In the following report, Hanover Research reviews scholarly literature describing and evaluating the impact of Leveled Literacy Intervention (LLI) and other evidence-based K-8 reading intervention programs.
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EXECUTIVE SUMMARY AND KEY FINDINGS

INTRODUCTION

In this report, Hanover Research examines scholarly literature that discusses K-8 reading intervention program implementation and provides an overview of select reading intervention programs, including Leveled Literacy Intervention (LLI).

The report is organized in two sections, as follows:

- **Section I: Reading Intervention** reviews literature on reading intervention program implementation, with a focus on fidelity of implementation and progress monitoring.
- **Section II: K-8 Reading Interventions** profiles Leveled Literacy Intervention (LLI) and eight additional reading intervention options selected based on What Works Clearinghouse and National Center on Intensive Intervention evidence of effectiveness and application for K-8 classrooms.

Key findings from this research are presented below.

KEY FINDINGS

- **Research suggests that fidelity of implementation can improve teacher efficacy and student outcomes.** However, the district must carefully define and operationalize “fidelity” prior to implementation to ensure all educators understand and have the means to implement the program consistently. Several factors influence a teacher’s ability to accurately implement a program, including the program’s supporting features and professional development, the school context including administrator and teacher beliefs, and teacher experience. Additionally, fidelity cannot proscribe flexibility – teachers must be able to respond to student needs. Programs with “built-in adaptations” are thus easier to implement.

- **Progress monitoring provides ongoing, consistent data that allows appropriate decisions to be made with a student about her or his learning.** Districts should establish a set of curriculum-based measures, or short assessments that gauge all the performance expectations of the year in a consistent way via alternate forms. Researchers disagree about the ideal frequency of progress monitoring, and needs may vary according to a student’s tier or other factors.

- **A review of five major research studies on the effectiveness of Leveled Literacy Intervention (LLI) suggest that the intervention has a neutral to positive impact on literacy for struggling readers.** Several studies found that students participating in LLI made statistically significant improvements on several different reading assessments as compared to a control group. However, these studies do not provide
any evidence of LLI’s effectiveness in comparison to other reading intervention programs.

- **Other interventions vary in scope and specialized intent.** Failure Free Reading serves the “lowest-achieving students” to build a personalized connection to reading. Fast ForWord, Lexia Reading, READ 180, and Read Naturally are computer-based or computer-adaptive learning tools that allow students to improve their reading at an individually-set pace with additional supports based on their performance. Reading Recovery and Sound Partners provide training and materials that allow individual educators, tutors, or volunteers to provide one-to-one supports for struggling learners. Stepping Stones to Literacy is offered as a set of books that young students can work through in the classroom as a way to get more comfortable with reading and help manage behavioral disorders.

- **The costs of the interventions examined in this report vary widely and rely on different pricing structures.** Some interventions price curricular materials and teacher trainings per teacher or per student, whereas other price per level or per training session.
SECTION I: READING INTERVENTION

This section briefly reviews elements of fidelity and progress monitoring in the context of implementing reading interventions for elementary and middle school students. It serves to contextualize the profiles of specific interventions presented in Section II.

OVERVIEW OF READING INTERVENTION NEEDS

Overall proficiency in reading has improved in the past 25 years, according to Grade 4 and Grade 8 National Assessment of Educational Progress (NAEP) reading benchmark assessments. However, much work remains. Achievement gaps persist for racial/ethnic and gender subgroups. Furthermore, though all subgroups have progressed overall, fewer than half of students within most subgroups have achieved proficiency in reading at these benchmark grade levels (see Figure 1.1).\(^1\)

\[\text{Figure 1.1: Proportions of Student Groups Reaching Proficient on Grades 4 and 8 NAEP Reading Benchmarks — 1992, 2011, and 2013}\]

\(^1\) “2013 Reading and Math.” The Nation’s Report Card.
http://www.nationsreportcard.gov/reading_math_2013/#/student-groups
A report series by the Annie E. Casey Foundation (2013) identified several environmental supports that are essential for improving reading by Grade 3 without relying on postponing students’ grade-level advancement. These include teaching the whole child with the whole community, focusing on low-income families, focusing on students who are learning English as a second language, focusing on students with learning disabilities, and incorporating literacy elements into other subject areas. Wanzek and Vaughn (2007) conducted a systematic review of “extensive early reading interventions,” noting that across 18 studies between 1995 and 2005, programs designed for “the smallest group sizes” and targeting students in kindergarten and Grade 1 yielded the “highest effect sizes.” Note that the interventions profiled in Section II are all designed for small-group or individual formats, and most focus on the youngest student groups.

**FIDELITY OF IMPLEMENTATION**

Fidelity of implementation (FOI) is a concept that suggests “that teachers and ancillary personnel should be using research backed or research validated instruction.” This means that districts are applying “a very carefully conceptualized and operationalized process of
instruction” that should have an expected impact on student achievement.4 Several factors influence fidelity of implementation, according to current research. These can include the program’s supporting features and professional development, the school context including administrator and teacher beliefs, as well as teacher experience. Furthermore, research shows the importance of defining fidelity prior to program implementation and having a plan for measuring fidelity using multiple approaches, such as direct observation or self-report.

