RESPONSE TO INTERVENTION (RTI)

Reading Plus® is an essential component of an effective RtI

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Introduction

Response to Intervention (RtI) helps children who have difficulty in learning. RtI methodology identifies at-risk and struggling students and provides high-quality remediation to ensure students’ future academic success. The RtI approach, developed as an alternative to unsuccessful “wait to fail” instructional models, offers targeted instruction to students who are not responding to core intervention and reduces unnecessary referrals to special education.

An effective RtI must include:

- screening and progress monitoring for every student at regular intervals
- research-based, quality instruction
- differentiated instruction that targets individual student needs.

There are a number of computer-based reading interventions programs that can be used as a part of the RtI approach. These programs provide practice to develop reading proficiency, but often they address only some of the needs of RtI. However, Reading Plus® provides effective reading practice, meets all RtI requirements, and moves beyond the typical intervention paradigm.

The Reading Plus® system’s multi-faceted computer-based methods, which are in full compliance with RtI, have two main objectives:

- to ensure efficient development of foundational visual, perceptual, and information processing skills, as well as vocabulary and comprehension competency to ensure silent reading proficiency development
- to provide effective, scaffolded, individualized instructional reading practice to ensure maximum development in reading in the shortest time possible.

The Reading Plus® system is a computer-based reading intervention system that uses innovative technology to provide individualized scaffolded silent reading practice for students in second grade and higher. The Reading Plus® system, designed in alignment with current reading research, develops and improves reading proficiency in students who are not responding to core interventions, as well as providing effective reading efficiency development for students who are established readers. The seven component programs of Reading Plus® offer extensive engagement in high-success differentiated reading activities. The system also provides educators with tools to recognize which students are at-risk and struggling, and delivers targeted intervention to meet individual needs.
This *RtI: Response to Intervention* report correlates RtI objectives (as described in *A Tiered Service-Delivery Model*, section three of the National Research Center on Learning Disabilities manual entitled *Responsiveness to Intervention (RTI): How to Do It*) with those of the Reading Plus® system. In addition, the report relates the use of the Reading Plus® system to the *Individuals with Disabilities Education Act* (IDEA) of 2004, specifically to the areas of Response to Intervention (RtI).

This report explores the system’s innovative approaches to teaching and developing foundational reading skills and provides specifics about the research-based methods employed within Reading Plus®. Summaries of recent studies conducted with Reading Plus® are also included.
RtI and IDEA

In the past, the discrepancy model of identifying students needing Special Education often led to late diagnosis and over-diagnosis. To more effectively differentiate between students with a presumable learning disability (LD) that required Special Education and those students who were underachieving for other reasons (for example, a child’s educational experience), the Individuals with Disabilities Education Act (IDEA) of 2004 introduced a three-tiered strategy of Response to Intervention (RtI). According to the Council for Exceptional Children’s Position on Response to Intervention (RTI), "RTI is a process intended to assist in identifying children with disabilities by providing data about how a child responds to scientifically-based intervention as part of the comprehensive evaluation required for identification of any disability" (p. 1).

Tier 1 students who experience difficulties in reading, especially in the area of fluency in silent reading often lack a variety of basic skills that can be enhanced easily by using the research-based Reading Plus® system. (In later sections of this report there are descriptions of these basic skill areas and explanations of how Reading Plus® is aligned with current research and uses innovative technology to remediate.)

Screening students at the beginning of each school year and monitoring progress at frequent intervals throughout the year can determine which students are at risk with regard to reading limitations. These steps can identify students who would benefit from Reading Plus® program activities, especially in the area of fluency in silent reading, vocabulary, and comprehension. When conducting an evaluation, schools should include criterion-referenced or curriculum-based measures to more accurately identify patterns of strengths and weaknesses and link eligibility determinations to instruction. Progress monitoring is a key feature of Reading Plus®. Precise monitoring of student progress at the recommended 9-week, 18-week, and 36-week intervals can determine the extent to which individual student needs have been met.

SUPPORTS MULTI-TIER INTERVENTIONS

<table>
<thead>
<tr>
<th>Tier</th>
<th>Description</th>
<th>Timeframes</th>
</tr>
</thead>
<tbody>
<tr>
<td>TIER 1</td>
<td>Supports core-reading programs with structured independent reading practice to enhance silent reading proficiency.</td>
<td>30-45 minutes, 3-4 times per week, 9-12 weeks</td>
</tr>
<tr>
<td>TIER 2</td>
<td>Strengthens fluency and comprehension skills for students not responding to core intervention with scaffolded instruction that adapts to targeted needs.</td>
<td>30-45 minutes, 4-5 times per week, 12-18 weeks</td>
</tr>
<tr>
<td>TIER 3</td>
<td>Customization options provide teachers flexibility in developing intensive individualized instructional paths that develop foundational skills of students with special needs.</td>
<td>45 minutes, 5 times per week, 18-30 weeks</td>
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The Visagraph® eye-movement recording system also can be used as an additional means of evaluating a student’s reading efficiency to determine the possible need for fluency in silent reading development. While this evaluation is optional, many schools use Visagraph® appraisals in conjunction with Reading Plus® to detect individual needs, motivate students, and measure progress in silent reading efficiency development.

As Tier 1 students progress through Reading Plus® activities, the system easily detects those who are at risk and need more intensive treatment. The system automatically creates individualized programs for these students. Correspondingly, students assigned to Tier 2 and Tier 3 programs can progress to higher-level tiers as reading competency improves to qualifying levels. For example, if a Tier 2 or Tier 3 student progresses to reading content one level below grade (or on grade level) with an ongoing average comprehension of 70% and a target reading rate deemed satisfactory for the content level, it may be concluded that this student has achieved the desired silent reading fluency goals. When vocabulary study levels are on grade level or higher and the student’s average comprehension is 80% or higher in completing context clue activities, sufficient progress has been made in this essential study skill capability and vocabulary. Overall, when the above conditions have been met and the student has observed the recommended frequency per week of sessions as well as the recommended total number of hours, it may be concluded that satisfactory gains will be retained and future growth assured.
What Is Reading Plus®?

