

iRead[®]



RESEARCH FOUNDATION PAPER

Houghton Mifflin Harcourt (HMH) is committed to developing innovative educational programs that are grounded in evidence and efficacy. We collaborate with school districts and third-party research organizations to conduct research that provides information to help improve educational outcomes for students, teachers, and leaders at the classroom, school, and district levels. We believe strongly in a mixed- methods approach to our research, an approach that provides meaningful and contextualized information and results.

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Introduction

High-quality reading instruction in the primary grades represents one of America's most critical educational needs for the 21st century. This is especially true of effective differentiated instruction that meets the unique needs of students, especially those that are typically underserved. Statistical analyses predict that unless things change in US education, 30% of the students that entered kindergarten in 2012 won't graduate from high school on time in 2025—in large part, due to problems with reading (Edelman & Engler, 2012; Washington & Cárdenas-Hagan, 2012). In 2009, two-thirds of 4th graders scored below proficient on the NAEP reading test, and almost half of low-income students scored below basic on this test (Annie E. Casey Foundation, 2010). Based on their research, the Annie E. Casey Foundation (2010) concluded:

The bottom line is that if we don't get dramatically more children on track as proficient readers, the United States will lose a growing and essential proportion of its human capital to poverty, and the price will be paid not only by individual children and families, but by the entire country (p. 7).

Clearly, it is time to try something different.

Traditionally in American education, efforts to address reading problems have focused on remediation: identifying readers who are performing below expectations and providing extra instruction and resources to bring them up to where they need to be. More recent efforts have focused on early prevention: providing effective early instruction for every student in order to close the reading achievement gap before it begins. For example, in 2012, nineteen states and the District of Columbia, required annual reading assessment of all students in kindergarten through third grade. In addition, the majority of those states, also required that remediation or intervention be provided for those students identified as struggling (Rose, 2012). These new laws align with state Race to the Top plans to close achievement gaps, improve overall academic achievement, and increase college attendance.

An extensive body of research and expert opinion confirms the importance of explicit and systematic instruction in foundational literacy skills in helping children learn to read—that is, instruction that involves deliberate training in the foundational skills that students need to progress from decoding what they read to understanding what it means.

The value of the foundational literacy skills is evidenced by their inclusion in the *Common Core State Standards for English language arts* as well as in other rigorous state standards. Yet, as the standards recognizes that the purpose of these foundational skills is to support students in learning how to read and comprehend both literary and informational texts across the curriculum, it also clarifies that the foundational skills “are not an end in and of themselves” (National Governors Association Center for Best Practices, Council of Chief State School Officers [NGA, CCSSO] (2010), p. 15). They should be integrated with opportunities to read meaningful connected text as part of a coherent instructional approach (Adams, 1990; Dehaene, 2009; Moats, 2012; Strickland, 2011).

Houghton Mifflin Harcourt's new program, *iRead* for Grades K–2, reflects this body of research by integrating advancements in technology with sound instructional practice to more effectively and efficiently help every student learn how to read, so that they can *learn from* what they read. In this way students will gain a strong foothold on the path to achieving educational and career success and attaining personal fulfillment.

The Promise of Instructional Technology

Technology holds the promise of improving foundational reading instruction in a variety of ways. Students' needs for individualized instruction are addressed through embedded formative assessment and adaptive technology (Cunningham & Rose, 2013; Strickland, 2011)—including intensive practice for struggling readers on the skills they have yet to master (Hasselbring, 2012). Coordinated visual and audio presentation of sounds, letters, and words and instant, tailored multimedia response to student choices help develop decoding skills and build critical connections between decoding and understanding words in context (Adams, 1990; Dehaene, 2009; NRC, 1998; NRP, 2000). Student motivation and engagement are boosted by appropriate levels of challenge and innovative design features that draw on important findings from cognitive science and game design research (Dockterman, 2012; Gee, 2005; Hasselbring & Mayer, 2012; NRC, 2000).

iRead turns the promise of technology into reality through individualized, adaptive, and engaging instruction that can help all students, even the most challenged ones, learn how to read so that they can read to learn.

Introduction to *iRead*

iRead is a digital foundational reading program designed to close the achievement gap before it begins by placing all K–2 students on a path to success in Grades 3–12 and beyond.

The *iRead* student software provides explicit, systematic instruction and individualized, ongoing practice in the foundational literacy skills of phonological awareness, alphabet knowledge, phonics, decoding, word recognition, morphology and syntax, fluency, and spelling. The systematic instruction delivered by the software targets the areas of the foundational skills that students are struggling with and provides individualized practice in these areas until students attain mastery of each skill. Students are given the opportunity to put the skills to use to create meaning as they read and comprehend literary and informational texts.

Built from the ground up to support rigorous state standards, *iRead*'s scope and sequence moves as a continuous set of topics from kindergarten to second grade, allowing for differentiated placement, adaptive instruction, and ongoing practice for children who are below, on, and above grade level.

iRead Offers

1. Technology that complements what teachers do best
2. A personalized learning progression for every student
3. Embedded assessment that ensures children are taught to mastery
4. The best thinking from cognitive science and gaming theory
5. An engaging, supportive online environment for children and their families

In addition to the student software, *iRead* provides a comprehensive system of support for educators—equipping them with the resources they need to maximize their effectiveness in the classroom. The program comes with everything teachers need to teach foundational reading—including SAM Central, a digital environment that provides actionable data and reports, strategic grouping tools, and point-of-use instructional resources. From SAM Central, teachers can access three years of foundational reading content and over 200 lessons for whole- and small-group instruction, anytime and anywhere that there is an Internet connection.

About This Report

This report explains how *iRead* draws on the best research in early literacy instruction to give students in Grades K–2 the foundation they need to become successful readers and learners. It describes the research evidence favoring explicit and systematic instruction in the foundational literacy skills, and it explains how *iRead*'s design reflects this research. It also describes how *iRead* matches the best available research and expert opinion related to personalized learning, multisensory instruction using multimedia technology, and formative assessment and progress monitoring, as well as how *iRead* supports positive student behavior and encourages family engagement. In sum, this review shows how *iRead* takes advantage of technology to support teachers in providing the best possible instruction for beginning readers of all abilities.



iRead provides a systematic sequence of explicit, recursive instruction with mastery-based interactive practice in the alphabet, phonological awareness in the context of alphabet activities, phonics, spelling, high-frequency/high-utility sight words, syllabication combined with morphology, spelling, and fluency-aligned with foundational skills of rigorous state standards for English language arts and literacy.

Explicit and Systematic Foundational Literacy Instruction

Research has shown that explicit and systematic early literacy instruction—in which phonemic awareness, the alphabet, phonics, sight words, syllabication, morphology and syntax, fluency, and spelling are taught in the context of meaningful text—results in improved reading abilities for beginning readers.

The Common Core State Standards (CCSS) for English language arts and literacy call for all students in Grades K–2 to develop basic print concepts, phonological awareness skills, phonics and word recognition skills, and the ability to read on-level texts “with sufficient accuracy and fluency to support comprehension” (NGA, CCSSO, 2010, p. 15).¹ The CCSS stress that:

These foundational skills are not an end in and of themselves; rather, they are necessary and important components of an effective, comprehensive reading program designed to develop proficient readers with the capacity to comprehend texts across a range of types and disciplines (p. 15).

Literacy experts strongly recommend that beginning readers receive explicit and systematic instruction in foundational skills, including phonemic awareness, alphabet, phonics, the sight words, syllabication, morphology, fluency, and spelling elements—and that these skills be combined with frequent engagement with level-appropriate text (Adams, 1990; National Early Literacy Panel [NELP], 2008; National Reading Panel [NRP], 2000; National Research Council [NRC], 1998).

¹This goal is not exclusive to the CCSS and is also recognized in other rigorous standards of states not adopting the CCSS.

Explicit and Systematic Instruction

The National Reading Panel [NRP] (2000) uses the term “explicit instruction” to mean deliberate “training” in a skill or subskill of reading. Archer and Hughes (2011) characterize explicit instruction as “a series of supports or scaffolds, whereby students are guided through the learning process with clear statements about the purpose and rationale for learning the new skill, clear explanations and demonstrations of the instructional target, and supported practice with feedback until independent mastery has been achieved” (p. 1).

The NRP (2000) uses “systematic” to mean instruction that proceeds over time according to a strategic sequence of activities that ensures exposure to critical subskills in a logical order. A systematic approach to reading provides carefully sequenced constructed lessons to facilitate the incremental progression of children’s learning, and enable straightforward assessment and diagnosis on the part of their teachers. For example, systematic phonemic awareness training might progress “from initial sounds to final sounds and then to medial sounds” after students practice manipulating letters to make, break, and build new words that have similar spellings and pronunciations (p. 2-39). Children then can add, delete, and substitute letters in their manipulations to make and read new, changed words. Later, the manipulation task can progress to a writing task.

Research Evidence and Expert Opinion

Explicit and systematic approaches to early literacy instruction have been found to be more effective than instruction that relies on indirect means of acquiring decoding skills. Summary findings from research of the past two decades (e.g., NELP, 2008; NRP, 2000; NRC, 1998) support Adams’s (1990) contention that “approaches in which systematic code instruction is included alongside meaning emphasis, language instruction, and connected reading . . . result in superior reading achievement overall” (p. 49).

As Torgesen (2002) points out, two of the most authoritative and comprehensive reading research summaries—the National Reading Panel report (NRP, 2000) and *Preventing Reading Difficulties in Young Children* (NRC, 1998)—both find convincing and substantial evidence that explicit instruction in “phonemic awareness and phonemic decoding skills, fluency in word recognition and text processing, reading comprehension strategies, oral language vocabulary, spelling, and writing skills” has been shown to be “consistently more effective than instruction that does not contain these components” (Torgesen, 2002, pp. 13–14). Furthermore, explicit instruction in these skills has been shown to be of particular value to students who struggle with reading (Birsh, 2011; Cunningham, 1990; Torgesen, 2002).

Phonemic awareness and letter knowledge have been found in correlational studies to be the two best school-entry predictors of how well children will learn to read during their first two years of school. In addition, experimental studies that have evaluated the effectiveness of phonemic awareness instruction have found positive results indicating its effectiveness in facilitating reading acquisition. Phonemic awareness training is helped greatly by explicit instruction in how the system works (NRP, 2000).