Fogarty et al. (2014), for example, examine treatment fidelity in a middle school reading intervention with multiple components, with a sample of 859 students and 14 teachers across three sites. Importantly, the authors measure fidelity through multiple components rather than simply “as a function of adherence.” Specifically, they use a composite of FOI that includes “adherence, quality, program differentiation, student responsiveness, and dosage,” and noted that “teachers who had high fidelity scores gained more than twice the annual achievement growth of middle school students on the narrative measure and more than three times annual growth on the standardized reading measure.”5 Hansen, Pankratz, and Bishop (2014) found that teacher experience greatly improved alignment of observer-measured and self-reported fidelity, and that experienced teachers “taught with greater fidelity than novice teachers.”6

Stein et al. (2008) examine the “relationships among teacher support, fidelity of implementation, and student performance” in a two-year, multi-site study of Kindergarten Peer-Assisted Learning Strategies (K-PALS). Teachers at 67 elementary schools in three areas (Nashville, Minnesota, and South Texas) were randomly assigned to one of four treatment groups in terms of professional development and program implementation, including a control group (no training, no implementation). In the evaluation, Stein et al. also examined “measures of teachers’ perception of school context,” which included elements related to instructional coherence, teacher community, principal leadership, teacher efficacy, and attitudes and habits. The authors determine that “much of the gains achieved are mediated by the fidelity with which teachers implemented the K-PALS program.”7 To achieve fidelity, the study points to a number of factors “including the programmatic features of the intervention [e.g., availability of support materials and professional development], the levels of on-site teacher support, and site [e.g., school characteristics].”8

5 Fogarty, M., et al. “Examining the Effectiveness of a Multicomponent Reading Comprehension Intervention in Middle Schools: A Focus on Treatment Fidelity.” Educational Psychology Review 26, 3 (Sep 2014): p. 444. ProQuest Education.
8 Ibid., p. 386.
Barnett et al. (2013) explore methods for documenting FOI in greater detail, reviewing 266 studies on school-based intervention published between 2005 and 2012. They systematically scanned for elements related to “(a) planning measurement of fidelity across phases of the intervention, (b) sampling fidelity occurrences, (c) preventing intervention failure by providing needed supports, and (d) responding to patterns of fidelity required for intervention and outcome measurement in both research and practice.”

Specific practices to support fidelity resulting from this review include:

- Defining and operationalizing “fidelity” prior to implementation of a program
- Using multiple measures to observe fidelity, such as a combination of direct observation, portfolio products, and self-report
- Defining schedules for observation based on “qualities of intervention plans and settings (e.g., situational risk, duration of intervention, contingencies for student behavior, and effects of scheduling of fidelity measurement)”
- Define appropriate supportive responses to observations of low/no fidelity to improve program implementation in situ

To the point about defining fidelity, Harn, Parisi, and Stoolmiller (2013) argue further that there are a variety of structural and process dimensions of fidelity that may vary from field to field (e.g., between medical practice and educational practice) and site to site. As such, one must consider “the fit of the intervention to the school” at the outset as a means of predicting and ensuring fidelity.

One additional component of fidelity may be program flexibility. Feldman et al. (2012) examined implementation of Striving Readers, a middle school literacy intervention, across two years at four Memphis, Tennessee, sites that involved 100 “content-area teachers with no prior experience in literacy integration.” The authors found that “literacy strategies were used more often in intellectually demanding lessons and by teachers who adhered closely to the program model” with a focus on comprehension strategies. One specific practice in this program that seemed to improve fidelity included reliance on graphic organizers, which the authors note are “broadly applicable and available.” Harn, Parisi, and Stoolmiller refer to these as “built-in adaptations” that allow programs to account for “school-level variables […] such as budget, transfers, and principal shifts” and “student-level variables [such as] disability type but also variation in cultural expectations.”

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10 Ibid., p. 105.
13 Ibid., p. 11.
PROGRESS MONITORING

The RTI Action Network explains that progress monitoring “in the context of an RTI prevention model [...] is used to assess student progress or performance in those areas in which they were identified by universal screening as being at-risk for failure.” However, it is difficult to understand best practices in progress monitoring for reading interventions in an RTI model, because research fails to address them. Reed et al. (2014) “systematically reviewed 46 studies conducted with students in Grades K-8 identified as having a reading disability or at-risk for reading failure.” The authors observe that “assessment integrity data are rarely reported.” Similarly, Dexter and Hughes’ review of progress monitoring in 11 math and reading intervention field studies finds significant variation in the frequency of progress monitoring: from “not reported” to weekly.

Nonetheless, Förster and Souvignier (2015) have demonstrated in a study of “958 Grade 3 students (48% female) from 43 classrooms in 19 schools located in and around a medium-sized German town” that progress monitoring has positive effects for both teacher performance — in terms of being better equipped to adapt lessons and pedagogy, for example — and student outcomes.

Romain et al. (2007) emphasize that progress monitoring practices should be consistent across all implementation sites, based on study of Texas Reading First sites and their use of the Texas 3-Tier Reading Model. That is, districts should find a way to select meaningful assessments in advance and standardize their use. This has advantages for both the research perspective and teacher perspective:

This requirement [to choose one’s own means and ways of progress monitoring] adds another variability to the comprehensiveness with which the five essential components [of reading] are assessed within programs and across programs. Further compounding this issue of variability is the exorbitant amount of time required of teachers to familiarize themselves with the assessment materials to a high enough degree that allows them to effectively and efficiently make such decisions. It took reviewers 20-40 h per program [...].

