students with reading and behavioral challenges need reinforcement in both areas (Hinshaw, 1992). Reading behaviors include conduct such as tracking, sounding out, pacing, blending, and using learned strategies for decoding unknown words (see Figure 2). Appropriate reading behaviors were modeled and then reinforced through points awarded to students who demonstrated attempts at these behaviors. Points were not deducted for poor reading behaviors; instead, the teacher would intervene so that the student would not practice errors.

Attending behaviors, on the other hand, include such behaviors as eye contact, hands/feet to self, sitting upright, taking turns, raising hands, and such (see Figure 2). Positive and negative examples of appropriate behaviors were regularly modeled for students. Facilitating behaviors were reinforced using a positive point system, whereas interfering behaviors, such as talking out of turn, resulted in point deductions. Points were monitored by the teacher for several weeks and then transferred to the students for self-monitoring. In the Student-Teacher Learning Game, points are totaled at the end of each session, and if student points exceed teacher points, the student gets a sticker for his or her behavior chart. When eight stickers were earned, representing approximately 2 weeks of instruction, a small token prize was awarded. Graphic: t-chart of reading behaviors vs. attending behaviors.

*Monitoring progress.* Effectiveness of the Tier 2 intervention for children with reading and behavioral challenges was obtained through regular progress monitoring using curriculum-based assessments. Consistent progress monitoring has
several distinct advantages. First, it provides the teacher with regular feedback on student performance. This feedback is critical for making future instructional decisions (Deno, 2003; Stecker, Fuchs, & Fuchs, 2005). If students are progressing at a predictable and acceptable pace, then the teacher can continue teaching in the same way; however, if progress is not acceptable or misrules are being learned, the teacher will need to readjust instruction to meet student needs and correct errors.

Second, progress monitoring on a regular basis provides needed feedback for the students (Coleman & Vaughn, 2000; DiGangi, Maag, & Rutherford, 1991). Although these students were young, they were still quite capable of self-monitoring by marking their weekly progress graphs and understanding their progress toward an identified goal. Weekly feedback helped them set their own progress goals, which was an important step toward independent reading. Finally, consistent progress monitoring provided feedback to classroom teachers and parents on student progress.

Student Outcomes

Jose

Jose was an English language learner (ELL) who was considered a limited English speaker through the district eligibility process. He was identified with internalizing behavioral challenges including school anxiety and extreme shyness. Jose had some of the lowest reading scores in the first grade, and both his teacher and parent rated him on the SSRS as having below-average social skills. He was not rated as having significant problem behaviors on the SSRS. He received special education services in speech and language. Jose attended an ELL class for 30 minutes per day working on story-related vocabulary from the general education class text. In addition, he learned and practiced naming vocabulary such as holiday-related (i.e., tooth fairy) and functional vocabulary (i.e., body parts). Jose received 38 weeks of Tier 2 reading interventions (130 sessions, 65 hours) in first and second grades combined.

He made slow but steady progress on oral reading fluency (ORF) throughout the first intervention period, Cycle 1 (see Figure 3). During classroom and Tier 1 reading instruction, Jose's growth of one-half word per week and average correct words per minute (CWPM) of 3.25 were minimal. He demonstrated a positive response to the Tier 2 intervention program in first grade, with a change in rate of growth to 1.14 words per week and an average CWPM of 11.55 after 11 weeks of intervention. He did not, however, meet the end-of-year first grade benchmark of 40 CWPM; in fact, he achieved less than half the expected rate, with a benchmark score of 14 CWPM on end-of-year first grade text.

Jose participated in Tier 2 interventions for 13 weeks in the first half of second grade, Cycle 2. His average CWPM increased substantially to a rate of 22.53, although there was fluctuation in his weekly scores. Importantly, his rate of growth also increased to 1.46 correct words per week. Although he did not make gains at a rate that would meet the midyear benchmark of 68 CWPM, his score of 34 CWPM was more than 3 times his beginning year score. After the winter break, he continued Tier 2 interventions, Cycle 3, with the school reading specialist following the same protocol. Jose ended second grade reading 81 CWPM, missing the benchmark by just 9 CWPM, placing him at the higher end of the "some risk" category. Jose made important gains in second grade, increasing 71 CWPM on grade-level text in 1 school year.

Amos

Amos was also a limited English ELL student, but he had externalizing behavioral challenges. He was rated highly on the SSRS for problem behaviors. 