While explicit instruction in foundational reading skills has been conclusively shown to enhance the chance of early literacy success, proponents stress that such instruction is a means, not an end (for example, see Adams, 1990; CCSS Initiative, [NGA, CCSSO], 2010; NRP, 2000). The ultimate goal of literacy instruction is enabling students to move from decoding text to comprehending it.

RECOMMENDATION

In order to develop the ability of young learners to derive meaning from text (the end goal of reading instruction), provide explicit, systematic instruction in foundational reading skills coupled with ample opportunities to read and make meaning of level-appropriate text. This is especially critical for at-risk students, who show pronounced benefits from an explicit and systematic approach.

iRead's Approach

iRead provides a systematic sequence of explicit, recursive instruction with mastery-based interactive practice. Brief videos (30 seconds to one minute in length on average) use direct instruction to introduce new skills and concepts, often including the use of songs. Following the videos, engaging, interactive, game-like activities offer students ample opportunities to practice the new skills and apply them to reading. Practice continues, with guided practice activities that offer instructive collective feedback, until students have mastered the skills. All instructional activities are aligned with the foundational skills of the rigorous state standards for English language arts and literacy.

Phonemic and phonological awareness, as well as phonics, are highlighted in the context of activities in *iRead*'s Alphabet and Code strands. For example, students identify the primary sound for each letter of the alphabet, isolate and pronounce initial sounds in spoken words, and master the dominant sound-spelling correspondences for consonants and short vowels. Spelling, high-frequency/high-utility sight words, syllabication combined with morphology (word study), spelling, and fluency are highlighted in activities in *iRead*'s Word Play and Sight Words strands. Within all of these activities, students have the opportunity to use the foundational skills they are learning to make meaning. For example, as children decode words, they immediately see an image and hear and/or read a sentence to anchor its meaning. This reinforces the practice of immediately connecting the decoding of words with the meaning of those words. Additionally, students read connected text daily and apply the skills learned to short passages. In the Success strand activities, students apply the skills to literary stories and informational materials that increase in complexity according to the students' progress through the software.

In the *iRead* program, reading is its own reward. Success is celebrated with the opportunity to read more challenging, age-appropriate texts. Throughout, foundational skill instruction is directed toward meaning, and is always linked to the reading of connected text. Beginning in Unit 4 (following units on letters and letter sounds), students practice reading connected text of gradually increasing length, and have regular opportunities to apply their skills to reading eBooks. For further skills practice in reading connected text, teachers can download titles from *iRead*'s library of printable books and resources.

Phonemic and Phonological Awareness

Phonemic awareness, according to National Research Council (1998) reading experts, refers to the fact "that every spoken word can be conceived as a sequence of phonemes. Because phonemes are the units of sound that are represented by the letters of an alphabet, an awareness of phonemes is key to understanding the logic of the alphabetic principle and thus to learning of phonics and spelling. Phonological awareness is a more inclusive term than phonemic awareness and refers to the general ability to attend to the sounds of language as distinct from its meaning" (NRC, 1998, p. 52).

Brady (2012) provides a helpful distinction in noting that phonological awareness can be seen as having two levels: phonological sensitivity, which is denoted by a "conscious awareness of larger, more salient sound structures within words, including syllables and sub-syllabic elements (onsets and rimes)", and phoneme awareness, which refers to explicit awareness of the individual phonemes that comprise spoken words in English (p. 20).

Research Evidence and Expert Opinion

Research consistently demonstrates that "learning to read can be facilitated by providing explicit instruction that directs children's attention to the phonological structure of words, indicating that phonological awareness plays a causal role in learning to read . . ." (NRC, 1998, p. 56). Furthermore, explicit training in phonological awareness shows stronger effects than more indirect instructional approaches (NRP, 2000, p. 2-33).

Children typically acquire phonological sensitivity prior to phonemic awareness. While sensitivity to the sounds of language, in general, comes naturally to most young children, Adams (1990) notes that easy acquisition is not the case when it comes to phonemes. Phonemic awareness “is not spontaneously acquired, [but] can be successfully taught” through explicit training (p. 329).

Its importance is underscored by the finding that, among kindergartners, phonemic awareness “is one of the strongest predictors of subsequent reading achievement” (Brady, 2012, p. 19). When early reading instruction is methodically and systematically combined with phonemic instruction, “the success rates are dramatic” (Adams, 1990, p. 329). The effect on reading success is even stronger when phonological and phonemic awareness instruction is combined with activities that promote knowledge of letter names and letter sounds (Brady 2012; NELP, 2008). As Cunningham (1990) explains, “explicit instruction in how segmentation and blending are involved in the reading process helps children to transfer and apply component skills such as phonemic awareness to the activity of reading” (p. 441).

Research further suggests that *reciprocal causation* exists between learning to read and phonological awareness. In other words, there is evidence that growth in both areas proceeds in parallel (Adams, 1990; NRC, 1998).

Reading researchers have suggested that certain levels of phonological awareness, as measured by different tasks or by different levels of linguistic complexity, come before learning to read. Alternatively, more advanced levels of phonological awareness result from learning to read (Stahl & Murray, 2006).

RECOMMENDATION

To promote early literacy, provide explicit and systematic instruction that directs children’s attention to the sounds of language (phonology) and corresponding units of sound (phonemes), and combine this instruction with activities that promote letter knowledge. In tandem, provide opportunities for children to engage in emergent and beginning reading.

iRead’s Approach

iRead’s scope and sequence offers a carefully scaffolded and systematic instructional approach to early literacy (Grades K–2), built on technology that affords differentiated and adaptive instruction to meet the individual needs of children at all readiness levels. This instructional sequence moves students seamlessly from introduction of the letter names and then letter sounds, to instruction on basic blending and segmenting of phonemes, through introduction and practice with the highest utility spellings of the 44 sounds of English.

Note: As early learners vary in their progress from no experience with the alphabetic principle toward reading fluency and comprehension, grade-level distinctions are not as meaningful as each child’s phase of development. *iRead*’s scope and sequence is consistent with Ehri’s (1995) four phases of reading development, which are characterized by students’ progressively deeper understanding of the alphabetic system: (1) pre-alphabetic, (2) partial alphabetic, (3) full alphabetic, and (4) consolidated alphabetic.

iRead Level A begins instruction at the partial alphabetic level, where students are first introduced to the alphabet (Units 1 and 2) and letter sounds (Unit 3). In Unit 3 on letter sounds, students engage in activities that tie sounds in words to letters in order to reinforce the key concept that letters represent words via the words’ sounds. Students are guided to identify the dominant sound of each consonant and the short sound of each vowel. Alongside alphabet study in this early phase, *iRead* focuses on helping children acquire phonological awareness through activities that help children identify sounds in words. Throughout the first three units, students proceed through activities such as Rhyme Recognition, Syllable Identification and Counting, and Syllable Blending at their own pace, based on ongoing performance data.

Then, in Unit 4, *iRead* moves quickly to provide a strategically scaffolded sequence of lessons in letter-sound blending and segmenting. At strategic points in the instructional sequence, students engage in auditory phonological awareness exercises involving phoneme isolation. However, phonemic awareness is most often taught and practiced in the context of written words presented as text—that is, in combination with phonics instruction.

To ensure the children’s attention to every phoneme, students are introduced to blending experiences that systematically highlight minimal contrasts in CVC (consonant-vowel-consonant) words. These contrasts are introduced in a sound developmental progression from initial sounds (e.g., *fin*, *win*), to final sounds (e.g., *fin*, *fit*), then medial sounds (e.g., *fin*, *fun*) designed to promote flexibility and agility in decoding as evidenced in the research (Brady, 2012). Students thus learn the essential concept that in decoding, every letter matters.

While minimal contrasts among words are used to introduce and anchor phonic elements, *iRead* activities gradually present a mix of words with target and review patterns, so that students will necessarily see a range of patterns. By the time they get to the Reading Center at the end of each topic, students are given the opportunity to read connected text that, by its very nature, presents a range of patterns, which in turn reinforces and expands decoding agility.

Throughout the sequence, in addition to activities focused on developing and systematically reviewing skills, *iRead* intersperses activities that guide students to exercise and transfer skills to new words and texts.

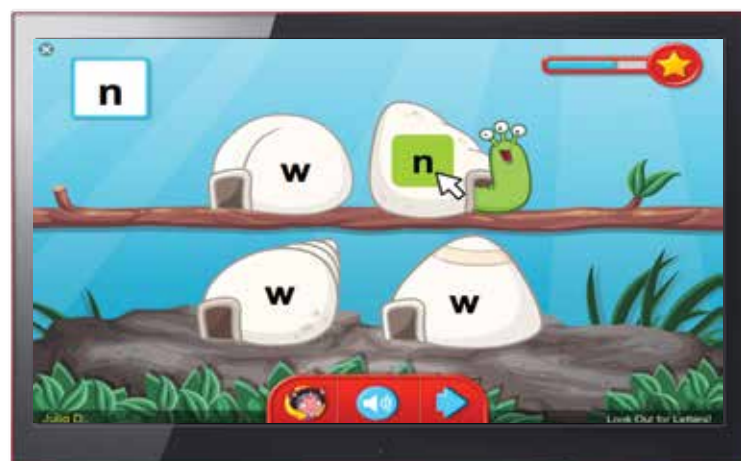
The *iRead* software also helps teachers identify students requiring additional support, and offers a bank of strategies for one-to-one and small-group, evidence-based interventions to aid young learners in acquiring the phonological skills needed to achieve early literacy.

The Alphabet

The alphabetic principle refers to the concept that letters represent the sounds of a language. Some alphabetic languages (e.g., Spanish, Italian, Turkish) possess almost perfect one-to-one correspondences between sounds and letters. English, another alphabetic language, does not have these strong, consistent correspondences. “This lack of transparency,” notes the National Reading Panel (2000), “makes it harder for beginners to figure out the system without help” (p. 2-32).