Fuchs and Stecker (2003) distinguish between curriculum-based measurement (CBM) and mastery measurement, with CBM serving as the “gold standard” in progress monitoring. CBM tests the entire curriculum at every interval using multiple forms, with Fuchs and

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Stecker arguing for weekly tests for general education students and twice-weekly for special education students. These are to be formative assessments, in that the authors suggest that teachers “modify instruction as appropriate” in response to data graphed and analyzed at each interval. The RTI Action Network identifies several research-based recommendations for effective progress monitoring tools:

- Available in alternate forms
- Comparable in difficulty and conceptualization
- Representative of end-of-year performance goals
- Short
- Easily administered by the lead educator (e.g., classroom teacher, special education teacher, school psychologist)

Specific CBM examples for reading include the number of correct words read aloud in 1 minute from end-of-year passages, and the number of words correctly restored in 2.5 minutes to end-of-year maze passages.

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21 Ibid., p. 19.
SECTION II: K-8 READING INTERVENTIONS

This section profiles selected K-8 reading intervention programs. It begins with a special focus on Leveled Literacy Intervention (LLI), a keystone in the partner district’s K-8 reading initiative. It then briefly reviews eight other K-8 reading intervention programs recognized by both the National Center on Intensive Intervention and the What Works Clearinghouse.

LEVELED LITERACY INTERVENTION (LLI)

The Fountas & Pinnell Leveled Literacy Intervention (LLI) is a product of Heinemann, a division of Houghton Mifflin Harcourt. It is a system of small-group, supplementary literacy lessons for K-3 “students who need intensive support to achieve grade-level competency.”

Research related to LLI is substantial. Heinemann, the publisher of LLI materials, catalogued internal and independent studies conducted at dozens of districts in recent years. Furthermore, a small number of other researchers have published studies on LLI not publicized by Heinemann. Overall, these studies rely on a range of methodological approaches—including data analyses, surveys, and focus groups—to assess implementation fidelity, program outcomes, and opportunities for improvement.

EVIDENCE ON STUDENT OUTCOMES

Hanover identified five major studies, all published within the past decade, examining the impact of LLI on student outcomes. The methodological rigor of these studies varies. Some researchers employ randomized student selection, demographic matching, and control groups to determine a causal relationship between LLI participation and student outcomes, whereas other studies can only determine a correlational relationship between LLI participation and student outcomes. Likewise, the assessments used to measure outcomes vary, including assessments such as the Fountas and Pinnell benchmarks, the Dynamic Indicators of Basic Early Learning Skills (DIBELS), and the Gates-MacGinitie Reading Test (GMRT). These differences notwithstanding, all seek to determine the efficacy of LLI in increasing early elementary literacy achievement.

Overall, results of both causal and correlational studies suggest that LLI has a neutral to positive impact on multiple measures of literacy among young, struggling readers. The two most methodologically rigorous, independent studies of LLI found that students in LLI intervention groups made statistically significant improvements on the Fountas and Pinnell benchmarks, DIBELS subtests, and the Developmental Reading Assessment (DRA2) as compared to students in control groups who receive no literacy interventions. A less

Footnotes:
rigorous, independent study of LLI likewise found that students who received 12 to 15 weeks of LLI instruction made statistically significant progress on the GMRT. 26 Finally, both of Heinemann’s internal studies found that, for each month students participated in LLI, they made roughly two months of reading progress. 27 In a 2013 Heinemann study, the discrepancy between students’ observed and expected reading scores was also significantly lower after participation in LLI. 28

Although these findings indicate that LLI has a positive impact on student literacy, they do not provide any evidence regarding the impact of LLI as compared to other interventions. Even the most rigorous studies compared the progress of students participating in LLI against the progress of students not participating in any interventions—not against the progress of students participating in other interventions.

Below, Figure 2.1 presents an overview of the major studies conducted on the relationship between LLI participation and student achievement. An asterisk (*) in the Result column indicates that outcomes were statistically significant at the p<.05 level or higher. Specific significance levels are indicated in the Outcomes column.


### Figure 2.1: Studies Examining the Efficacy of Leveled Literacy Intervention on Student Outcomes

<table>
<thead>
<tr>
<th>STUDY AUTHOR(S) AND YEAR</th>
<th>SAMPLE</th>
<th>RIGOR</th>
<th>LLI PROGRAM</th>
<th>OUTCOMES</th>
<th>RESULT</th>
</tr>
</thead>
</table>
| Ransford-Kaldson, C. et al. (2013) | 320 Grade K-2 students in Denver Public Schools | ▪ Control group  
▪ Random assignment  
▪ Demographic matching | ▪ All participating students were below grade level in reading as measured by the DRA2  
▪ Treatment group received LLI for 12-18 weeks  
▪ Control group did not receive LLI, but could receive other reading interventions  
▪ Teachers received eight days of training on LLI  
▪ Fidelity of LLI instruction measured through classroom data and independent observations | ▪ Literacy progress measured by Fountas and Pinnell Benchmarks (“LLI Benchmarks”), DRA2, and STAR  
▪ Overall, the Grade K treatment group made significant improvements as compared to the control group on the LLI Benchmarks (p<.001) and DRA2 (p<.01)  
▪ Overall, the Grade 1 treatment group made significant improvements as compared to the control group on the LLI Benchmarks (p<.01)  
▪ Overall, the Grade 2 treatment group did not make significant improvements as compared to the control group | Neutral to positive* |
| Demers, L. (2013) | 2,679 Grade K-5 students from 114 schools in 11 states | -- | ▪ All participating students selected by individual sites  
▪ LLI delivery varied across sites  
▪ Students received, on average, 18.5 weeks of LLI instruction with 4.4 LLI lessons per week  
▪ Teachers received an average of 24.6 hours of training on LLI from various sources (e.g., districts, universities) | ▪ Literacy progress measured by LLI Benchmarks  
▪ Teacher-reported results indicated that participating students made an average of nine months of reading progress over approximately four and half months  
▪ Discrepancy between students’ observed and expected reading scores was significantly lower at program exit (p<.001) | Positive* |