Reading Plus® is a computer-based reading intervention system that uses innovative technology to provide individualized scaffolded silent reading practice for students in second grade and higher. The Reading Plus® system, designed in alignment with current reading research, develops and improves reading proficiency in students who are not responding to core interventions, and provides effective practice for students who are established readers. The seven component programs of Reading Plus® provide extensive engagement in high-success, differentiated reading activities.

Reading Plus® picks up where phonics and oral reading instruction leave off, providing rapid and sustainable vocabulary, comprehension and silent reading fluency gains. Through fidelity of usage, Reading Plus® develops sustained attention, word recognition automaticity, grade-appropriate reading rates, enhanced vocabulary tactics, and improved reading comprehension strategies. Reading Plus® provides a 15- to 20-minute computer-based placement test to determine the appropriate instructional programs and effective starting levels for each student. Instructional paths are individually defined and dynamically adjusted for each student. The Reading Plus® system’s continuum of reading development activities offers highly engaging, appropriately leveled content for students of all ages and abilities.

Leading reading researchers (Rasinski, Samuels, Pressley, Allington, Torgesen, Hiebert, and others) suggest that an instructional reading system should provide scaffolded silent reading practice, a highly effective means of guiding students toward reading proficiency. Among the factors cited by researchers as necessary in a well-designed intervention are: high-success reading and extensive engagement, structured sustained silent reading practice, and fidelity of use and instruction. The Reading Plus® system is effective because it is fully aligned with the latest reading research. (For more information about how Reading Plus® is aligned with research, see the extensive Research, Rationale, and Results, a report on the research basis and effectiveness of Reading Plus®.)

The Reading Plus® system is an essential component of the Response to Intervention (RtI) multi-tier model. The system’s assessments, individualized dynamic instruction, and progress monitoring provide educators with the solution needed to effectively identify struggling students as well as others who could benefit from silent reading fluency development. Reading Plus® is a highly effective targeted intervention.
Reading Plus®: A Multi-Tiered Approach

Reading Plus® is designed to accommodate the intensive reading needs of students at all Tiers of the RtI process. Reading Plus® develops fluency in silent reading, an area that is not typically addressed by core reading interventions. The system’s flexibility in providing various instructional formats, differing content levels, and variations of rate of reading assignments allow each student to proceed effectively in his or her own individualized course of study.

Reading Plus® is an essential component of the RtI multi-tier model. The system’s assessments, computer-adaptive intervention, and fidelity monitoring provide educators with powerful tools to identify struggling students, deliver effective targeted intervention, and reduce unnecessary referrals to special education.

To ensure the efficiency and effectiveness of an RtI model, Reading Plus® provides:

Reading Assessments

- Computer-adaptive silent reading fluency tests quickly and accurately assess rate and comprehension relative to various levels of content difficulty to assign appropriate individualized student intervention tracks.

- Ongoing silent reading assessments provide detailed measures of the visual, perceptual, and information processing skills that support silent reading development.

Adaptive Intervention

- Computer-based intervention provides instruction targeted to individual needs and ability.

- Performance goals are automatically established and modified based on achievement.

- A wide range of content and instructional activities support multi-tier differentiated instruction.

Progress Monitoring

- Continuous formative measures adjust instruction and assist teachers in making informed instructional decisions.

- Summative measures allow educators to disaggregate data to evaluate response and progress within various tiers of intervention.

- Fidelity reports help administrators keep implementations on track and maximize intervention outcomes.
Assessments and Programs

A brief description of each of the Reading Plus® component programs follows.

RPA: Reading Placement Appraisal™

The Reading Placement Appraisal™ (RPA) is a placement test that assigns each student to the appropriate instructional programs at the most effective practice levels. It is the first step for every student in Reading Plus® and ensures proper placement based on individual needs.

In Part I, students are given from one to seven 100-word selections (based on successful completion), followed by five literal recall questions to determine tentative independent reading levels. Both reading rate (recorded on each selection) and content difficulty are taken into account to ensure that each student can easily read the content within grade-level rate parameters that are carefully controlled by the system. Based on the student's comprehension scores, the selections become progressively more difficult or easier.

In Part II, 300-word selections are followed by ten diverse comprehension questions to confirm the independent reading level determined in Part I (again, reading rate is recorded).

Part III is used to determine the vocabulary programs and corresponding content levels to be assigned. Each student is given 20 multiple-choice vocabulary questions at the ability level determined by Part II. The student continues moving up levels until a significant number of errors are made on a given level.

Part IV, which is Perceptual Memory Appraisal™ (PMA), is automatically presented to grade level 1 students who exhibited difficulty with comprehension in Parts I and II. The program determines levels of readiness for word recognition and decoding instruction through the identification of letters, short words, and then slightly longer words. Teachers may elect to have PMA™ presented to students at the beginning of RPA™ to ensure they are ready for reading.

PAVE: Perceptual Accuracy/Visual Efficiency™ (All Levels)

The Reading Plus® PAVE™ warm-up program, through scan and flash activities, builds visual skills and visual memory, the most basic orthographic skills necessary for fluent and efficient reading and improved spelling.

Scan – Students are asked to count the number of times a "target" element (number or letter) appears on the screen as three random elements are presented in a left-to-right manner. The initial speed of the scan is determined by the student's grade level and increases, remains stable, or decreases, based on correct responses, with 120 lines per minute as the maximum, far above the tracking requirements for most silent reading.