Research Evidence and Expert Opinion

Knowledge of the alphabet is an important first step in reading success. Research shows that the “best predictor” of reading success at the end of first grade was the ability to recognize and name upper- and lowercase letters at the start of the year (Adams, 1990, p. 43). That knowledge is both a precursor to as well as facilitator of phonemic awareness (Rosenberg, 2006). Indeed, mastering the alphabetic principle “depends equally on knowledge of letters and on explicit awareness of phonemes because it depends integrally on the association between them” (Adams, 1990, p. 304).



Letter Identification

Beyond knowledge of the letter names of the alphabet, children must be able to name them accurately and fluently (rapid letter naming) in order to automatically see words as wholes. Children who are not able to do this have to devote so much effort to deciphering each letter that they leave little space in working memory for processing and remembering the words. Recognizing letters automatically makes it easier for children to recognize the patterns of letters, and the ability to do this is a key to reading words (Nevills & Wolfe, 2009).

RECOMMENDATION

To give children an advantage in learning to read, develop knowledge of letter names and provide practice in rapid letter naming. Help students gain an understanding that letters represent the sounds in words by introducing letter-sound relationships.

iRead's Approach

iRead introduces the letter names and sounds and then quickly moves to application of the sounds to phonological awareness instruction. Units 1 and 2 guide students to master the upper- and lowercase alphabet, respectively. Practice is provided so that students can learn to fluently and accurately name the letters. Letters are taught in alphabetical order so students can build on their prior knowledge and situate letters in their traditional order. By introducing uppercase letters first, *iRead* exposes children to the entire alphabet in half the time, while reducing cognitive load and simplifying discrimination tasks.

In Unit 3, *iRead* then moves to connect letters to sounds through phonological awareness instruction. Students are introduced to letter sounds using alliteration activities such as clicking on images of words starting with the same letter (*ball, boy, bat*), students begin to make the essential linkage between letter, sounds, and meaningful language.

Throughout alphabet instruction, vowels are highlighted as special letters in program graphics, modeling, and animations. Students also receive practice reciting the vowels through the singing of a vowel song.

The program also draws on the writing-reading connection to encourage acquisition of letter-recognition skills. *iRead* models the formation of letter strokes throughout these units, with links to paper-and-pencil practice in writing letters.

Phonics

According to National Research Council reading experts, “Phonics refers to instructional practices that emphasize how spellings are related to speech sounds in systematic ways” (NRC, 1998, p. 52).

Research Evidence and Expert Opinion

More than 20 years of research provide overwhelming evidence of the value of phonics in early reading instruction (Adams, 1990; NELP, 2008; NRC, 1998; NRP, 2000). Further, systematic and explicit instructional approaches to phonics—that is, those that “use a planned, sequential introduction of a set of phonic elements along with teaching and practice of those elements” and feature “the identification of a full array of letter-sound correspondences” have been shown to be more effective in promoting early literacy than non-systematic approaches (NRP, p. 2-89). These findings provide clear evidence that “systematic phonics instruction makes a bigger contribution to children’s growth in reading than alternative programs providing unsystematic or no phonics instruction” (NRP, p. 2-92).

But as the National Reading Panel (2000) itself cautions, phonics should never be taught as an end in itself. Phonics instruction is a tool that has proven efficacy in teaching reading—but reading comprehension is the end goal. Greater success in reading occurs, for both low-readiness and better-prepared students, when systematic code instruction is coupled with the reading of meaningful connected text (Adams, 1990).

RECOMMENDATIONS

Beginning readers at all levels of preparedness benefit from instruction in phonics. However, to be of greatest value, phonics instruction should be taught in conjunction with related reading activities and the reading of informative and engaging texts, within the context of a comprehensive English language arts program.

iRead's Approach

iRead provides a careful sequence of explicit phonics instruction designed to build automaticity in the full array of high-utility spelling patterns for the English phonemes, including introduction of and practice with all phonic elements. *iRead* phonics instruction is implemented as part of a comprehensive English language arts program.

Starting in Unit 4 toward the end of Level A, children begin to develop agility in reading any single-syllable word with regular short vowel spellings. Phonic elements are introduced in a sequenced developmental progression starting with –VC rimes that focus attention on contrasting initial consonants, then CV- patterns that focus attention on contrasting final consonants, and finally patterns in which initial and final sounds are held constant and vowel sounds vary (e.g., *hat*, *hit*) to focus attention to the vowel in each word. In *iRead* Levels B and C, students move on to more challenging single and multisyllable patterns.

iRead teaches spellings of the sounds of English with a focus on sounding out words, paying attention to every letter, and connecting words to meaning. Direct instruction videos and carefully designed activities enable students to identify spelling patterns, while also prompting students' metacognitive understanding about how words and language function.

In Levels A and B of the *iRead* program, Word Center activities promote students' ability to decode new words with agility. For example, the Word Changer activity guides young readers to identify changes in initial, final, and medial letters to blend new words, and then identify their corresponding images to reinforce meaning. In the Mix and Match activity, to build proficiency in matching aural words to their spellings, students read a list of words, then match spoken words to their spellings. Decoding tips are provided to help them correct their errors. In Show What You Know, students build their accuracy and automaticity through selecting the corresponding word from an array of choices. *iRead* offers students immediate corrective feedback and many opportunities to practice. Show What You Know Fast provides several timed "speed rounds" to further enhance automaticity. Throughout these exercises, young learners get the message that every letter matters.

The everyday sequence of *iRead* activities complements comprehensive English language arts programs. The



Show What You Know Fast

activities present reading of connected texts that are carefully constructed to map to letter-sound representations introduced through direct instruction and/or interactive exercises. For the most part, students are not asked to decode words with spelling patterns they have not been taught to decode or to read high-frequency sight words to which they have not been explicitly introduced.² Decodable texts gradually increase in length and complexity, moving from a sentence to multiple paragraphs. Through this scaffolded approach, learners receive an appropriate amount of support and challenge, and thus have a greater chance of success in their earliest attempts at reading. This pattern of accomplishment, in turn, promotes positive feelings about reading, thus inducing a virtuous cycle of further reading and continued success (Adams, 1990).

Sight Words

The term “sight words,” in the context of early reading development, refers to the “high-frequency, irregularly spelled words students are taught to read as unanalyzed wholes” (NRP, 2000, p. 2-102).

Research Evidence and Expert Opinion

The importance of mastering sight words is made clear by the fact that only 14 of the 150 most frequently used words in English follow sound-symbol generalizations that early readers are likely to have encountered (Adams, 1990). Indeed, some of the most common words in English, such as *does*, *to*, *were*, *there*, *one*, are irregular by any standard. Yet, because of their frequency, students must master such high-frequency words before they can begin to read connected redundant text.

The 25 most common words in English represent about a third of all printed material as such sight words are the glue that holds text together (Fry & Kress, 2006). The ability to fluently comprehend text—the goal of all reading instruction—depends on reading these and other sight words with automaticity.

Mastering sight words is especially critical for students entering school with low reading-readiness and those who struggle with reading. Torgesen (2002) explains that these children “encounter many more words in grade-level text that they cannot read ‘by sight’ than do average readers” (p. 10). Sight words present a challenge for English language learners (ELLs), as well. Approaches that enable children to manipulate words through categorization, word association, or semantic analysis have been shown to be effective with both native speakers and ELLs (Carlo et al., 2004; Marzano & Pickering, 2005; Nagy, 1997).

Expert opinion further suggests that appropriate usage of these words must be emphasized in instruction, and that the highest frequency words be mastered before decodable text is introduced. Before decoding is fully mastered, in order to engage with English text, students must learn to recognize high-frequency words automatically (Adams, 1990). Adams (1990; 2001; 2009) advises that in order to avoid confusion in early learners, early sight word instruction should be discrete from regular phonics instruction.

RECOMMENDATION

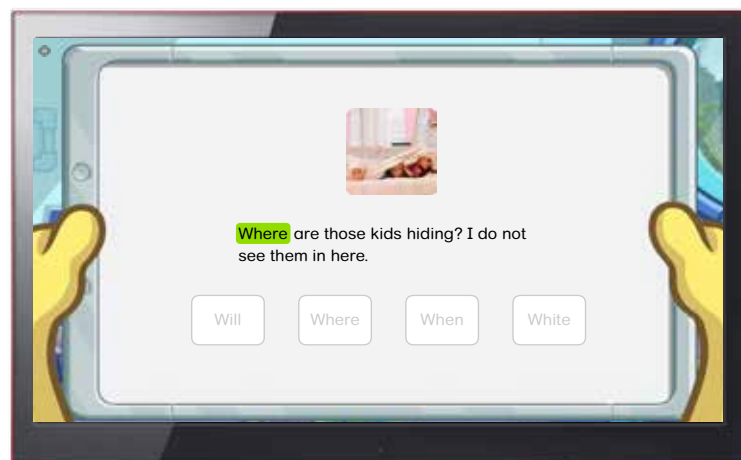
Teach early recognition and understanding of essential sight words in context to promote reading fluency, and compartmentalize instruction to avoid mutual interference from phonics lessons.

iRead’s Approach

Because words are better understood in relation with other similar words, *iRead*’s Sight Words strand presents high-utility, high-frequency, non-decodable sight words in select groups (e.g., prepositions, verbs, pronouns), thus aiding young learners in recognizing and making connections among these words.

2. This approach is consistent with evidence that reading success is enhanced by exposure to texts “with a high proportion of decodable, familiar words (complemented by high frequency words)” (Brady, 2012, p. 21).

Through exercises that reinforce the semantics, syntax, and usage of these words, students learn their function and meaning, which is especially important for ELLs and other students who may lack a firm understanding of how these words function in written and spoken English. For example, in the Cloze sentence activity Super Sentence Skills, children are asked to complete a sentence by selecting the correct sight word, guiding them to think about and use their understanding of the meaning and function of the words. Particular emphasis is placed on contextualizing prepositions, such as *with* and *of*, as comprehension of these words is best developed in the context of surrounding text.



Word Watch

And because words are best learned in rich semantic contexts (Adams, 1990), vocabulary is explicitly introduced and reviewed. Students learn sight words in context sentences that demonstrate their meaning and function, and then they practice using them to complete sentences. To further ensure a deep understanding of word meaning, the software provides multiple encounters with vocabulary across different texts.