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<table>
<thead>
<tr>
<th>STUDY AUTHOR(S) AND YEAR</th>
<th>SAMPLE</th>
<th>RIGOR</th>
<th>LLI PROGRAM</th>
<th>OUTCOMES</th>
<th>RESULT</th>
</tr>
</thead>
</table>
| Ward, E. (2011)\(^{31}\) | 4,881 Grade K-5 students from 238 schools across the United States and Canada | -- | ▪ Selection of participating students determined by individual sites  
▪ LLI delivery varied across sites  
▪ Students received, on average, 17 weeks of LLI instruction with 4.6 LLI lessons per week  
▪ Teachers receive an average of 20.2 hours of training on LLI from various sources (e.g., districts, Heinemann, universities) | ▪ Literacy progress measured by LLI Benchmarks  
▪ Teacher-reported results indicated that overall, participating students averaged eight months of reading progress over 17 weeks (4.2 months)  
▪ ELL students averaged eight months of reading progress over 16.9 weeks  
▪ Special education students averaged 7.5 months of reading progress over 18.5 weeks | Positive |
| Ransford-Kaldson, C. et al. (2010)\(^{32}\) | 427 Grade K-2 students from rural Georgia and suburban New York | ▪ Control group  
▪ Random assignment  
▪ Demographic matching | ▪ All participating students were identified as eligible for LLI by their districts  
▪ Treatment group participated in LLI for an average of 37.5 instruction days (Grade K) and 72.9 instructional days (Grades 1-2)  
▪ Control group did not receive any pull-out literacy interventions during study period  
▪ Teachers received eight days of training on LLI  
▪ Fidelity of LLI instruction measured through classroom data and independent observations | ▪ Literacy progress measured by LLI Benchmarks and DIBELS  
▪ Overall, the Grade K treatment group made significant improvements as compared to the control group on the LLI Benchmarks (p<.001) and DIBELS Nonsense Word Fluency (NWF) (p<.05)  
▪ Overall, the Grade 1 treatment group made significant improvements as compared to the control group on the LLI Benchmarks (p<.001) and DIBELS NWF (p<.01)  
▪ Overall, the Grade 2 treatment group made significant improvements as compared to the control group on the LLI Benchmarks (p<.001) | Neutral to positive* |
| Harrison, L. et al. (2008)\(^{33}\) | 165 Grade K-2 students in a large urban school district | -- | ▪ Teachers selected students for the intervention  
▪ Participating students received 12 to 15 weeks of LLI instruction  
▪ Teachers received eight LLI training sessions | ▪ Literacy progress measured by Gates-MacGinitie Reading Tests (GMRT)  
▪ Participating students at all grade levels made significant progress on GMRT (p<.001)  
▪ Kindergarten students made the largest amount of progress on GMRT (p<.001, effect size=2.23) | Positive* |

**EVIDENCE ON IMPLEMENTATION**

A subset of the studies on LLI’s impact on student outcomes also examines LLI implementation and perceptions of LLI among school and district staff. Typically gathered through surveys, phone interviews, and focus groups, this information explores how implementation factors impact student outcomes and which implementation factors staff perceive as program benefits and/or challenges.

**FACTORS AFFECTING LLI**

A number of factors may affect the efficacy of LLI interventions. According to Ransford-Kaldson et al., both factors directly related to LLI (e.g., teacher training on LLI) and factors peripherally related to LLI (e.g., school support for general literacy instruction) can impact student literacy scores. Below, Figure 2.2 reproduces Ransford-Kaldson et al.’s model of the factors affecting the impact of LLI interventions.

![Figure 2.2: Factors Affecting Impact of LLI Interventions](source: Ransford-Kaldson, C. et al. (2013)\textsuperscript{34})

Current research offers limited insights on two of the above factors: program fidelity, and program length. Ransford-Kaldson et al. investigated the extent to which teachers implemented LLI with fidelity to the original program design in their 2010 and 2013 studies on LLI and elementary student outcomes. In each study, the researchers relied on classroom data and independent observations to assess how well teachers implemented LLI in regards to a number of components, such as re-reading, phonics/word work, and classroom-home connections.35 This data revealed that the teachers—all of whom received approximately eight days of professional development centered on LLI36—implemented the program with “a high degree of fidelity to design” at multiple points in the school year.37

Despite the teachers’ success in implementing LLI, however, Ransford-Kaldson et al. offer educators several recommendations to further enhance program fidelity:38

- Provide professional development for building principals and central office supervisory staff
- Involve regular classroom teachers in LLI trainings to help familiarize them with the program and its features
- Share scenarios demonstrating how adopters successfully schedule LLI for 30 minutes a day, five days a week
- Share lesson plans demonstrating how LLI teachers successfully organize LLI to accomplish instructional goals in 30 minutes
- Provide parents with videos showing how LLI works to illustrate how they should be working with their child