Flash – During a series of ten exposures, a set of one to nine elements (numbers, uppercase letters or lowercase letters) is flashed at 1/6 of a second. The initial number of elements is determined by a student's ability level and increases as the student correctly types in what was seen.
Guided Reading™ (Levels Pre-A – M)

Guided Reading™ is designed to improve visual and perceptual skills, short-term memory, and silent reading fluency skills. In addition to improvements in rate and comprehension, students will increase their ease and comfort in reading and their concentration through use of this program.

There are hundreds of high-interest, vocabulary-controlled reading selections in Guided Reading™ that are leveled in terms of reading difficulty in various genres to motivate students to read, to develop fluency, and to enhance comprehension capabilities.

Students flash and type keywords and then progress to “purpose for reading” statements/questions. Following this, a selection is read in multi-segments (four to nine segments), requiring shorter intervals of attention, or two-segments, requiring more sustained concentration. Students read each story in a self-paced format, a timed format, or a guided-window format that displays text in both a timed and left-to-right manner or in a combination of these formats. After each selection, or interspersed within the selection, students complete a number of skill-coded questions with re-reading opportunities. These questions focus on the development of the following 25 major comprehension competencies:

- Literal Understanding
  - Recalling Information and Details
  - Following Sequence of Ideas or Events
  - Identifying Speaker

- Analysis
  - Comparing and Contrasting
  - Recognizing Cause and Effect
  - Classifying
  - Reasoning
  - Identifying Analogies

- Appreciation
  - Interpreting Character
  - Recognizing Emotional Reactions
  - Identifying Mood and Tone
  - Identifying Setting

- Interpretation
  - Determining Main Idea
  - Making Inferences
  - Predicting Outcome
  - Drawing Conclusions
  - Interpreting Figurative Language
  - Visualizing
  - Paraphrasing

- Evaluation
  - Detecting Author’s Purpose
  - Understanding Persuasion
  - Recognizing Slant and Bias
  - Distinguishing Between Fact and Opinion
  - Judging Validity
  - Determining Relative Importance

Should comprehension fall below expectations, re-reading of lessons is automatically assigned. Should the independent reading rate fall below expectations in relation to a student's Guided Reading™ rate, a pre-reading exercise at a higher than usual rate is provided to facilitate the student's ability to read at the higher rate.
Cloze Plus™ (Levels A – H)

The Cloze Plus™ program contains 20 lessons in each of its eight levels to develop vocabulary use and comprehension through structured context analysis activities in which students learn to use clues from surrounding context to complete syntax. These lessons improve predictive and inferential comprehension as well as vocabulary and provide invaluable guidance in terms of these cognitive processes.

Students may initially complete a flash and type activity and then move on to three types of alternating activities: Meaning Completion, Syntax Completion, and Vocabulary Awareness. The program tracks competency in contextual analysis skills. Teachers can review this information in Reading Plus® Management so that additional guidance in these skills can be provided, as needed.

- Same Meaning/Synonyms
- Opposite Meaning/Antonym
- Association/Synthesis
- Categorization/Classification
- Time/Order
- Signal Words, Phrases/Transitions
- Pronoun Referents
- Similarities/Differences
- Form/Function
- Conclusion/Summary
- Definition

Reading Around Words™ (Levels D – L)

The Reading Around Words™ vocabulary program enables students to discover word meaning through structured contextual analysis activities that promote meaning integration, comprehension skills, and predictive ability.

Each Reading Around Words™ practice level (D-L) contains 240 key vocabulary words. Students take a series of 16 five-minute pre-tests at intervals on each level and then complete word meaning and use practice activities with the words missed in each pre-test.

Initially, the target word is omitted from a sentence and flashed for students to create orthographic recognition of the new word. The word is then presented in a paragraph in which they select the correct meaning (or meanings) for the word. The paragraph is automatically available for re-reading with highlighted clues after an incorrect response (or clues may be requested before a response is made). After the context clue activity, the target word is again flashed for students but now must be typed in from memory for spelling reinforcement.

Word Memory™ (Levels A – C)

Word Memory™ uses scan and flash training with the same vocabulary words contained in Guided Reading™ lessons on those levels to enable students to recognize core vocabulary words instantly and accurately and to build an expanding sight vocabulary. Additionally, through scanning practice, students develop visual efficiency and smooth, coordinated left-to-right tracking, which are essential basic skills for fluency development.

Each new target word is presented in a sentence. Students click on the word to hear its pronunciation. The students then complete a scan activity with words, similar to that of the PAVE™ program, to develop rapid orthographic recognition of words, which is a prerequisite to
automaticity in word recognition. Correct responses lead to an increase in scan rate (up to 280 words per minute) and two incorrect responses lead to a decrease. This is followed by a flash letters pronounced as they are typed.

At the end of each lesson students have the opportunity to play “Beat the Clock,” where the words are again presented in a timed manner (1.5 seconds, 1 second, or .5 seconds) and the students attempt to read each word aloud, before the narrator pronounces the word.

D-Code™

D-Code™ is an alternative analogy approach to decoding for students who have not responded to a synthetic approach. D-Code™ develops the ability of students to visually discriminate and realize letter order and to recognize letter clusters in words, an essential capability in successful decoding. Students respond to questions in relation to whole words, which develops the ability of students to relate letters and letter clusters to sounds and, in doing so, develop rapid, intuitive decoding competency.

D-Code™ is based on the Glass-Analysis method (Glass, 1973), which provides a conditioning approach to decoding practice with the 60 major letter clusters in the English language. Students respond to directions to sound out letters and letter clusters in whole words, to quickly associate letters with their corresponding sounds, and to demonstrate mastery of the decoding process. In this interactive process, D-Code™ treats all key phonetic and structural analysis considerations, without any reference to applying or remembering rules and principles.

D-Code™ is particularly effective with students who have not responded to a conventional phonics approach and especially with ESL and ELL students. D-Code™ offers a letter-cluster analogy approach that employs audible/visual conditioning that is engaging, direct, and rapid in developing word-unlocking capability.
Skill Development and Adaptive Intervention

Fluency in silent reading, good comprehension, and a broad vocabulary are the three major components of reading proficiency. Each has been the subject of extensive research, and each is addressed by various components in the Reading Plus® system.