To determine which high-frequency words to include, *iRead*'s development team carefully reviewed the following authoritative word list sources:

1,000 Instant Words (Fry, 2000)

The American Heritage Word Frequency Book (Carroll, Davies, & Richman, 1971)

Basic Elementary Reading Vocabularies (Harris & Jacobson, 1972)

Beginning to Read (Adams, 1990)

Common Core State Standards (NGA, CCSSO, 2010)

Dolch Basic Sight Vocabulary (Buckingham & Dolch, 1936)

The Educator's Word Frequency Guide (Zeno, Ivens, Millard, & Duvvuri, 1995)

Hiebert's Word Zones™ (Hiebert, 2005)

Houston Independent School District 2010–2011 High Frequency Word List, Grade 2 (Hunter, 2010)

To be selected, a word had to appear on two or more of the above lists, and be confirmed by *The Educator's Word Frequency Guide* (Zeno et al., 1995) and the 2010 *Common Core State Standards*, yielding a final list of 147 unique high-utility sight words. Mastering these words greatly increases a student's chance of reading success.

Syllabication

The ability to identify and divide syllables in written words equips students with strategies for identifying unfamiliar multisyllabic words.

Research Evidence and Expert Opinion

Research shows that reading success is linked to the ability of young learners "to detect syllables in speech or to segment syllables from speech" (Adams, 1990, p. 300). Syllables are larger units of spoken language than phonemes, and are thus easier for beginners to hear and manipulate (NRP, 2000). Therefore:

Syllabic awareness constitutes an essential link between [the] seemingly easy-to-acquire ability underlying our sensitivity to sound similarity and rhyme and that hard-to-acquire capacity to recognize individual phonemes (Adams, 1990, pp. 302–303).

Adams (1990) further observes, “. . . skillful readers’ ability to read long words depends on their ability to break the words into syllables” (p. 25).

From a reading fluency perspective, as students progress in their reading from the partial-alphabetic phase of development through to the consolidated phase, they use their knowledge of recurring letter patterns to consolidate letters into larger units, which, in turn, facilitates their learning of words as sight words beyond the basic, high-frequency, non-decodable set (Ehri, 1995). Thus, this ability—to break words into syllables—is critical to skillful reading of long words, and to the acquisition of increasingly complex words as sight words (Adams, 1990; Ehri, 1995; NRP 2000).

RECOMMENDATION

Being able to break words into syllables allows beginning readers to more easily read new and longer words, thus improving their reading fluency. Providing instruction that aids young readers’ ability to use syllabication strategies to unlock unfamiliar words promotes successful reading.

iRead’s Approach

iRead provides explicit instruction in syllable identification and segmentation. Starting with Level B, at the alphabetic phase, instruction begins to guide students toward reading chunk by chunk as opposed to sound by sound.

In *iRead*’s strategic syllable awareness exercises such as Word Solver, students analyze multisyllabic words by “spotting the vowels” in order to determine the number of syllables, and then break the word into its syllables to make it easier to read. Later, in Level C, students explore six syllable types and learn to consciously activate syllabication strategies and to change strategies if the first attempt doesn’t work.



Word Splitting

Morphology and Syntax

Morphology refers to the underlying meaning structure of words (Bowers & Cooke, 2012). In the context of foundational literacy instruction, morphological awareness refers to the ability to understand the function and meaning of word bases and affixes (e.g., inflectional endings, prefixes, suffixes), and how they can be combined to form words.

Syntax involves an understanding of “the ways words are strung together to communicate meaning” (Reutzel & Cooter, 2012, p. 35).

Research Evidence and Expert Opinion

Because English words are represented both as units of sound (phonemes) and as units of meaning (morphemes), it is logical to conclude that literacy instruction needs to address both (Reed, 2008). Learning about morphology helps children

understand words regardless of their first language or level of reading preparedness. Morphological awareness has been shown to contribute to vocabulary growth, and enables readers to understand as many as three words for every known base word (Nagy, Berninger, & Abbott, 2006). In addition, Adams (1990) recommends that instruction should build awareness of syntax because readers must understand how syntactical units within sentences are organized, in order to comprehend text of increasing complexity.

Reed (2008) summarizes the multiple benefits of morphological awareness, noting that it has been shown to “have a positive impact on students’ word identification, spelling, vocabulary, and reading comprehension” (p. 46). Furthermore, at-risk students and other struggling readers have been shown to benefit from direct instruction in morphemic analysis (Reed, 2008).

Traditionally, morphology has been considered an advanced topic, but increasingly research and expert opinion recommend that it be addressed early in literacy instruction (Adams, 1990; Bowers & Cooke, 2012; Carlisle, 2004; Reed, 2008). The importance of early exposure to morphology is underscored by research showing that morphological awareness accounts for “around 4% or 5% of the variance in decoding” (Reed, 2008, p. 37).

RECOMMENDATION

As English words represent both units of sound and meaning, provide morphological awareness instruction in addition to phonemic awareness instruction. Similarly, since increasingly complex English sentences are comprised of syntactical units that convey essential meaning, provide instructional support for developing children’s awareness of syntax.

iRead’s Approach

iRead instruction focuses on building student understanding of the meaning and function of word parts, including inflectional endings, prefixes, and suffixes. Students are afforded opportunities to apply, integrate, and extend their learning of meaningful word parts in the context of reading texts with controlled vocabulary.

Morphological awareness is carefully built into the entire *iRead* sequence to facilitate early success in reading connected text. At the partial alphabetic phases (*iRead* Level A), children learn that the ending *-s* can mean more than one of something. By the time they have progressed to consolidated reading levels (*iRead* Level C), students are able to identify, manipulate, and understand the meaning of high-utility affixes such as *re-*, *pre-*, *-ful*, *-less*, and *-able*.

In Level C, to help students unlock meaning, *iRead* direct instruction videos (A Message From Mrs. Wordy) provide guidance that models and explains word affixes. *iRead*’s Word Play strand presents high-utility affixes and demonstrates how morphemes work. To build young readers’ abilities to read, manipulate, and understand the function of affixes, Word Changer activities provide opportunities to view changes in affixes, blend new words, and identify the corresponding image. Word Solver exercises help children “look—split—read” complex words by first looking for word parts they already know, then splitting the base from its affix, then reading each part to make meaning of the word.

iRead models and reinforces the syntax of written English, through activities that begin with simple sentences and that progressively involve longer and more syntactically complex sentences. Exposing children to this complexity continuum ensures that they are engaged in reading and thinking about text that follows the syntactic conventions of written language, which is so different from spoken language. In addition, many of the words introduced in the *iRead* Sight Words strand are signals of syntactic units (e.g., prepositions) and practice exercises reinforce the form, function, and meaning of these words. In sum, *iRead* helps students build a vocabulary for reading and writing.

Fluency

Fluency refers to the ability to read letters, sounds, words, sentences and passages, both orally and silently, with speed and accuracy (NELP, 2008; Vaughn & Linan-Thompson, 2004).

Research Evidence and Expert Opinion

Fluency in reading rests on foundational skills that are built and reinforced through effective phonics instruction. Adams (1990) notes:

Research indicates that the most critical factor beneath fluent word reading is the ability to recognize letters, spelling patterns, and whole words effortlessly, automatically, and visually. The central goal of all reading instruction—comprehension—depends critically on this ability (p. 54).

Thus, it is important for early literacy instruction to include fluency practice within the context of building foundational skills building. As The National Reading Panel (2000) cautions:

phonics programs that emphasize decoding exclusively and ignore the other processes involved in learning to read [including reading fluency and automaticity] will not succeed in making every child a skilled reader (p. 2-117).

Beyond developing decoding skills to automaticity, fluency is best developed, the research shows, by providing students with ample practice opportunities for oral reading, supported by explicit instruction from teachers, as well as other forms of feedback from fellow students and families (Adams, 1990; NRP, 2000; Vaughn & Linan-Thompson, 2004). Furthermore, explicit and systematic fluency instruction that includes monitoring of student progress has shown stronger effects than more implicit approaches (NRP, 2000; Vaughn & Linan-Thompson, 2004). Vaughn & Linan-Thompson (2004), based on their review of the research, suggest the following explicit means of teaching fluency:

- Model Reading: a model reader (often the teacher) reads the text, then the student reads it.
- Choral Reading: the teacher previews a passage, then the teacher reads aloud, with students joining in. The teacher's voice fades to allow the children to proceed without a modeled reader.
- Recorded Reading: students follow a text being read by a recorded reader.
- Reader's Theater: students rehearse a text repeatedly, then perform it.
- Partner Reading: students, often paired in differing reading levels, read and reread passages of text to each other.

In these and other fluency activities, care should be taken to appropriately match the texts to each student's individual reading level (Vaughn & Linan-Thompson, 2004). Typically, texts that children can read orally with 95% accuracy are likely to produce the best results.

RECOMMENDATION

Research and expert opinion indicate that effective word and letter recognition skills are essential to fluency in reading. Providing frequent opportunities for accountable silent and oral guided reading of texts, appropriately leveled to each learner, promotes the development of fluency.

iRead's Approach

iRead helps students gain fluency through technology-based explicit practice in phonics-based activities that promote automaticity in word decoding and daily connected text activities. In addition to the online activities, *iRead* provides students

with frequent opportunities to read level-appropriate text (e.g., Success eBooks), carefully scaffolded to increase in length and complexity as reading levels progress, as well as guidance for teachers in promoting fluency through offline small-group instruction. While promoting the development of foundational literacy skills, *iRead* activities also require students to make meaning of text.

In addition, students are able to record their oral reading attempts and save them in their digital portfolio for subsequent teacher review. An oral reading rubric helps teachers evaluate the recordings to identify student growth and any areas needing further development. Offline fluency strategies aim at multiple reading opportunities, including:

- Cloze Reading
- Choral Reading
- Repeated Reading
- Partner Reading
- Reader's Theater

Students are also taught ways to strengthen their emerging fluency via Fix-Up Strategies that focus on self-correcting and re-reading techniques.

Spelling

The *Common Core State Standards* call for students to “demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing” as defined in grade-appropriate stages of mastery. Furthermore, while spelling is in itself a core literacy skill, developing an awareness of its patterns (orthography) is important to early reading success.