OTHER K-8 READING INTERVENTIONS

To select additional elementary and middle school reading interventions to include in this review, Hanover used two inclusion parameters:

- The intervention must be a featured reading intervention at the National Center on Intensive Intervention at the American Institutes for Research, with convincing or partially convincing evidence for at least three of the five review categories39

The U.S. Department of Education’s What Works Clearinghouse (WWC) must classify it as a literacy intervention with positive or potentially positive effects for Grades K-8 students, where the extent of evidence is rated and at least small. 40

Ultimately, eight interventions met these qualifications: Failure Free Reading, Fast ForWord, Lexia Reading, Read 180, Read Naturally, Reading Recovery, Sound Partners, and Stepping Stones to Literacy. Figure 2.3 below summarizes the WWC’s findings for these eight interventions, some of which have multiple entries. Brief profiles of each intervention follow, focusing on describing the intervention and summarizing key empirical studies of the efficacy of each program. Note that we limit our study of empirical research on these interventions to the most recent decade (2006-present).

Figure 2.3: WWC Intervention Summary Reviews

<table>
<thead>
<tr>
<th>INTERVENTION</th>
<th>SUBSET</th>
<th>GRADE LEVEL(S)</th>
<th>IMPROVEMENT INDEX*</th>
<th>EFFECTIVENESS RATING**</th>
<th>EXTENT OF EVIDENCE***</th>
</tr>
</thead>
<tbody>
<tr>
<td>Failure Free Reading</td>
<td>BR: reading comprehension</td>
<td>3-10</td>
<td>10</td>
<td>Potentially positive</td>
<td>Small</td>
</tr>
<tr>
<td>Fast ForWord</td>
<td>BR: alphabetics</td>
<td>K-3</td>
<td>6</td>
<td>Positive</td>
<td>Medium to Large</td>
</tr>
<tr>
<td></td>
<td>AL: reading fluency</td>
<td>3-10</td>
<td>17</td>
<td>Potentially positive</td>
<td>Small</td>
</tr>
<tr>
<td></td>
<td>AL: reading comprehension</td>
<td>3-10</td>
<td>8</td>
<td>Potentially positive</td>
<td>Small</td>
</tr>
<tr>
<td>Lexia Reading</td>
<td>BR: alphabetics</td>
<td>K-1</td>
<td>11</td>
<td>Potentially positive</td>
<td>Small</td>
</tr>
<tr>
<td></td>
<td>BR: reading comprehension</td>
<td>K-1</td>
<td>11</td>
<td>Potentially positive</td>
<td>Small</td>
</tr>
<tr>
<td>Read 180</td>
<td>AL: reading achievement</td>
<td>4-9</td>
<td>12</td>
<td>Potentially positive</td>
<td>Medium to Large</td>
</tr>
<tr>
<td></td>
<td>AL: reading comprehension</td>
<td>4-9</td>
<td>4</td>
<td>Potentially positive</td>
<td>Medium to Large</td>
</tr>
<tr>
<td>Read Naturally</td>
<td>BR: general literacy achievement</td>
<td>2-4</td>
<td>10</td>
<td>Potentially positive</td>
<td>Small</td>
</tr>
<tr>
<td></td>
<td>SLD: writing achievement</td>
<td>4-6</td>
<td>13</td>
<td>Potentially positive</td>
<td>Small</td>
</tr>
<tr>
<td>Reading Recovery</td>
<td>BR: reading fluency</td>
<td>1</td>
<td>46</td>
<td>Potentially positive</td>
<td>Small</td>
</tr>
<tr>
<td></td>
<td>BR: reading achievement</td>
<td>1</td>
<td>27</td>
<td>Positive</td>
<td>Small</td>
</tr>
<tr>
<td></td>
<td>BR: alphabetics</td>
<td>1</td>
<td>21</td>
<td>Potentially positive</td>
<td>Small</td>
</tr>
<tr>
<td></td>
<td>BR: reading comprehension</td>
<td>1</td>
<td>14</td>
<td>Potentially positive</td>
<td>Small</td>
</tr>
<tr>
<td>Sound Partners</td>
<td>BR: alphabetics</td>
<td>K-1</td>
<td>21</td>
<td>Positive</td>
<td>Medium to Large</td>
</tr>
<tr>
<td></td>
<td>BR: reading comprehension</td>
<td>K-1</td>
<td>21</td>
<td>Positive</td>
<td>Medium to Large</td>
</tr>
<tr>
<td></td>
<td>BR: reading fluency</td>
<td>K-1</td>
<td>19</td>
<td>Positive</td>
<td>Medium to Large</td>
</tr>
<tr>
<td>Stepping Stones to Literacy</td>
<td>BR: alphabetics</td>
<td>K</td>
<td>30</td>
<td>Positive</td>
<td>Small</td>
</tr>
</tbody>
</table>

Source: What Works Clearinghouse

Notes: BR=beginning reading; AL=adolescent literacy; SLD=students with learning disabilities

*The expected change in percentile rank for an average comparison group student if the student had received the intervention.

**A potentially positive rating indicates evidence that intervention had a positive effect on outcomes with no overriding contrary evidence. A positive rating indicates strong evidence that intervention had a positive effect on outcomes.