What is believed to comprise fluency in silent reading will vary somewhat from one researcher to another. However, the proficiencies described in this section seem to be agreed upon by most researchers as requisite for fluency in silent reading to emerge.

(For an extensive elaboration on each of these skill areas in relation to current research, see Research, Rationale, and Results, a report on the research basis and effectiveness of Reading Plus®.)

Focused and Sustained Attention

A number of researchers, including Mirsky (1999), and Torgesen and Hudson (2006), suggested that one of the defining characteristics of a proficient reader is the ability to sustain attention. As to whether or not attention can be trained, McIlvane, Dube, and Callahan (1999) summed up the position that whether fixed or expandable, the attentional resource must be appropriately allocated:

…general improvements in attending may be attainable through the right kind of training. When attention is viewed as a fixed resource, the improvement route is to teach the individual to allocate that resource more efficiently; that is, to improve executive functioning. Behavior analysts tend to assume that attending itself can be made more efficient – the attentional resource can be expanded (p. 103).

All of the Reading Plus® system’s fluency development activities inherently provide training in focusing attention and maintaining concentration. But the motivating and challenging scan and flash activities of PAVE™ and Word Memory™, as well as the prolonged concentration required for accuracy of perception, are particularly valuable in helping students to focus and sustain attention.

Additionally, Guided Reading™ requires initial focus with its keyword flash and type activity. Later, in the reading selection, which is presented in a timed left-to-right paced fashion, students learn to maintain high levels of attention and concentration for approximately 8-9 minutes of reading.
Adequate Visual Coordination

It is essential that a student

- maintain good binocular coordination and vergence (team use of eyes)
- possess acceptable ocular motility (the ability to rotate the eyes and not the head)
- track accurately (stay on the line and progress sequentially across lines of print with good left-to-right directional attack).

The College of Optometrists in Vision Development (COVD) states on its website (www.covd.org), “A learning-related visual problems directly affects how we learn, read, or sustain close work.” Studies in which visual training was combined with reading instruction (Gallaway & Boas, 2007; Solan, Larson, Shelley-Tremblay, Ficcarra, & Silverman, 2001; Streff, Poynter, Jinks, & Wolff, 1990; Seiderman, 1980; Waldstricker, 1962) showed substantial gains in reading by students involved. Hellerstein, Danner, Maples, Press, and Schneebeck (2001) documented the value of visual training combined with Reading Plus® training and involved use of the Visagraph® eye-movement recording system in pre- and post-testing.

The Reading Plus® PAVE™, Guided Reading™, and Word Memory™ programs all employ timed and left-to-right scanning activities designed to improve visual tracking and encourage better binocular coordination. As students learn to track more accurately across lines at higher and higher rates, their ocular motility improves (head movement replaced by movement of the eyes), and their ability to use both eyes as a team is enhanced.

Fully Developed Orthographic Competencies

Students need to become skilled in the most basic word identification skills in terms of instantly recognizing letter order in words and accurately recognizing the orthographic structure of words, which they will later identify automatically and then proceed to word association.

Torgesen and Hudson (2006) reported that:

…many students with reading disabilities may have special difficulties acquiring fully developed orthographic representations, even after they become accurate readers. Although the precise nature of the underlying difficulty associated with this problem is not clear at this point, the problem itself would mean that these students would require even more accurate practice trials than normal readers to create reliable orthographic representations (p. 153).

Through PAVE™, students can quickly and easily develop the capacity to see letters and numbers, presented randomly, in proper sequence. Scan training develops their ability to accurately perceive numbers and letters during high-speed scanning activities, and flash training develops the ability to accurately identify these elements as they are flashed (1/6 second) and realize their sequential order in a single fixation.

Word Memory™ provides instant orthographic recognition training with 1,655 core vocabulary words, including all of the Dolch (Dolch Sight Words) core vocabulary by the end of Level C (Grade 3).
Automaticity of Word Recognition

Adams (1994) stated, “If it takes a child too long to identify successive words, the beginning of the sentence will fade from memory before the end has been reached” (p.857). Pikulski (2006), Palumbo and Willcutt (2006), Samuels (2006), Hiebert (2006), and Torgesen and Hudson (2006) all pointed out the need for automaticity of word recognition as a prerequisite for fluency in reading to evolve.

In Reading Plus® Word Memory™ scan and flash activities, the flashing and typing of key vocabulary before reading a selection and the timed and visually paced Guided Reading™ guided window that displays text sequentially and rapidly, develop automaticity in word recognition as students attend to words more intensively and develop greater accuracy in responding to the letter configuration of words.

Rapidity of Word Association or Phrasing

Rasinski (2006) reported that his 1999 review of several decades of instruction on text phrasing demonstrated that, “a focus on phrasing has substantial potential for delivering positive outcomes across a number of areas related to reading proficiency” (p. 16). While oral reading can assist in the development of prosody, there is the need to extend phrase training into silent reading.

In Reading Plus® a reasonable degree of “risk taking” is encouraged through more rapid than usual reading, which encourages rapid word recognition and word association to be confirmed from context following, rapidly and sequentially. The student is discouraged from pausing to engage in prolonged and perhaps unnecessary decoding to facilitate the use of short-term memory in the realization of phrasing in silent reading.

Effective Use of Short- and Long-Term Memory

Wagner (1999) defined short-term memory as, “…best conceptualized as that portion of long-term memory that is temporarily at a heightened state of activation at a particular moment in time (Cowan, 1993; Shiffrin, 1993)” (p. 148).

Rate of word recognition, accuracy in orthographic recognition and the ability to perceive words in proper sequence will influence the reader’s ability to “chunk” word information and realize phrases. Efficiency in this process is critical to the effectiveness of short-term memory and, ultimately, a reader’s ability to use this information in relation to information already stored in long-term memory, the end goal being understanding.