Research Evidence and Expert Opinion

Phonics instructional approaches in which word families are carefully grouped to highlight letter-sound contrasts have been shown to be effective in helping students grasp orthographic patterns (Adams, 1990; Henry, 2010). Instruction that systematically organizes and exploits minimal contrasts helps focus children's attention and hastens development of their orthographical/phonological abilities (Adams, 1990).

The evidence for focused and explicit spelling instruction as a major component of the reading program is strong. Adams (1990) concludes that “learning about spelling . . . enhances reading proficiency” because it reinforces knowledge of common letter sequences, spelling-sound relationships, and (possibly) word parts (p. 404).

Finally, it is worth noting that while an understanding of spelling patterns aids reading success, children's awareness of phonics also promotes their spelling skills. The National Reading Panel concludes “that systematic phonics instruction produces gains in . . . spelling not only in the early grades (kindergarten and 1st grade) but also in the later grades (2nd through 6th grades) and among children having difficulty learning to read” (NRP, 2000, p. 2-122).

RECOMMENDATION

As children learn to decode words through phonemic/phonological awareness and phonics instruction, they develop awareness of letter-sound relationships and orthographic patterns that improve their ability to encode words, or produce spellings of them. In turn, explicit instruction in how to spell words correctly when writing improves students' ability to decode them when reading.

iRead's Approach

iRead teaches the highest-utility spellings of English phonemes with a focus on sounding out words, paying attention to every letter, and connecting words to meaning. Direct instruction videos and carefully designed activities enable students to identify and manipulate letters to form words, while also prompting students' metacognitive understanding about how words and language function.

In Levels A and B of the *iRead* program, Word Center activities promote students' ability to manipulate letters and patterns to build new words. For example, the Word Building activity guides young readers to identify letters to complete words and to change initial, final, and medial letters to make new words. As they identify letters to complete words, students must apply segmentation skills to identify the phonemes needed, and they must apply knowledge of sound-spellings to identify the correct letters to use. For example, in completing the word s_f_ (*safe*), they hear the word spoken and identify its vowel sound. Then they must identify the correct spelling for that vowel sound (VCe).

As they change initial, final, and medial letters to make new words, students build agility with manipulating spelling patterns. *iRead* offers students immediate corrective feedback and many opportunities to practice, always relating each word to its meaning.

Level C brings an increased focus on accountable spelling, and at this level, children encounter the Spelling Center. This Center presents a suite of activities that use assessment, spelling tutorials, and repeated practice to move children to spelling mastery.

Spelling Warm-Up is an assessment that asks students to spell words from dictation, and uses results to create a customized set of study words for each student. Next comes Spelling Work-Out, which provides spelling tips and guided practice for each study word with immediate corrective feedback and error correction specific to their spelling errors. Finally, the Spelling Bee activity provides repeated practice with study words, review words, and new/transfer words to build accuracy and fluency in encoding.

iRead's Professional Guide offers advice to teachers on integrating spelling with other elements of reading and writing instruction, as students move from the partial and full alphabetic phases of reading to the full-alphabetic phase and consolidated reading phase. *iRead* online lessons and activities systematically guide students in manipulating letters and phonemes to encode entire words.

A Coherent and Systematic Approach

Foundational skills are critical to early literacy development, but as a means, not an end. The purpose of phonics instruction is to promote the ability to read with ease, accuracy, and meaning.

Research Evidence and Expert Opinion

Consensus research findings strongly support the effectiveness of phonics instruction, while also emphasizing its larger goal of reading fluency and comprehension. As the National Reading Panel (2000) states, "systematic phonics instruction should be integrated with other reading instruction" (p. 2-97). In other words, students must come to understand the larger purpose behind learning letter-sound relationships. Furthermore, their emerging skills must be continuously applied to meaningful reading and writing activities (NRP, 2000, p. 2-96).

First, the research literature suggests (as noted earlier) that the design of effective phonological/phonics instruction should be carefully scaffolded, with each element mapped to a scientifically based understanding of how reading skills progress. Further, those elements must be thoughtfully intertwined to provide the appropriate levels of support and challenge to young learners. As Adams (1990) observes, "[T]he parts of the reading system must grow together. They must grow to one another and from one another" (p. 6).

Second, skills don't exist in a vacuum. They must be applied to a meaningful activity, in this case, the reading of connected, level-appropriate text. Brady (2012), while endorsing the importance of research-based methods of code instruction, advocates connecting that instruction to the reading of connected text. Furthermore, Brady (2012) concludes that engagement with "texts with a high proportion of decodable, familiar words (complemented by high-frequency words) enhance beginners' reading acquisition" (Brady, p. 21).

Moats (2012) underscores the importance of a systematic and coherent approach to literacy instruction, noting that currently about one-third (34%) of students score below basic on 4th grade NAEP tests, while up to 70% to 80% of low-income students are at risk for reading failure. To combat these alarming statistics, she calls for regular classroom instruction that "includes systematic instruction in phoneme awareness, phonics (with spelling), passage reading fluency, vocabulary, and comprehension—strands that ideally complement and support one another. Most importantly, students must spend time reading—not simply being read to—from text of the appropriate level of difficulty" (Moats, 2012, p. 16).

Coherence in reading instruction rests not on an either/or argument, but an integrative one. Coherency means that teaching children to read and write words in isolation serves to promote their spelling and word recognition skills. And, it means teaching children to read words in meaningful contexts so that they can develop understanding of words' usage and meaning. Throughout, as children see and say words, it is essential that they be guided to think about the words' meaning. Adams (2011) grounds the case for coherence, in neuroscience, noting, "The brain does not grow block by block from bottom up. It grows through its own efforts to communicate and find coherence within itself" (p. 19).

RECOMMENDATION

Guide beginning readers to master the foundational literacy skills detailed above via a systematic and coherent plan of instruction that includes ample opportunities to engage with appropriately leveled text, so that students can integrate these skills seamlessly and automatically to achieve fluent comprehension.

iRead's Approach

iRead components work together as a coherent and orchestrated whole. All lessons in *iRead*'s component skills strands are carefully designed to build on and reinforce each other, while all practice activities are anchored in meaningful text. Students have further opportunities to strengthen and apply their skills in daily *iRead* tasks that build from letter formation to spelling activities to writing tasks centered on Success eBooks.

Each series of *iRead* lessons culminates with an eBook Success activity in which students apply their newly acquired phonological/phonics skills to reading and rereading of high-interest texts featuring controlled vocabulary. Students engage in two "reads" of each *iRead* eBook. The focus of the first read is to build fluency and knowledge. Students listen to a model fluent reading and follow along with highlighted text. They also may opt to turn off the audio to Read by Myself. The focus of the second read is to build comprehension and vocabulary. During this rereading, students are encouraged to read on their own and explore key vocabulary words, or power words (based on the work of Andrew Biemiller [2009]). Friendly definitions are provided for these select, high-utility words (words used across domains and in multiple contexts). If language supports have been turned on, Spanish-speaking students hear Spanish definitions in addition to those in English. After the two readings have been completed, all students demonstrate vocabulary acquisition by matching words with their definitions. Students demonstrate comprehension by identifying the correct detail that supports a key idea of the text.





Personalized instructional approaches enhance the effectiveness of teaching and learning for all students and can help ensure that students in classrooms of mixed readiness levels all have access to the same high-quality educational opportunities.

The *iRead* program adapts to the individual needs of every student, providing systematic review, individual feedback, and multiple opportunities to test for mastery. At the beginning of the school year, *iRead*'s Screener evaluates each student's reading abilities, and then places the student in the appropriate unit of instruction.

Personalized, Differentiated Reading Instruction

In this section, the terms *personalized instruction* and *differentiated instruction* are used synonymously to refer to the research-informed perspective that learning is enhanced when instruction accommodates the variances in learning needs among individual children (Sousa & Tomlinson, 2011).

Recent statistics reveal the increasing diversity of US public education students:

- ▶ There has been a 150% increase since 1990 in the number of English language learners (ELLs) in US public schools (Goldenberg, 2010).
- ▶ It is projected that 20% of the US public school population will be Hispanic by 2050 (Cárdenas-Hagan, 2010).
- ▶ 13% of public school children receive federally supported special education services (Snyder & Dillow, 2012).

Over 21 million children receive Title I services, aimed at students from low-

- ▶ income families (USDOE, NCES, 2011).

Students from backgrounds such as these often face academic challenges and are overrepresented among struggling early readers (NRC, 1998). For example, according to 2005 National Assessment of Educational Progress (NAEP) data, approximately three-fourths of US English language learners scored “below basic level in reading when compared to non-Hispanic whites” (Cárdenas-Hagan, 2010, para. 3). Additional challenge is presented when these demographic factors overlap. For instance, according to the US Department of Education, of the children ages 5–9 who spoke a language other than English at home and reported speaking English with difficulty, 70% are classified with a poverty status of poor or near poor (USDOE, NCES, 2011).

Personalized instructional approaches enhance the effectiveness of teaching and learning for all students and can help ensure that students in classrooms of mixed readiness levels all have access to the same high-quality educational opportunities. Differentiation promotes the effectiveness of the partners in the learning process: teachers are more successful when they systematically evaluate their students to better understand their differing learning needs and adapt instruction accordingly. In turn, students achieve at higher rates when learning environments are intentionally designed to maximize their individual cognitive development (Sousa & Tomlinson, 2011). Learning happens best when “time, space, materials, groupings, strategies, and other classroom elements” are systematically organized to “address students’ multiple development trajectories” (Sousa & Tomlinson, pp. 46–47).

To increase their chances of becoming successful readers, all children, from those with advanced skills, to those who are academically challenged should receive foundation literacy instruction that targets their specific learning needs.

To meet the varying needs of students in mainstream classrooms, especially those who struggle with reading, technology can be a key to success. It can provide adaptive instruction based on ongoing assessment; repetitive practice tailored to each student’s individual needs; and data analysis to inform subsequent personalized learning (Hasselbring, 2012).

Personalized, Differentiated Reading Instruction

By definition, differentiated instruction is a flexible and individual approach to instruction that gives students multiple options for taking in information and making sense of ideas. Personalized, differentiated instruction accommodates the variances in learning needs among individual children by tailoring instructional units to meet each student at his or her level.