***A small extent of evidence includes only one study, or one school, or findings based on a total sample size of less than 350 students and 14 classrooms (assuming 25 students in a class). A medium to large extent of evidence includes more than one study, more than one school, and findings based on a total sample of at least 350 students or 14 classrooms.

FAILURE FREE READING

Failure Free Reading seeks to offer “new hope for non-readers” by teaching reading “without phonics” and using “a combination of teaching, text and technology.”41 It is advertised for use with “the very lowest-achieving students.”42 The company offers ten “solutions,” or packages designed for specific needs, including:

- Elementary (K-5)
- Secondary (6-12)
- Verbal Master
- Life Skills
- ELL
- RTI
- Deaf Education
- Train and Try
- Elementary Single Level
- Life Skills Single Level

Overall, results of both causal and correlational studies suggest that Failure Free Reading has a neutral to positive impact on multiple measures of literacy among young, struggling readers. Most significantly, the only study of Failure Free Reading with a control group design found that the intervention has a substantively (but not significantly) positive effect on reading comprehension; however, the intervention had no noticeable effect on phonemic decoding or word reading accuracy and fluency.44

Correlational studies without control groups typically found that Failure Free Reading has a significantly positive effect on the literacy growth of struggling readers in early elementary school. In a study of 39 students in special education programs, for example, Rankhorn found that students receiving 30 minutes of Failure Free Reading instruction five days a week for approximately seven months saw statistically significant score improvements on all sub-tests of the Woodcock Johnson Tests of Achievement.45

FAST FORWORD

Fast ForWord is a product of Scientific Learning Products, with PK-12 reading, elementary language, and middle/high school literacy variations available.46 Each FFW product is a computer-based training program that helps students develop mastery and confidence at their own pace, designed to support a Response to Intervention approach.47 “The keys to

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the success of the Fast ForWord program are,” the authors of one study write, “diligent attendance by the students in the program and successful completion of the program’s exercises.”

Results from classroom settings yield potentially promising results. Specifically, independent studies show that Fast ForWord does help students make gains in reading and phonics overall, but cannot demonstrate comparative value over other treatments nor gains as large as those claimed by the producer. For example, Borman, Benson, and Overman (2009) studied 141 Grade 2 and 274 Grade 7 students in eight Baltimore City Public Schools sites. Students in the treatment group were tasked with 90-100 minute daily training sessions for the administration period, which was a minimum of 20 school days. In this non-clinical setting, they found an “exemplary” fidelity of implementation at all levels of programming, but “few encouraging signs of academic benefits approaching those claimed by the program’s developers.”

Gillam et al. (2008) used Fast ForWord Language (FFW-L) as one of four randomly-assigned treatments — to ensure all students were given support, there was no traditional control group receiving no treatment — among a group of 216 children ages 6-9 years with language impairments. They found that children “who received FFW-L did not fare better than children in other language interventions of equal intensity,” with one exception. In a measure of phonological awareness, FFW-L and computer-adaptive language intervention demonstrated longer-held gains over the other two treatments. Loeb et al. (2009) tested a subgroup of the Gillam et al. study including 103 children ages 6-9 years, again with multiple treatments, finding short-term and long-term gains among all treatments. They argue that the program’s “acoustically modified speech was not a necessary component for improving phonemic awareness.”

LEXIA READING

Lexia Reading, a product of Lexia Learning, offers preschoolers through Grade 12 students opportunities to “build, intensify, and accelerate” reading skills. Available as an application for Apple and Android devices, this is a technology-based and student-driven intervention. It focuses on five essential reading skills aligned with the Common Core State Standards: phonological awareness, phonics, vocabulary, fluency, and comprehension. The producer and independent reviews emphasize the importance of Lexia Reading’s “immediate

feedback” and scaffolding, which may include “simplifying the task by reducing choices, adjusting the complexity of language, altering the presentation and visual components of the task or providing embedded support.”53

**One recent independent study of Lexia Reading is highly critical of both Lexia’s promoted studies and the overall value of the program.** Ness, Couperus, and Willey (2013) examined the efficacy of Lexia Reading for a cohort of 37 students in New Zealand primary school, who received the treatment for at least 100 minutes weekly “for a single school term in 2010. Some students had significantly more time than this.”54 The authors find results that are “very disappointing” compared to the results promoted by Lexia, in that there were no statistically significant gains in reading. Instead, the authors suggest that “the benefits of LR lie not necessarily in the computer instruction medium, but rather in [the] support teachers […] provide students with targeted one-to-one instruction in specific skill areas” when students fail a task three times in self-directed learning.55

However, Dawson and D’Souza (2015) emphasize that Lexia Reading as studied by Ness, Couperus, and Willey is now an “outdated” version of itself, with Lexia Reading Core5 and Lexia Strategies for Older Studies (SOS) serving as the most-current iterations.56

**READ 180**

READ 180 is a product of Scholastic,57 described on the vendor website as “the leading blended learning solution for struggling readers in grades 4-12+.”58 The 90-minute instructional model includes whole-group instruction (20 minutes), small group rotations (20 minutes in each rotation; 60 minutes total), and whole-group wrap-up (10 minutes). The small-group rotations consist of direct instruction, instructional software, or independent reading. The program is multi-modal and includes computer software, texts, workbooks, audiobooks, and CDs, as well as direct instruction in reading skills.59