Figure 2  BEHAVIORAL TEACHING

<table>
<thead>
<tr>
<th>Reading Behaviors</th>
<th>Attending Behaviors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tracking with finger</td>
<td>Sitting in a learning position</td>
</tr>
<tr>
<td>Segmenting and blending</td>
<td>Taking turns</td>
</tr>
<tr>
<td>Tracing to practice sight words</td>
<td>Hands and feet to self</td>
</tr>
<tr>
<td>Pacing</td>
<td>Eyes on the speaker</td>
</tr>
<tr>
<td>Self-corrections</td>
<td>Transitioning smoothly between activities</td>
</tr>
</tbody>
</table>
Amos also made slow but steady progress through the first grade intervention period (see Figure 4). During classroom instruction and Tier 1 interventions in first grade, Amos demonstrated a decreasing trend, meaning he was losing on average 1.50 words per week as measured by ORF. He averaged 5.25 CWPM during classroom and Tier 1 interventions. Amos participated in 11 weeks of Tier 2, Cycle 1, reading interventions with a positive growth rate of 1.73 words per week and an average of 11.91 CWPM. He did not make enough reading fluency growth...
during the first intervention phase to meet the end-of-year benchmark of 40 CWPM, achieving half that rate at 20 CWPM.

Amos began second grade at 15 CWPM on second grade text, which remains in the at-risk range. During the first intervention phase of second grade, Cycle 2, Amos's growth rate nearly doubled at 3.20 correct words per week. His average CWPM during this phase increased almost fourfold to 41.15, although his weekly rate fluctuated during this phase. On the midyear benchmark, Amos read 54 CWPM, placing him in the some-risk category.

Amos continued Tier 2 interventions with the school's reading specialist, replicating the original Tier 2 intervention through the second half of second grade, Cycle 3. During that time, his average CWPM increased to 3.19, with a weekly average of 57.34 CWPM. This increase more than doubled his growth in cycle 2. Amos ended the year in the some-risk category, with 80 correct words per minute. The end of second grade benchmark was 90 CWPM.

Kate was identified as having internalizing behavioral challenges. Her behavioral ratings were not consistent between home and school. Her parent rated her in the average range on the SSRS, but her teacher rated her as having fewer social skills than typical peers. She was also rated by the teacher as being more hyperactive than typical children. Kate received 22 weeks (75 sessions, 37.5 hours) of Tier 2 reading intervention in first and second grade.

Kate was the only student with an increasing rate of growth during classroom instruction and Tier 1 (see Figure 5). Kate's rate of growth was an increase of 3.4 correct words per week, with an average of 8.5 CWPM prior to Tier 2 intervention. Kate's midyear benchmark score of 6 CWPM fell in the at-risk range. That, paired with her teacher's concerns about her progress demonstrated in the classroom and her behavior concerns, made her eligible for Tier 2 interventions. Cycle 1. Kate demonstrated a decrease in the average weekly rate of growth at 1.41 words per week for Tier 2, Cycle 1, whereas her average CWPM increased to 18.45. Her end-of-year benchmark of 26 did not meet the criterion for benchmark of 40 CWPM, placing her in the some-risk category for the isolated ORF score; however, given her strengths in the NWF and PSF, Kate's composite score placed her in the low-risk category. Kate remained eligible for Tier 2 reading intervention at the beginning of second grade. With an ORF score of 21 CWPM on the second grade fall benchmark, Kate scored in the at-risk category. During the 13-week second grade Tier 2 intervention, Cycle 2, her average CWPM more than doubled to 48, with a nearly fourfold increase in average increase of correct words per week at 4.36. Midyear, Kate was reading 70 CWPM on DIBELS and achieved the benchmark for low risk, and she returned to Tier 1 instruction in her classroom (Cycle 3). Although Kate's progress slowed to an average of 0.77 CWPM, she did continue to make progress with less intense interventions. She ended the year at benchmark with 98 CWPM.
Trent

Trent had externalizing behavioral risk. On the SSRS, his teacher rated him high on problem behaviors, but his parent ratings reflected more concern about social skill deficits. Trent received 36 weeks of Tier 2 reading interventions (124 sessions, 62 hours) in first and second grades combined.

Trent had a decreasing rate of growth during classroom and Tier 1 instruction, losing 0.10 words per week with an average of 7.75 CWPM read (see Figure 6). During the Tier 2 intervention in first grade, Cycle 1, Trent’s rate of growth increased, with an average gain of 2.15 correct words per week with an average CWPM of 17.82, more than doubling the previous instructional phase. Trent ended first grade reading 23 CWPM, which fell into the some-risk category. With his strengths in PSF and NWF, his composite score fell in the benchmark range of low risk.