Reading Plus® works to improve both the word input data process to short-term memory and thus the more effective use of short-term memory itself.

The activities of PAVE™ and Word Memory™ help students strengthen their ability to retain orthographic information, permitting more rapid and accurate word identification. Guided Reading™ that is more rapid and sequential reading encourages more effective use of short-term memory to attain good literal comprehension. As students achieve accurate literal understanding through effective use of short-term memory, they will be able to draw on comprehension strategies stored in the meta-cognitive areas of long-term memory to interpret, analyze, evaluate, and eventually appreciate the materials they read.
Reading Vocabulary

Hiebert (2006), Pressley, Gaskins, and Fingeret (2006), and Torgesen and Hudson (2006) are among the many researchers who have emphasized the need for struggling or non-fluent readers to experience repeat exposures of high-frequency vocabulary and procedures to accomplish more rapid word recognition. There is also extensive agreement among researchers that students’ fluency development can only be facilitated through reading content that emphasizes high-frequency vocabulary with adequate repetition. Furthermore, students must also be exposed to understanding the nature and function of words through contextual analysis strategies.

The majority of the vocabulary used in the Reading Plus® programs, especially Guided Reading™, is taken from high-frequency, core-vocabulary lists. The vocabulary used in Levels Pre-A – F is derived from a study of words introduced in nine major basal in the late 1970s and 1980s, reading level by reading level. This core vocabulary remains valid today based on comparisons with the General Service List (1952), the Dolch Sight Words List (n.d.), and the Educator’s Word Frequency Guide by Zeno, Ivens, Millard, and Duvvuri (1995).

On the primary levels, 98 words comprise the list of most commonly used words for beginning readers. Following the introduction of this vocabulary in short reading selections, the Guided Reading™ selections introduce from five to eight new words from the core vocabulary along with a few topical study words in each selection, first in the flash and type activities and then through frequent exposure in reading the selection. Word Memory™ Levels A-C, provide further encounters with the core vocabulary. This core vocabulary is also employed on a level-by-level basis in the Cloze Plus™ and Reading Around Words™ programs.

On Levels G and higher, the core vocabulary in Guided Reading™ and Reading Around Words™ is based on a study of many commonly used vocabulary development programs at these levels. The same word introduction and vocabulary repetition procedures used in the lower levels are also observed.

Comprehension Development

Accepted approaches to comprehension development include extensive practice reading activities combined with thorough comprehension questioning as well as providing single comprehension skill lessons that explain and ask the student to apply a particular cognitive skill. It is also important to consider what reading content to use in reading development approaches that would elevate both reading fluency and comprehension.

The work of O’Connor and colleagues (2002), as reported by Allington (2006) reinforces the opinion of Topping (2006) and Allington:

…providing daily intervention lessons using grade-level texts was not nearly as successful as providing daily lessons using texts matched to the reading level of struggling readers (p.100).

Appropriately leveled texts should be the first step in instruction and effective interaction. Inherent in the design of Guided Reading™ are provisions for extensive practice reading with appropriately leveled text with thorough comprehension questioning with 25 key comprehension skills as well as teacher-distributed single skill lessons.
All of the hundreds of Guided Reading™ selections are vocabulary controlled and leveled in terms of difficulty. Extensive comprehension questions are presented in conjunction with each lesson and individual skill lessons for 25 key comprehension skills tested in the questions are available online and are printable. They can also be used in flexible groupings.

**Adequate Silent Reading Rates**

According to Rasinski and Lenhart (2007), “Reading rate (how fast one reads) seems to have emerged as the key defining characteristic of reading fluency, and fluency has come to be assessed through measurements of reading rate” (p. 18). Obviously, as students move up, they encounter a need for increased reading rates that are suitable for each new level of reading and study tasks. Adequate silent reading rates will typically transcend oral reading rates, certainly in the middle grades and higher.

Taylor’s norms, as well as expected rate increases that are characteristically achieved, are shown on the chart below.

![Chart showing Adequate Silent Reading Rates](chart.png)

Initially, students in Guided Reading™ are placed on a rate track the first time they achieve 70% or higher on a lesson. Reading rates are then automatically elevated in Guided Reading™ each time a student completes a lesson with 70% comprehension or higher. Rate increments may be modest, average, or more aggressive increases based on an analysis of the average comprehension performance of a student and will continue until the student reaches the target rate for the level of content assigned. Expected target rate gains are approximately 50% higher than silent reading norm rates and are easily achieved if the frequency of training and the recommended number of training sessions are observed.

One report cites the following developmental oral reading mid-year rates for grades 1-8.

![Chart showing Oral Reading Mid-Year Rates](chart.png)
Progress Monitoring

All reading programs must be used with fidelity (in compliance with a publisher’s recommendations) to achieve the expected gains. Scheduling parameters are built into the Reading Plus® software to ensure each class and student receive optimal instruction and the required teacher follow-up needed to achieve success. Student usage reports, available through student records in management, indicate whether a student’s usage in terms of sessions per week is effective, borderline, or insufficient.

Although the Reading Plus® program makes formative assessments after each lesson in order to automatically customize lesson formats, rate, and content level in relation to student needs, there are a number of reports available in Reading Plus® to enable the teacher to constantly and easily assess student progress in all areas.

Class Summary Report

The Class Summary Report shows data for all Reading Plus® programs for every student in the class. Clicking on any of the column headers sorts the report by this column. This can be helpful in reviewing progress based on a particular data point, such as total lessons within Guided Reading™, Cloze Plus™, Reading Around Words™ or average comprehension in Guided Reading™ and/or Cloze Plus™. Clicking on any student name from within the report allows a teacher to view the Progress Graph for that student.