This intervention exhibits many best practices in reading intervention modeling, according to research. Slavin et al. (2008) reviewed 33 studies on reading interventions in a meta-analysis of best practice. They commented that cooperative learning was a common feature

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55 Ibid., p. 21.
of the successful reading interventions: “These programs all rely on a form of cooperative learning in which students work in small groups to help one another master reading skills and in which the success of the team depends on the individual learning of each team member.” In addition, this study observes that mixed-method models, such as READ 180 and Voyager Passport, demonstrate “good evidence of effectiveness.” Mixed-method models combine large-group, small-group, computer-assisted, and individual instruction.60

However, other research suggests that READ 180 is not necessarily better than other programming. Kim et al. (2009) examined the use of the program with a sample of 294 Grade 4-6 students, who were randomly assigned to a treatment group for 4 days of instruction per week over a period of 23 weeks. They tested this intervention against a “district after-school program.” Kim et al. found “no significant impact” of READ 180 on “norm-referenced measures of word reading efficiency and reading comprehension and vocabulary” compared to the district program, but they modified the READ 180 program to a 60-minute rather than 90-minute timeframe and eliminated “teacher-directed whole-group lessons.”61

**READ NATURALLY**

Read Naturally is a provider of technology-based “transformative products” for reading comprehension and vocabulary based on the work and classroom experience of Candyce Ihnot.62

Results of multiple causal studies suggest that Read Naturally has a neutral and/or positive impact on multiple measures of literacy among young, struggling readers. Notably, most of the studies investigating the impact of Read Naturally use rigorous designs that include features such as control groups, comparison groups, random assignment, and demographic matching. Some of these studies indicate that Read Naturally leads to significant improvement in literacy: In 2010, for example, researchers Tucker and Jones compared the progress of treatment students receiving 30 minute Read Naturally intervention four days per week for 10 weeks in addition to general curriculum against the progress of control students who only received the general curriculum and found that the treatment students made statistically significant improvements on measures of reading fluency, rate, and accuracy as compared to the control group.63

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However, some studies indicate that Read Naturally only has a neutral impact on literacy when compared to other reading interventions. In 2010, Arvans found that students in Read Naturally treatment groups and students who only received the general literacy curriculum both made statistically significant improvements on all reading measures. Discussing these results, Arvans suggested that the students’ exposure to Read Naturally—half the timespan she originally intended—may not have been long enough to produce significant results. Similarly, Kemp found that students in Read Naturally treatment groups did not achieve significantly higher results on measures of alphabetics, reading fluency, and comprehension than a control group who participated in sustained silent reading.

**READING RECOVERY**

Reading Recovery is a one-to-one specialist-based program offering daily 30-minute breakout sessions for struggling Grade 1 readers for a period of 12 to 20 weeks. In one sense, then, Reading Recovery is a professional development method as much as an intervention, and the producer emphasizes the “powerful” role it can play as part of a Response to Intervention system. An overview pamphlet notes that “initial training for Reading Recovery teachers includes: a full academic year of weekly graduate-level coursework, teaching at least four first-grade children daily in individual 30-minute lessons, keeping complete records on each child as a basis for lessons.” After initial training, these new specialists “participate in a minimum of six [continuing education] sessions a year.” Cox and Hopkins (2006) observe that this approach to intervention builds upon a system of research-based assumptions about development that allow individual students to construct their own meaningful approaches to reading.

Research shows this program can be quite effective as both an initial intervention and a method of identifying further need. Gapp, Zalud, and Petrzak (2009) followed 176 students in three year-cohorts from six school districts who had participated in Reading Recovery and either successfully discontinued the program or were recommended for further support. The authors used Grade 3, 4, and 5 Dakota STEP standardized assessments as a measure of the long-term impact of the program on student achievement. Both students who successfully discontinued the program and those who were recommended for further intervention seemed to have benefited from the experience, in that “the majority of

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http://scholarworks.wmich.edu/cgi/viewcontent.cgi?article=1646&context=dissertations
65 Ibid., pp. 50–51.
66 Kemp, S. C. “Teaching to Read Naturally: Examination of a fluency training program for third grade students.”
68 “Quick Answers to Common Questions.” Reading Recovery.
http://www.readingrecoveryworks.org/pdfs/Reading_Recovery_FAQ.pdf
students in both end of program intervention groups (discontinued and recommended action) were at the proficient or above performance levels and performing average or above on the norming curve by their 5th grade year.”71

Many researchers draw attention to the importance of the trained teacher in Reading Recovery, noting that the impact and value of this intervention depends principally on the school site’s new specialist and the time s/he has to deliver individualized support to each student in need. Reading Recovery provides a method and a network of support for reading teachers.72 Gallant and Schwartz (2010) reflect this position, commenting on the value of Reading Recovery as a way for teachers at all levels to develop a deeper understanding of the reading development process.73

**SOUND PARTNERS**

Sound Partners is a product of Voyager Sopris Learning designed for K-2 learners and as an intervention for Grades 2 and 3. It is a tutoring-based program in early phonics, relying on trained specialists such as “tutors, paraprofessionals, and assistants” to work with young readers to improve skills related to “phonemic awareness, decoding, word identification, and spelling skills.”74