Research Evidence and Expert Opinion

Accurate and fluid reading depends on the successful integration of a variety of skills, which children learn at varying rates and with differing degrees of ease. As the National Reading Panel (2000) points out:

In the early grades, children are known to vary greatly in the skills they bring to school. There will be some children who already know most letter-sound correspondences, some children who can even decode words, and others who have little or no knowledge (NRP, 2000, pp. 2-96—2-97).

In particular, low-income, nonwhite, and English language learners are at risk of experiencing difficulties in reading (NRC, 1998).

Differentiated instruction can reduce readiness gaps that accompany at-risk children in the early grades (Sousa & Tomlinson, 2011). While research shows that virtually all beginning readers gain from phonological/phonics instruction, experts agree that the type and amount of such instruction should vary according to each child's personalized learning needs (NRP, 2000; Torgesen, 2002). Students at risk of reading difficulties have a need for greater instructional intensity than other students (Torgesen, 2002).

Implicit in the notion of differentiation is the idea of assessment—of evaluating individual readiness and progress levels so that instruction can be appropriately tailored to each child. As the NRP notes, phonics programs should “provide guidance in how to place students into flexible instructional groups and how to pace instruction” (NRP, 2000, p. 2-97).

Differentiation also provides the foundation on which more specific Response to Intervention (RTI) strategies can be structured (Institute for Education Sciences [IES], 2009). Frequent assessment and progress monitoring should be done to ensure that instruction continues to meet individualized student needs, but at all times, “the focus should be on providing students with solid instruction and enjoyable literacy experiences” (Vaughn & Linan-Thompson, 2004, p. 128).

RECOMMENDATION

Accurate and fluid reading depends on the successful integration of an array of skills, which children learn at varying rates and with differing degrees of ease. Thus, early literacy instruction should be flexible and differentiated to meet the unique and personalized learning needs of each child.

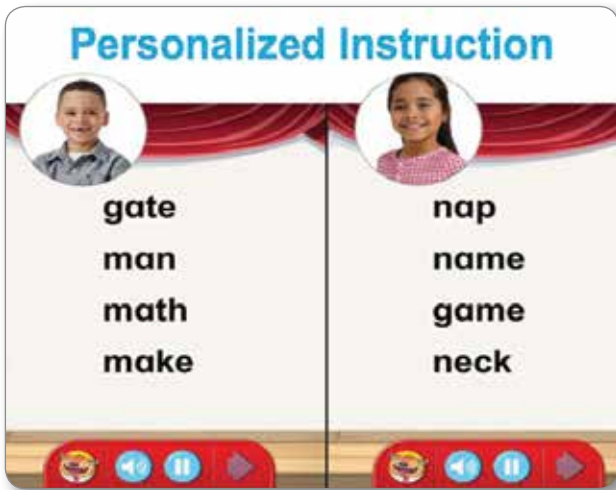
iRead's Approach

iRead provides an array of tools that enable teachers to implement individualized instruction and differentiated small-group instruction tailored to each student's foundational skill strengths and areas for development. Adaptive feedback to students and assessment information for teachers helps identify and bridge any readiness gaps that students may have.

The *iRead* program adapts to the individual needs of every student, providing systematic review, individual feedback, and multiple opportunities to test for mastery. At the beginning of the school year, *iRead*'s Screener feature evaluates each student's reading readiness and skills, and then places the student in the appropriate unit of instruction.

iRead differentiates instruction in three ways: in its pacing, in the amount of practice, and in instructional content. Students progress through *iRead* lessons at a pace that best suits their needs. Fast-track assessments at the beginning of each series of lessons identify students whose level of prior knowledge and proficiency permits them to move through the series more quickly. These students may skip guided practice activities that less proficient students would need, and proceed directly to activities that involve encoding, vocabulary, and reading connected text. Less proficient students will engage in these same activities after receiving the guided practice they need.

iRead adapts the amount of practice students receive as well. All lessons start with a set of sounds or words for study, with periodically embedded Show What You Know activities that function as gates for demonstrating mastery of a given skill. If students' responses indicate they are not yet at the mastery stage, they receive additional cycles of instruction and more opportunities to practice, as well as activities that mix both new and repeated content so that the lesson continues to be fresh and engaging.



Students also receive customized support for persistent areas of difficulty. For instance, if a beginning reader is having difficulty with a particular phoneme or sound-spelling in isolation, that sound-spelling will appear more frequently in subsequent lessons to provide further opportunities for guided practice. Throughout *iRead*, the corrective, adaptive feedback is tailored to individual student errors.

English language learners are supported too, as *iRead* builds on the language abilities that they already possess to promote comprehension, conceptual understanding, and contextual knowledge of information presented in the English language through photographs, animations, videos, and audio support. Vivid examples and images give Spanish-speaking students at various stages of English language acquisition access to Tier 1, 2, and 3

words, to ensure meaning and develop transfer of cultural knowledge. Spanish translations and/or cognates for all target words help Spanish speakers connect new words to known words in Spanish.

To support teachers, *iRead's Professional Guide* offers advice from leading early literacy educator, for example:

- Ted Hasselbring on individual pacing and software supports for special education students
- Elsa Cárdenas-Hagan on children's language proficiency, language supports, and use of *iRead's* Word Gallery for English language learners

Screening for Individualized Interventions

Students are administered in an initial assessment of skills in order to determine appropriate placement points and identify at-risk students. In this way, remedial and/or enrichment activities can be tailored to meet the needs of each individual student at his or her instructional level.

Research Evidence and Expert Opinion

Early identification and appropriate intervention strategies have been shown to be effective at helping struggling readers make progress (IES, 2009; Lyon & Chhabra, 2004; Shepherd & Marzola, 2011; Wagner, 2008). Delays in proper identification and intervention can have damaging consequences: "at least 70% of students who do not learn to read by age 9 will never catch up to their typically developing peers" (Shepherd & Marzola, 2011, p. 436). A longitudinal study reveals that 23% of students who were reading "below basic" by the end of third grade failed to graduate from high school by age 19, compared to only 4% of students identified as "proficient" by the end of third grade (Hernandez, 2012).

Thus, research and expert opinion strongly suggest that students be regularly evaluated in the classroom so that appropriate and timely interventions can be provided as soon as the need is recognized (IES, 2009; NRC, 1998; Sousa & Tomlinson, 2011). In its RTI Practice Guide, the Institute of Education Sciences (IES, 2009) specifically recommends that reading "teacher's screen all students for potential reading problems at the beginning of the year and again in the middle of the year" (p. 9).

Shepherd and Marzola (2011) further note that while the foundational literacy skills of

phonemic awareness, phonics, fluency, vocabulary, and reading comprehension should all be addressed, assessing each area must be conducted in a manner that is appropriate to the grade level of the child. In addition, issues of cultural and linguistic differences in this population must be addressed (p. 437).

RECOMMENDATION

Provide a screening assessment for early identification of areas in which individual students need more support, as well as areas in which students exhibit mastery.

iRead’s Approach

iRead’s Screener assessment, which has been correlated with the widely used *Dynamic Indicators of Basic Early Literacy Skills (DIBELS Next)* assessment, determines appropriate placement within the instructional sequence based on individual performance data. The various placement starting points ensure that students with readiness issues begin with the instruction they truly need. Advanced readers in Grades 1 and 2 begin iRead lessons at a later starting point and are afforded ample opportunities to move more quickly through the instruction.

Engagement With Appropriate Text

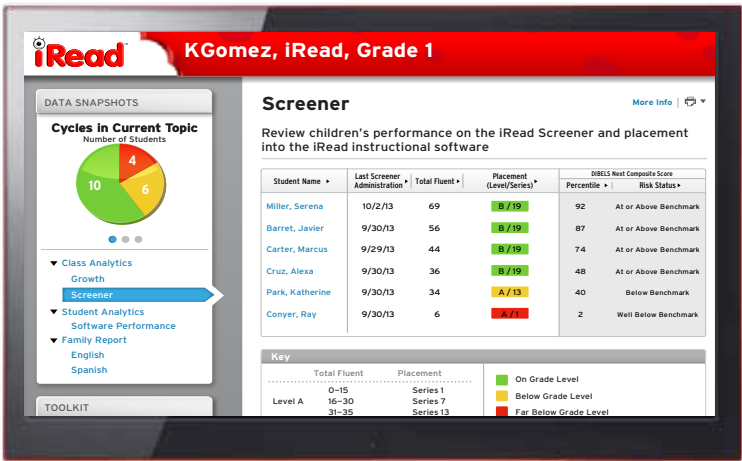
Engagement with text is essential to successful reading. Beginning readers must be engaged in the material they are trying to read in order to learn. When children are challenged to just the right degree and feel themselves progressing and learning, they become deeply engaged in reading. It is critical to provide students with texts that are on the appropriate level in order for this to happen.

Research Evidence and Expert Opinion

Success at any skill, including reading, depends on practice. All beginning readers need frequent engagement with text that provides optimal levels of challenge and support, with student performance data informing the type and degree of independence of their reading activities (IES, 2009).

Ideally, instruction should provide texts that bracket each reader’s optimal level of support and challenge, i.e., their zone of proximal development (Vygotsky, 1978). Yet, there is an obvious tension here. Since low-readiness readers read more slowly and have fewer choices of texts at an appropriate level, they get less practice reading. Yet more practice is exactly what they need to build awareness of sound-spelling patterns on which fluent reading depends.

The solution is to consistently and carefully design differentiated instruction that exposes children to texts and phonics lessons that support and build on one another (Adams, 1990). As the National Research Council (1998) advises, two types of instructional resources should be provided to early readers: (a) daily independent reading materials “selected to be of particular interest for the individual student, and beneath the individual student’s frustration level, in order to consolidate the student’s capacity for independent reading” and (b) supported reading texts “that are slightly more difficult in wording or in linguistic, rhetorical, or conceptual structure in order to promote advances in the student’s capabilities” (p. 8).