![Class Summary Report Table]

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Student Summary Report

Teachers will find it helpful to include this student report within their IEPs or AIPs for some students. It contains a comprehensive detailed report on a student’s progress including both program records and comprehension skill measurements.

Student Summary Report

<table>
<thead>
<tr>
<th>Skill Summary</th>
<th>Correct/Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recalling Information and Details</td>
<td>71% (142/201)</td>
</tr>
<tr>
<td>Following Sequence of Events</td>
<td>96% (33/34)</td>
</tr>
<tr>
<td>Identifying Speaker</td>
<td>81% (13/16)</td>
</tr>
<tr>
<td>Main Idea</td>
<td>80% (65/81)</td>
</tr>
<tr>
<td>Making Inferences</td>
<td>70% (103/147)</td>
</tr>
<tr>
<td>Predicting Outcomes</td>
<td>72% (15/21)</td>
</tr>
<tr>
<td>Drawing Conclusions</td>
<td>95% (50/52)</td>
</tr>
<tr>
<td>Interpreting Figurative Language</td>
<td>56% (14/25)</td>
</tr>
<tr>
<td>Visualizing</td>
<td>80% (24/30)</td>
</tr>
<tr>
<td>Paraphrasing</td>
<td>80% (15/19)</td>
</tr>
<tr>
<td>Comparing and Contrasting</td>
<td>76% (25/32)</td>
</tr>
<tr>
<td>Recognizing Cause and Effect</td>
<td>72% (41/57)</td>
</tr>
<tr>
<td>Classifying</td>
<td>69% (15/22)</td>
</tr>
<tr>
<td>Reasoning</td>
<td>70% (17/24)</td>
</tr>
<tr>
<td>Identifying Analogies</td>
<td>60% (12/20)</td>
</tr>
<tr>
<td>Selecting Authors Purpose</td>
<td>78% (7/9)</td>
</tr>
<tr>
<td>Recognizing Cause and Effect</td>
<td>100% (2/2)</td>
</tr>
<tr>
<td>Distinguishing Fact and Opinion</td>
<td>80% (5/6)</td>
</tr>
<tr>
<td>Judging Validity</td>
<td>50% (5/10)</td>
</tr>
<tr>
<td>Determining Relative Importance</td>
<td>0% (0/0)</td>
</tr>
<tr>
<td>Interpreting Character</td>
<td>75% (3/4)</td>
</tr>
<tr>
<td>Recognizing Emotional Reactions</td>
<td>0% (0/0)</td>
</tr>
<tr>
<td>Identifying Mood and Tone</td>
<td>100% (4/4)</td>
</tr>
<tr>
<td>Identifying Setting</td>
<td>75% (7/10)</td>
</tr>
</tbody>
</table>
**Notification Summary**

This report includes all the Notification Flags generated for a given student over the course of the implementation. A red flag will appear in records next to the names of students who have been suspended temporarily due to low comprehension or prolonged struggling or have been suspended twice and is not showing signs of recovery. Yellow flags indicate difficulty with comprehension, and green flags denote positive student progress. Suggestions for intervention can be accessed by clicking on a student’s flag.

<table>
<thead>
<tr>
<th>Date</th>
<th>Notification</th>
<th>Recommendation</th>
</tr>
</thead>
<tbody>
<tr>
<td>2/7/08</td>
<td>Rate Stabilized</td>
<td>Student’s G-Rate has reached the content level wpm goal. Command Student. Student’s G-Rate is now stabilized until the student moves up to the next level. Encourage consistent good comprehension. Student will level up when comprehension remains consistently high.</td>
</tr>
<tr>
<td>1/14/08</td>
<td>Level Award</td>
<td>Student has been leveled up. Command student and hand out level award certificate if student does not have printing privileges.</td>
</tr>
<tr>
<td>1/10/08</td>
<td>Recovery</td>
<td>Command student for great turn-around. Student has been doing better and scored well on his/her most recent lessons.</td>
</tr>
<tr>
<td>12/20/07</td>
<td>Suspended due to prolonged struggling</td>
<td>Student performance has been inconsistent and the student has not shown improvement for a while. Meet with student to discuss content difficulty and attention. You might want to complete the next Guided Reading lesson with the student to learn more about what is going on. Ensure that student is using the reread button during the comprehension check. If you are still unsure of how to proceed with the student, contact your lead teacher or RP representative.</td>
</tr>
<tr>
<td>12/13/07</td>
<td>Inconsistent Comprehension</td>
<td>Student is having difficulty maintaining good comprehension. Performance is inconsistent. Point out successful lessons to student to remind student that she/he is capable and encourage student’s best effort on each story. Have student describe why their scores were better on some stories than others. Ensure that student is using the reread button during the comprehension check.</td>
</tr>
<tr>
<td>12/3/07</td>
<td>Warning--Student is struggling</td>
<td>Student is having difficulty achieving good comprehension. Meet with student and discuss difficulty. Remind student that continued poor scores could result in a suspension from the program and/or a level drop. A few good stories will get them a green flag for recovery. Encourage student that she/he can do it. Ensure that student is using the reread button during the comprehension check.</td>
</tr>
</tbody>
</table>
Class Rate Graph

This graph provides a summary of each student's starting and current guided and independent rates along with their content level gains. This report also shows the number of Guided Reading™ lessons that each student has completed. When all students represented on a graph are in the same grade, the grade norm indicators are also presented. This makes it easy to quickly review which students are below, at, and above grade-level expectations.
Class/Student Skills Report

Reading Plus® provides class and individual reports on the 25 comprehension skills as measured within Guided Reading™. After approximately two weeks of work within the programs, teachers can generate a Class Skills Report that lists which students need help with each skill. This report includes each student’s comprehension scores for each individual skill. Clicking on a student name from within the Class Skills report brings up a listing of all the skills with which the student needs to work, along with the offline skill practice lesson (pdfs) that the student will benefit from completing.
School Progress Charts

The charts below present the percentage of the class as well as the number of students who are performing at each of the various performance levels. Clicking on the number of students in each row generates an individual report containing all the students within this performance level. This can be helpful to target the groups of students performing at various performance levels.
Class Awards Report

The Class Awards Report displays all the awards that the students within the class have received.