Researchers emphasize the value of Sound Partners in bringing in paraprofessional and non-teacher volunteers into the support system for struggling young readers. Calderon, Slavin, and Sanchez (2011) were particularly interested in intervention options for English learners, and commented that “structured phonetic models” like Sound Partners provide important means to rely on “well-trained, well-supervised paraprofessionals” as tutors.75 Similarly, Sound Partners was briefly mentioned in the meta-analysis by Ritter et al. (2009) examining the role of volunteer tutoring programs to support K-8 students.76

**STEPPING STONES TO LITERACY**

Stepping Stones to Literacy is currently a product of Voyager Sopris Learning, originally authored by Nelson, Cooper, and Gonzalez. It is a 25-lesson system to build phonemic awareness in preschool, kindergarten, and Grade 1 students “at risk for reading failure.”77 In an article published online at the Johns Hopkins School of Education website, Nelson

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72 Pinnell, G.S. “Every child a reader: What one teacher can do.” *The Reading Teacher* 60, 1 (Sep 2006): 78-83. ProQuest Education.
elaborates that these lessons are delivered in short pull-out sessions of 15-20 minutes, or 9-15 hours total, in an individual or small group format. He emphasizes the following “conditions for success:”

- Instructors follow the lesson formats and instruct children every day. Instructors do not improvise, leave out part of the lessons, or skip days. A self-evaluation treatment fidelity form is used on regular basis by instructors to ensure that they following the lesson formats as prescribed.
- Instructors are highly engaging and positive.
- Instructors are well-organized, use a brisk pace, and provide children encouragement and feedback throughout the lessons.
- Instructors get to know the children’s instructional needs and adjust the level of scaffolding or support they provide them (i.e., vary the level of task demands in response to the child’s competence) and opportunities to respond or practice the pivotal early literacy skills covered within each lesson. Furthermore, instructors adjust their pacing within as well as across lessons to ensure children acquire the pivotal early literacy skills.
- Instructors monitor children’s strength and weakness by carefully observing them and tracking their performance over time.

Benner et al. (2010) included Stepping Stones to Literacy in a larger meta-analysis of interventions that support the prevention and management of behavioral disorders. Benner and Nelson often link this intervention to opportunities to help students with emotional disturbance, behavioral disorders, and related challenges.
COST COMPARISON OF SELECT K-8 READING INTERVENTIONS

In the following table, Hanover presents cost comparisons of LLI, Failure Free Reading, Fast ForWord, Lexia Reading, Read 180, Read Naturally, Reading Recovery, Sound Partners, and Stepping Stones to Literacy. Pricing information is drawn from reports on the NCII website, unless otherwise specified.

Figure 2.4: Reading Intervention Cost Comparisons

<table>
<thead>
<tr>
<th>PROGRAM</th>
<th>CURRICULUM COST</th>
<th>TRAINING COST</th>
<th>AVERAGE COST PER STUDENT</th>
<th>REPLACEMENT COST PER STUDENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>LLI 82</td>
<td>Grade level systems: $1,787.50-$3,093.75 depending on the grade level</td>
<td>Training not required</td>
<td>$84.79</td>
<td>$29.24</td>
</tr>
<tr>
<td>Failure Free Reading 83</td>
<td>$3,000 for a site-level curriculum library + $100 per twelve-month online subscription seat or $300 per thirty-six month licensed seat + If more than 2 or 3 teachers use the program, more materials may be needed</td>
<td>$900 for a half-day onsite or $300 for a three hour webcast</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Fast ForWord 84</td>
<td>Initial cost of $280 per student (annual subscription) or $800 per student (perpetual license), with additional costs for other services. or $21,000 annual site license or $60,000 site-based perpetual license</td>
<td>$2,150 per day on-site $1,250 web-based $500 for 2 hours of remote consulting, or $1,250 for three sessions</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Lexia Reading 85</td>
<td>--</td>
<td>Not specified</td>
<td>Less than $30</td>
<td>--</td>
</tr>
<tr>
<td>READ 180 86</td>
<td>Basic level cost of $43,000 per Stage with 60 student licenses.</td>
<td>Materials included</td>
<td>$716</td>
<td>$29.95</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Program</th>
<th>Curriculum Cost</th>
<th>Training Cost</th>
<th>Average Cost Per Student</th>
<th>Replacement Cost Per Student</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Read Naturally</strong> 87</td>
<td>Read Naturally Encore: $129 per level, all students licensed or Read Naturally Software Edition: $125 standalone per level or Read Live Subscription, $149-$1,999 depending on number of student seats</td>
<td>$125-$999 per employee for in-person trainings; $1,500-2,400 for in-person group trainings; $30-150 for online workbooks and courses</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td><strong>Reading Recovery</strong> 88</td>
<td>Not specified, but includes training (costs vary), materials ($2,500), supplies ($250), and data processing fees ($57). Pricing per teacher. Replacement costs vary.</td>
<td>Included</td>
<td>--</td>
<td>None</td>
</tr>
<tr>
<td><strong>Sound Partners</strong></td>
<td>$89.95 for master set including three copies of lesson materials Student materials cost $25 for two sets of decodable Bob Books storybooks, plus additional costs of lesson notebooks from publisher. Additional costs incurred through implementation via tutors or trained professionals.</td>
<td>Not specified.</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td><strong>Stepping Stones to Literacy</strong> 89</td>
<td>$49.70 per student, assuming five students per teacher, sold as a set including instructor’s manual and lesson book.</td>
<td>--</td>
<td>--</td>
<td>$0</td>
</tr>
</tbody>
</table>

Source: National Center on Intensive Intervention

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