Trent’s second grade fall benchmark score placed him one word per minute above the at-risk category; the school RTI team and classroom teacher felt he should continue in the Tier 2 interventions, Cycyle 2. His rate of growth was an average of 1.12 words gained per week; the number of correct words read per week increased to an average of 32.38, almost doubling from the first intervention period. Trent’s midyear benchmark score of 49 CWPM placed him in the at-risk category; he therefore continued in Tier 2 interventions with the school’s reading specialist.

In the second half of second grade, Cycle 3, Trent’s progress increased to a weekly average of 2.67 CWPM, more than doubling his reading rate to 69.19 CWPM. On the end-of-year benchmark, Trent scored 77 CWPM, placing him in the some-risk category.

Summary/Conclusion

In this study, we measured the effect of a Tier 2 reading intervention on the ORF of students with dual risk factors in reading and behavior. The intervention was composed of three components: direct explicit instruction in phonemic awareness and phonics, fluency instruction and practice with self-monitoring of daily progress, and a structured behavioral support program. We found that all students made adequate gains, with differing amounts of intervention needed to sustain steady growth.

There were early differences in the rate of ORF growth between students based on the behavior category. The two students with internalizing behavior (Jose and Kate) had increasing trends during classroom instruction with Tier 1 supports; conversely, both of the students demonstrating externalizing behaviors (Amos and Trent) had decreasing trends. Certainly, this cannot be generalized with such a small sample, although it would be worthy of additional research. This is particularly true given that all of the students reached benchmark at different rates. Students with externalizing behavior problems have been found to have the poorest academic outcomes (Hinshaw, 1992) and to be more resistant to reading interventions (Nelson et al., 2003). Of concern are the studies that have shown that students with challenging behavior spend more time doing seatwork, worksheets, and time waiting than they do engaged in reading instruction (Vaughn, Levy,
Coleman, & Bos, 2002). It seems to follow that students who spend less time engaging in meaningful reading instruction will have decreased rates of reading growth. Consequently, planning reading instruction to increase engaged time for students with behavioral challenges is critical.

**Decreasing Special Education Referrals: Students With Dual Risk May Need More Time in Tier 2**

A consistent finding across studies is that students with both reading and behavioral challenges often make slow progress compared with their peers who have only reading challenges (Lane, 2004). Therefore, we extended the Tier 2 intervention, ranging from 28 (Kate) to 38 (Jose) weeks. The typical path, at that time, would have been to refer many of these children on to Tier 3, which included a referral for a special education evaluation after two cycles or about 16 weeks of Tier 2 instruction. Students in this study were in Tier 2 intervention groups for more than a school year.

None of the students made adequate gains in the 11-week first grade intervention to justify curtailing the Tier 2 intervention. Furthermore, students approached benchmarks at different rates: Kate, 28 weeks; Amos, 36 weeks; Trent, 35 weeks; and Jose, 38 weeks. Consequently, all participants made adequate growth to justify a return to classroom instruction by the end of the second grade year, and none were referred to special education.

Although students with reading difficulties have been found to respond to interventions in a relatively short period of time (Simmons et al., 2008), students with challenging behavior continually make inadequate gains (Nelson et al., 2003). Given that students with reading and behavior problems have been found to respond inadequately to relatively short-term interventions (less than 20 weeks; Kamps et al., 2003; Nelson et al., 2003), it would be important to determine the amount of time needed in an intervention for this population of students to make meaningful gains. The students in our study ranged from 28 to 38 weeks. Moreover, research for this population must account for the amount of time students are engaged in research-based reading instruction given the findings of Vaughn and colleagues (2002).

**The Importance of Behavioral and Reading Instruction**

Students at risk for behavioral and academic difficulties can be identified at a very young age, often in the first year of school (Kamps et al., 2003; Lane et al., 2001), and the potential long-term negative academic outcomes can be circumvented (Walker, Ramsey, & Gresham, 2004). Results from studies that account for reading and behavior have shown improved academics and a decrease in behavior problems (Stewart, Benner, Martella, & Marchand-Martella, 2007). To support teachers and students, behavior must be accounted for when planning academic interventions. Disruptive and antisocial behavior negatively affects all students in the class (Gresham, 2004; Stewart et al., 2007). Implementing targeted behavior supports during instruction has been found to reduce the number of students with disruptive behaviors from approximately 20% to 5% or less (Stewart et al., 2007). Although decreasing disruptive classroom behavior has immediate benefits for teachers and peers, the biggest winners are the individual students themselves. Students such as Jose, Amos, Trent, and Kate have access to the world of reading and school curriculum because of increased reading skills. Through instruction that targets both reading and behavioral teaching, using evidence-based practices, the progress of these four students highlights the promise of early intervention and the need for the research and teaching community to investigate and explore methodologies that work for this population.

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