Teachers can print all the awards earned by the students in the class by clicking the Print All Awards link in the upper right corner of the report.
Visagraph® Appraisal

Reading is a complex process that involves close interaction among the visual, perceptual, and cognitive functions. For some students, visual and perceptual inefficiencies can impede silent reading development. The Visagraph® eye-movement recording system (optional) can be used as a pre- or post-test, as well as an interim appraisal of each student’s level of fluency or efficiency in silent reading. The Visagraph® provides detailed measures of each student’s silent reading behavior in comparison to grade-appropriate normative data.

The Visagraph® uniquely assesses the process of reading (assessing “how” a student reads silently). The data acquired by the Visagraph, in conjunction with standardized assessments, can more completely and accurately identify students in need of structured silent reading. In addition, Visagraph assessments track students’ interim progress as well as their achievement of reading goals following Reading Plus® fluency development activities.
Latest Studies

Elementary Schools

1. **Controlled study, conducted during 2006-2007 through the University of South Alabama, involving 79 second grade students from Woodlands, TX, April 2007.**

**Summary**


Second grade students from Galatas Elementary School in The Woodlands, Texas participated in this controlled study using Reading Plus®. Thirty-four students in the treatment group received at least 40 sessions of Reading Plus®, which included PAVE™, D-Code™, Word Memory™, Cloze Plus™, Comprehension Power™, and at least 40 lessons in Guided Reading™. Forty-five students in the control group used leveled reading books and both groups spent equal time in reading instruction. The treatment group’s average score on the Gates-MacGinitie Reading Tests improved significantly (.015) by an average gain of 1.25 Grade Equivalents, while the control group made a less average gain of .72 Grade Equivalents. In pre- and post- Visagraph® recordings, the treatment group also made substantial improvements in reports of fewer regressions and fixations, and a greater improvement in reading rate over the control group. Reading improvement was also seen in the progress made by the treatment group in Guided Reading™ training, with most students showing gains of at least one content level and average increases of 63 more words per minute. Texas standardized tests administered the following year after the study resulted in 71.72% of treatment students receiving a commended performance score of 94% or better, as compared to the state average of 36%.

2. **Preliminary controlled study report of second graders in six elementary schools conducted by the University of South Alabama during 2006-2007, February 2007.**

**Summary**


This controlled study involved a total of 212 second grade students from six different elementary schools. Those in the treatment group received at least 40 sessions of Reading Plus®, which included PAVE™, D-Code™, Word Memory™, Cloze Plus™, Comprehension Power™, and at least 40 lessons in Guided Reading™. The control group used basal readers or Successmaker, a computerized reading program. The treatment group’s average score on the Gates-MacGinitie Reading Tests improved significantly (.001) by an average gain of 1.25 Grade Equivalents, while the control group made a less average gain of .65 Grade Equivalents. In pre- and post- Visagraph® recordings, the treatment group also made substantial improvements in reports of fewer regressions and fixations, and a greater improvement in reading rate over the control group.

Summary


Belle Valley Elementary School in Belleville, IL, is one of nine schools involved in the longitudinal component of the national research project being conducted by Dr. John Shelley-Tremblay of the University of South Alabama. This portion of the study includes students ranging from Grade 2 through Grade 4. All but three of the students far exceeded the Extended Score Scale benchmark improvement set by their class averages with the fall test, with many of them more than doubling the expected increase. A look at the demographics will show that boys outperformed girls and Black and Multiracial students outperformed White students. The sample was too small to draw firm conclusions in this area, but the data is definitely suggestive and will be pursued. In Reading Plus®, the students’ Part B Guided Slot reading rate improved by 109% or an average of 83 words per minute. This is a solid gain and demonstrates a definite increase in the flexibility of their reading skills.


Summary


This controlled study was conducted to determine if standardized test scores and reading efficiency could be improved through the use of Reading Plus®. A total of 145 fourth grade students from five different elementary schools participated in this study. Those in the treatment group considered in the final analysis received at least 40 sessions of Reading Plus®, which included PAVE™, Word Memory™, Cloze Plus™, Reading Around Words™, Comprehension Power™, and at least 40 lessons in Guided Reading™. The control group used basal reading series from Macmillan/McGraw Hill and Houghton Mifflin, and computerized reading programs such as Lexia, Orchard Reading, Successmaker, Read Naturally, and Destination Success. Both groups spent equal time in reading instruction.

While both treatment and control groups did make progress over the course of the study, the treatment group was shown to have achieved greater levels of improvement when post-tested with the Gates-MacGinitie Reading Test and Visagraph® eye-movement recordings. The treatment group’s average score on the Gates-MacGinitie Reading Tests improved significantly (.009) after pre- and post-testing by an average gain of 1.8 Grade Equivalents, while the control group made a less average gain of .06 Grade Equivalents. In pre- and post-Visagraph recordings, the treatment group also made substantial improvements in reports of fewer regressions and fixations, and a greater improvement in reading rate, while the control group experienced very little change in reading efficiency.
Middle Schools

1. **Study conducted in 2006-2007 of a large-scale implementation of Reading Plus® involving 98 schools and over 28,000 students in Miami-Dade County, FL, 2007.** (See Featured Study p. 34.)