Screener Analytics

RECOMMENDATION

Beginning readers should be provided with ample opportunities to read voluminously the types of texts that they find interesting and that are on their reading level. Texts that are on the appropriate level provide an individualized balance of support and challenge. Both qualitative and quantitative data should be collected about student behaviors during reading in order to inform decisions about the types of texts to which students should be exposed.

iRead's Approach

After each series of software lessons, students read a high-interest Success eBook that employs controlled vocabulary to carefully scaffold the reading experience and reinforce specific phonemic/phonics skills young readers have just developed. eBooks provide increasingly complex text, along with correct pronunciation of every word and friendly definitional support for high-utility vocabulary words. Designed to be relevant to children of diverse backgrounds and interests, eBook themes include life and physical science, earth and space science, health, music, poetry, sayings and phrases, history, geography, and world cultures. Engaging photos and illustrations deepen children's interaction with the text.

Students also have access to a library of downloadable books, appropriately leveled on the basis of individual performance data. Students are able to collect and track the books they have read in their *iRead* backpack collections.

And in the *iRead* Family Portal, parents are provided reading lists of high-interest literacy and informative trade books, from which children can choose, based on their own interests. They can also download decodable books that are just right for their child's level.

Classroom Management Practices for Differentiated Instruction

Classroom management refers to everyday processes, practices, and procedures—including efficient data management techniques—that foster a “smooth-functioning, productive classroom learning environment” (Roskos & Neuman, 2010, p. 308). Effective personalized, differentiated instruction depends on a well-organized and positive classroom environment, reinforced by appropriate teacher procedures and accessible student data.

Research Evidence and Expert Opinion

While personalized, differentiated learning at its most granular level involves instruction tailored to the individual child, it also draws on the practical and social advantages of small-group learning. Recognizing that a differentiated classroom will have multiple learning activities occurring simultaneously, Sousa and Tomlinson (2011) recommend that teachers develop clear and consistent methods to maximize the use of learning time, ensure that students stay on task, and set expectations for student behavior.

At-risk students, in particular, benefit from effective classroom management strategies to ensure that learning time and resources are effectively employed, and that attention is focused on learning (Roskos & Neuman, 2010).

Differentiation also implies assessment, as teachers need to understand where students are in order to understand what they need. Thus, effective data management is another vital component of a differentiated classroom. In calling for differentiated instruction based on student assessment data, Institute of Education Sciences' *Practice Guide for Response to Intervention* (IES, 2009) notes the need for teachers to be able “to collect and interpret student data on reading efficiently and reliably” so that they can “develop data-driven decision rules for providing differentiated instruction to students at varied reading proficiency levels for part of the day” (p. 9).

RECOMMENDATION

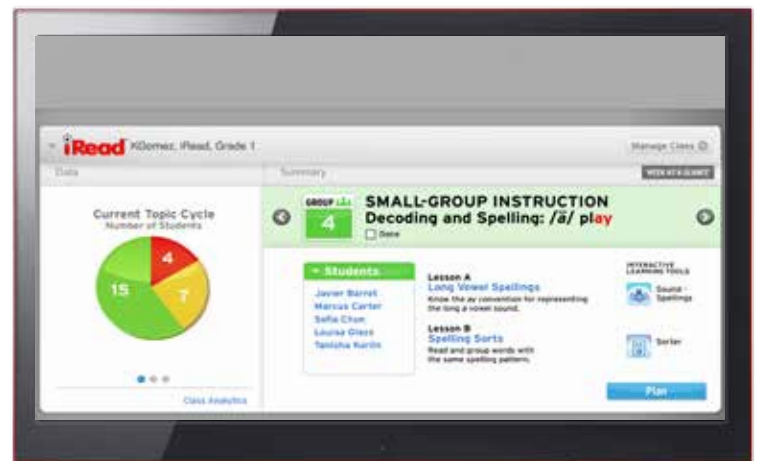
Implement specific classroom management practices, including efficient data management procedures, to support and foster a differentiated approach to early reading instruction.

iRead's Approach

SAM Central is the online compendium of data tools and reports, planning tools, and instructional resources that support the *iRead* learning program. Over 200 lesson plans, hundreds of interactive, instructional activities, and full range of data-management tools support teachers in carrying out the informed planning and effective instructional decision making so essential to student reading success.

From SAM Central, HMH's Learning Management System, teachers can access their data, planning tools, and instructional resources. The home page, with data snapshots, provides high-level views of the class's overall progress. For more in-depth information, teachers can drill down to specialized reports directly from SAM Central.

To support small-group instruction, SAM Central offers suggestions for flexible reading groups based on where students are in the program's scope and sequence. *iRead*'s online lessons expand on small-group instructional routines modeled in the *Professional Guide* and offer instructional routines aimed at specific learning targets—two weekly lessons for each of the five small-group options. Direct links from the Groupinator® provide handy access to select small-group Interactive Learning Tools—including *iRead* direct instruction videos, images, audio models, and activities—that are tailored to the appropriate skill level for each group. Integrated within the online lesson plans is guidance to teachers on use of the Interactive Learning Tools.



SAM Central

Technology for Adaptive, Personalized Instruction

“Teaching a group of students with . . . divergent needs [with respect to foundational reading skills] is almost impossible, even for the best instructors” (Hasselbring, 2012, para. 3). Technology can customize learning by providing adaptive instruction and repetitive practice tailored to each student's individual needs. More specifically, *iRead* makes use of Fluency and Automaticity through Systematic Teaching with Technology (FASTT), an adaptive software algorithm designed to maximize retention of new concepts by facilitating the transfer of new information from working memory to long-term memory.

Research Evidence and Expert Opinion

A learner's ability to retrieve relevant knowledge and information can vary from being "effortful" to "relatively effortless" to "automatic" (Cohen, Dunbar, & McClelland, 1990). Research shows that the mastery of a knowledge domain, such as reading, depends on the ability to perform sub-processes unconsciously with speed and accuracy while consciously carrying out other higher-level cognitive tasks (Bloom, 1986; Hasselbring, et al., 1988; LaBerge & Samuels, 1974). However, before gaining automaticity, beginning learners must exert substantial effort to retrieve the necessary information about a new skill from their short-term memory. This retrieval process creates a cognitive load that can inhibit their ability to engage in other learning processes at the same time (Adams, 1990).

Accordingly, beginning readers often struggle with the cognitive challenge of decoding text accurately and with fluency, while simultaneously attempting to comprehend what they are reading. This is why automaticity is so critical in reading, for only when students can decode words without having to devote much conscious effort to the task (automaticity) and apply the proper rhythm, intonation, and phrasing (fluency), can they sufficiently free up the cognitive powers necessary for comprehension (Freedman & Calfee, 1984; LaBerge & Samuels, 1974).

RECOMMENDATION

To support differentiated early reading instruction, use a technology-based adaptive system that teaches a systematic sequence of decoding skills to build automaticity.

iRead's Approach

HMH has collaborated with education technology experts Ted Hasselbring and Laura Goin to adapt their Fluency and Automaticity through Systematic Teaching with Technology (FASTT) model to enable explicit, systematic instruction in foundational reading skills. The FASTT model facilitates the learning transfer from effortful practice attempts that rely on short-term memory to stable, automatic, learned elements in long-term memory, by introducing manageable sets of items, providing repeated exposures, spacing review, and shortening response time.

By providing intensive, accelerated instruction in phonological decoding skills, *iRead's* implementation of FASTT enables young learners to transfer these new skills to long-term memory, so that the act of decoding becomes automatic, accurate, and quick. Research has shown the effectiveness of the FASTT model in multiple instructional contexts (Hasselbring, Goin, & Bransford, 1988; Scholastic Research and Validation, 2005; 2008; Slavin, Cheung, Groff, & Lake, 2008).

FASTT consists of the following sequence of instructional procedures:

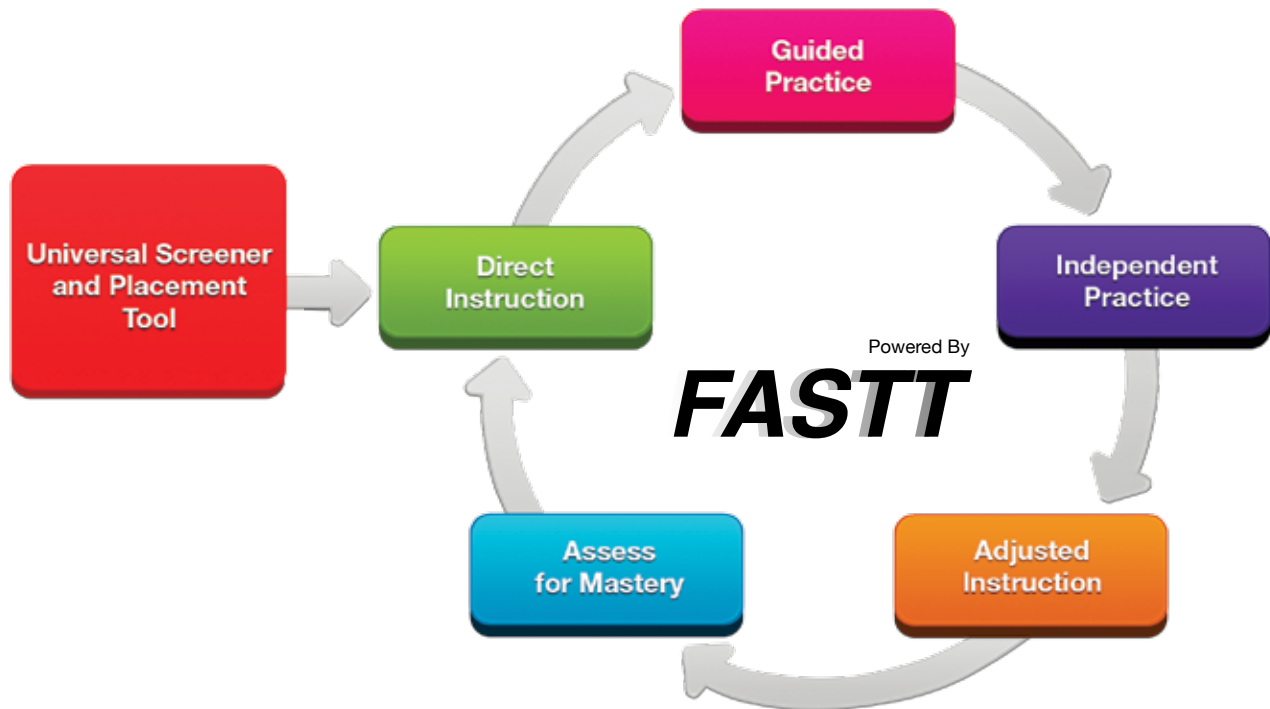
1. Assessment of the learner's current level of accuracy and response time (to individualize instruction)
2. Use of a small instruction set that is to be moved from "working memory" to long-term memory (Miller, 1956)
3. Use of an expanding recall presentation structure that gradually intersperses presentation of new skills based on continual measurement of the learner's ongoing performance
4. Use of a stringent and controlled response time and accuracy as measures of automaticity—to adjust instruction and practice accordingly

5. Use of audio and visual corrective feedback when errors occur before a new instructional stimulus is presented
6. Software that adapts practice based on the individual learner's accuracy and speed of response. The most recent items moved to long-term storage get the most practice.