2. **Preliminary Report of a longitudinal study involving third, fourth, fifth, and sixth graders in Choctaw, OK, February 2007.**

**Summary**


Nicoma Park Intermediate School in Choctaw, OK, is one of nine schools involved in the longitudinal component of the national research project being conducted by Dr. John Shelley-Tremblay of the University of South Alabama. This portion of the study includes students ranging from Grade 3 through Grade 6. A preliminary lay analysis of the first-year data from this school reveals a dramatic improvement in the Gates-MacGinitie test scores of the students involved, particularly for those in Grades 3 and 6. At the beginning of the study, the overall average GE score on the Gates test for the third graders was 2.3, well below the expected start score of 3.0. At the end of their first year of Reading Plus®, the average Gates score was 3.7, which is the expected score for that point in the school year. For the Sixth Grade students, the overall average at the beginning of the year was only 3.8. At the end of the first year’s Reading Plus® program, the overall average for these same students was 6.6, one month off the expected average and an improvement of 2.8. The expected gain over a school year is .7.


**Summary**


Between August 2003 and April 2004, 106 students in sixth, seventh, and eighth grades, who were defined as struggling readers, participated in this collaborative study. Using Reading Plus® and Lexia S.O.S., 56 students were placed in the treatment group while 50 students in the control group used a reading intervention instruction. Both groups spent equal time on instruction, averaging 480 minutes during the course of the study. Pre- and post-tests used to determine student gains were from the Gates MacGinitie Reading Test, Visagraph Reading Rate Grade Level Equivalent (GLE), Visagraph Reading Rate with Comprehension, and the 2004 FCAT Developmental Scale Score.

While the control group showed no significant gains on the Gates Test, the treatment group made statistically significant gains (from pre-test scores of 33.7 to post-test scores of 42.3).
treatment group also made higher gains on the Visagraph GLE (3.6 to 6.8) than the control group (4.0 to 4.6), as well as the Visagraph Reading Rate with Comprehension (142.5 to 182.9 for the treatment group and 140.4 to 149.5 for the control group). On the FCAT, the treatment group showed the most gains with a score change of 220.18, while the control group showed lesser gains with a score change of 142.4.

High Schools


Summary

Prescott High School in Prescott, AZ, is one of nine schools involved in the longitudinal component of the national research project being conducted by Dr. John Shelley-Tremblay of the University of South Alabama. This portion of the study includes students ranging from Grade 9 through Grade 11. Over 70% of the students reported on far exceeded the expected Lexile growth for the period covered in this lay analysis, with the vast majority doubling and tripling the expected increase. The expected increase for the period is approximately 44 Lexile points; the average increase among the students reviewed was 105 Lexile points. Lexile points are equal-unit measures and, therefore, can be used for comparison. Within the Reading Plus® programs, the students increased their Guided Reading™ rate by an average of 115 words per minute while maintaining reasonable comprehension. The students also increased how efficiently they read overall.


Summary

This collaborative study was conducted between August 2003 and December 2003 and involved 82 students in the ninth and tenth grades who were defined as struggling readers. Forty-four treatment-group students were assigned to Reading Plus® and Lexia S.O.S. programs (average time 541.6 minutes), and thirty-eight control-group students were assigned to intervention reading classes (average time 747.4 minutes). Pre- and post-tests used to determine student gains were from the Gates MacGinitie Reading Test, Lexia Comprehension Reading Test, Visagraph Reading Rate Grade Level Equivalent (GLE), and Visagraph Reading Rate with Comprehension.
While the control group showed no significant gains on the Gates Test, the treatment group made statistically significant gains (p<.05) from pre-test scores of 22.5 to post-test scores of 25.8. Although both groups showed improvement at the significant level on the Lexia Test, the treatment group having access to Reading Plus® made significant gains on the Visagraph GLE (5.1 to 6.5) and Reading Rate (168.4 to 182), while the control group made no measurable gain.

3. A preliminary report of a control study of 182 high school students in Visalia, CA, conducted by the University of South Alabama during 2006-2007.

Summary

A total of 182 high school students from Golden West High School in Visalia, CA, participated as part of this national study evaluating the effectiveness of Reading Plus®. Those in the treatment group considered in the final analysis received at least 40 sessions of Reading Plus®, which included PAVE™, Word Memory™, Cloze Plus™, Reading Around Words™, and Comprehension Power™, and at least 30 lessons in Guided Reading™. The control group used a literature book by McDougal Littell and both groups spent equal time in reading instruction.

The results show that the treatment-group students, who were shown to be low achievers, made a significant improvement in reading (p=.012) over the control group after pre- and post-testing on the Gates-MacGinitie Reading Tests. The treatment group also showed substantial improvement in visual/functional and perceptual skills after pre- and post-testing with the Visagraph®, with an average two-year grade-level gain and fewer fixations and regressions. Reading rate was also shown to have substantially increased in both Visagraph® recordings and in Part B of Guided Reading™. The control group’s gain was slight, with an average half-year grade-level gain and little improvement in reading rate, fixations, and regressions.

Colleges
4. Preliminary report of a longitudinal study involving college students in Sterling, CO, who were enrolled in remedial reading courses.

Summary

Northeastern Junior College in Sterling, CO, is one of nine schools participating in the longitudinal component of a national research project being conducted by Dr. John Shelley-Tremblay of the University of South Alabama, Department of Psychology. This portion of the study involves college students enrolled in remedial reading courses. The students involved made substantial gains on their Accuplacer™ scores, improving by an average of 26% over their preliminary assessment scores. This includes 57 students who engaged in Reading Plus® activities for one semester and five who continued for two semesters. The students who continued showed much greater gains on average than did those who were in the program for a semester. A remarkable one semester gain was also seen in the 25 students who were both pre-
and post-tested using the Visagraph® Eye Movement Recording System. They improved their reading efficiency by an average of 4.6 Grade Level Equivalents in a single semester. The expected improvement over a year without specific training is 1.0 GLEs. Within the Reading Plus® system, the students improved their Part B, or guided slot, rate by an average of 92% while maintaining an average comprehension of 70% over an average of 43 lessons.
References


Individuals with Disabilities Education Improvement Act of 2004, Pub. L. No. 108-446.