The amount of time spent on each computerized lesson is based on individual student performance (accuracy and response time). Embedded assessments evaluate the skills needed for upcoming series of lessons, customized to each child's instructional path and focused on his or her unique areas of need. Students work on a discrete skill or skills group, engaging in activities that initially focus on accuracy, then turn to activities that build fluency/automaticity over time with those same skills.

As a general rule, *iRead* requires students to demonstrate accuracy before reducing response time to build fluency. Fluency in the *iRead* context refers to automaticity in recognizing words, sound-spellings, and letters. In Units 1 and 2, the fluency focus is on automaticity in letter recognition. In Units 3 and 4, the goal is to build accurate letter-sound correspondence, decoding, and word recognition. Beginning in Unit 5, the focus is fluent letter-sound correspondence, decoding, and word recognition.

Software Instructional Design





iRead offers a multisensory approach to foundational literacy skills instruction through interactive software activities that encompass sight, hearing, and touch; audiobooks; and teacher-led multimodal activities. The *iRead* multimedia software helps young children develop essential sound-to-text and text-to-sound associations while also learning to comprehend the meaning of words in text.

iRead takes maximum advantage of technology's capabilities to develop foundational sound-to-text and text-to-sound associations with automaticity—providing visual support to draw students' attention to key aspects of the learning focus and encouraging students to respond interactively.

Multisensory, Multimedia Instruction

Experts in research and theory related to multisensory instruction conclude that methods that combine sight and hearing are effective in helping young children learn to read. Well-designed multimedia technology that delivers and integrates early literacy activities in various modes (auditory, textual, graphical, kinesthetic) can be effective in promoting reading success.

Multisensory language instruction refers to “teaching strategies to guide students in linking eye, ear, voice, and hand to bolster learning in the carefully sequenced teaching of language structure” (Birsh, 2011, p. 25). Multimedia is more generally defined by Richard E. Mayer, one of the leading researchers and theorists in the field, as “[p]resenting words (such as spoken text or printed text) and pictures (such as illustrations, photos, animation, or video) that are intended to promote learning” (Mayer, 2005, p. 15).

Thus, multimedia early literacy instruction can be seen as using digital media to provide multisensory approaches (i.e., combining text, sounds, images, and touch) to facilitate the acquisition of early literacy skills. In relation to literacy learning, Reinking (2005) notes, “multimedia refers to audio-visual capabilities that were previously unavailable to print-based learning” (p. 359).

Multisensory Instruction in Reading

In multisensory language instruction, many learning pathways in the brain are utilized in order to enhance memory and learning. The instruction is organized so that the material to be learned follows the logical order of the language, beginning with the easiest and most basic elements and progressing methodically to more difficult material. Phonemic and phonological awareness, sound-symbol association, syllabication, morphology, syntax, and semantics are taught.

Research Evidence and Expert Opinion

As part of her synthesis of the literacy research literature, Marilyn Adams (1990) observes that reading depends on letter recognition, but she goes on to note that successful readers must also possess knowledge about the spellings, meanings, and pronunciations of words, and must be prepared to consider the contexts within which they occur. This suggests that early literacy instruction should mirror the multisensory aspect of decoding and encoding text as it is written, spoken, and heard.

Neuroscience research points to additional benefits:

Multisensory experiences with linguistic units such as single phonemes, letters, morphemes, words, and sentences may in fact activate more circuitry during language learning than unisensory experiences. . . . A more complete and explicit registration of linguistic information (phonological and other) is likely to occur in the learner's working memory when attention to linguistic detail is enhanced through multisensory involvement (Farrell & Sherman, 2011, pp. 39–40).

This more intense imprinting of phonological/phonemic patterns has particular benefits for at-risk and novice readers, who are lacking in phonological skills and may also have related challenges in short-term memory and rapid retrieval of verbal information (Farrell & Sherman, 2011).

Furthermore, the value of multisensory approaches to learning has long been recognized in special education circles. The Center for Applied Special Technology (CAST), a leading educational research center and the developer of the well-known Universal Design for Learning principles, notes that all learners differ in the ways they comprehend information (also see Rose & Meyer, 2002). CAST (2011) further notes that learning is enhanced when multiple forms of representation (e.g., audio, visual, kinesthetic) are employed because such methods enable learners to make connections within and across concepts. It's important to note that all learners, both those with sensory disabilities as well as their able-bodied peers, benefit from a multisensory approach to instruction.

RECOMMENDATION

Provide multisensory experiences with linguistic units such as single phonemes, letters, morphemes, words, and sentences.

iRead's Approach

iRead offers a multisensory approach to foundational literacy skills instruction through interactive software activities that encompass sight, hearing, and touch; audiobooks; and teacher-led multisensory activities. The *iRead* multimedia software helps young children develop essential sound-to-text and text-to-sound associations while also learning to comprehend the meaning of words in text.

Away from the computer, student engagement routines, such as Thumbs Up or Down and Pick and Point, help young learners reinforce skills by prompting them to engage in active physical responses such as pointing or gesturing. To build letter formation skills through kinesthetic reinforcement, for instance, as students learn each new letter at the alphabetic stage, the *iRead* program encourages them to trace the letter with their finger in the air on the screen, or by using the mouse. In other cases, children are prompted to generate a letter name or letter sounds orally after hearing or seeing a model.

Throughout its decoding and word study units, *iRead* encourages students to orally generate phonemes and words to help establish the linkage between text and its corresponding sounds.

The *Professional Guide* also includes Learning Center ideas that promote foundational skills development through the use of games and manipulatives. Additionally, many of the downloadable resources available in SAM Central encourage interacting and manipulating letters, sounds, and words.

Multimedia Technology

Multimedia technology that delivers and integrates early literacy activities in various modes (auditory, textual, graphical), when properly designed, can be effective in promoting reading success. Gamification techniques that make reading tasks feel more like games, such as adding meaningful choice, increasing challenge, rewards, and adding narrative, engage students and motivate them to solve problems in order to learn.

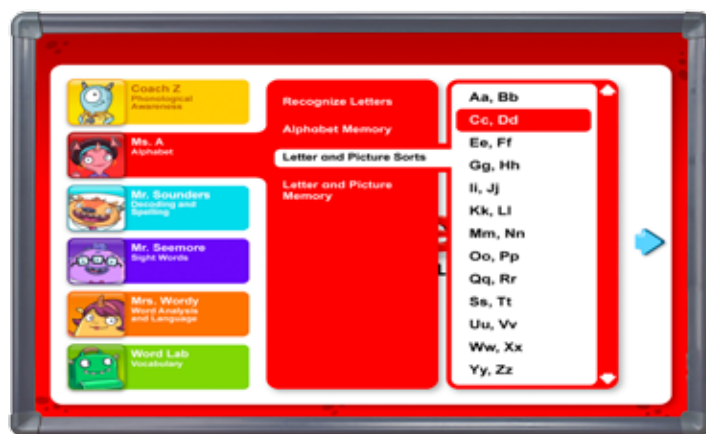
Research Evidence and Expert Opinion

“The multimedia principle,” as proposed by Richard Mayer (2005), suggests that instructional designs that combine words and images are more effective than those based on words alone. This principle is “well supported by findings from empirical research” (Fletcher & Tobias, 2005, p. 128). Extending Mayer’s multimedia principle to early literacy, educational technology that helps young readers establish linkages among words, sounds, images, and meanings can be an effective tool in support of literacy development.

To date, the most extensive findings support the value of using digitized or synthesized speech as a means for helping young readers master basic reading skills. In surveying the research literature, Reinking (2005), observes:

Using the capability of a computer to provide beginning readers assistance in the form of audio pronunciations of words and word parts under various conditions clearly seems to benefit decoding skills at least as much as adult-led activities using conventional printed materials (p. 367).

A comprehensive literature review conducted by Strangman and Dalton (2005) suggests that digital voice technology supports struggling readers by providing access to texts that might otherwise be unavailable to them, and by helping them learn to read with understanding. Korat (2010) found that a group of children who read eBooks with pronunciation features “exhibited significant progress in word meaning and word reading” compared to a control group (p. 24). In addition, research by Silverman and Hines (2009) found advantages for young English language learners receiving multimedia enhanced read-aloud instruction.



Interactive Learning Tools

RECOMMENDATION

To help young readers establish linkages among words, sounds, images, and meanings, employ technology that integrates and promotes multisensory connections among language's written, aural, and oral forms. Include gamification techniques that engage children in the task of learning to read.

iRead's Approach

iRead takes maximum advantage of technology's capabilities to develop foundational sound-to-text and text-to-sound associations with automaticity—providing visual support to draw students' attention to key aspects of the learning focus (e.g., presenting a moving line under a word to show that blending is occurring) and encouraging students to respond interactively.

iRead also incorporates images to ensure that students acquire the meaning of word parts and words they encounter. Thus, *iRead*'s lessons and exercises embody the multimedia principle, drawing on sounds, images, and text to promote reading with understanding. For example, in Feed the Beastie (Word Building), to build phonemic awareness through phoneme addition, subtraction, and manipulation; and to build segmentation skills through encoding, students move the letters to build words; and they manipulate words by changing letters to transform one word into another. Students receive immediate corrective (visual and auditory) feedback, specific to their errors. The meaning of words is reinforced through images and context sentences throughout the activity.

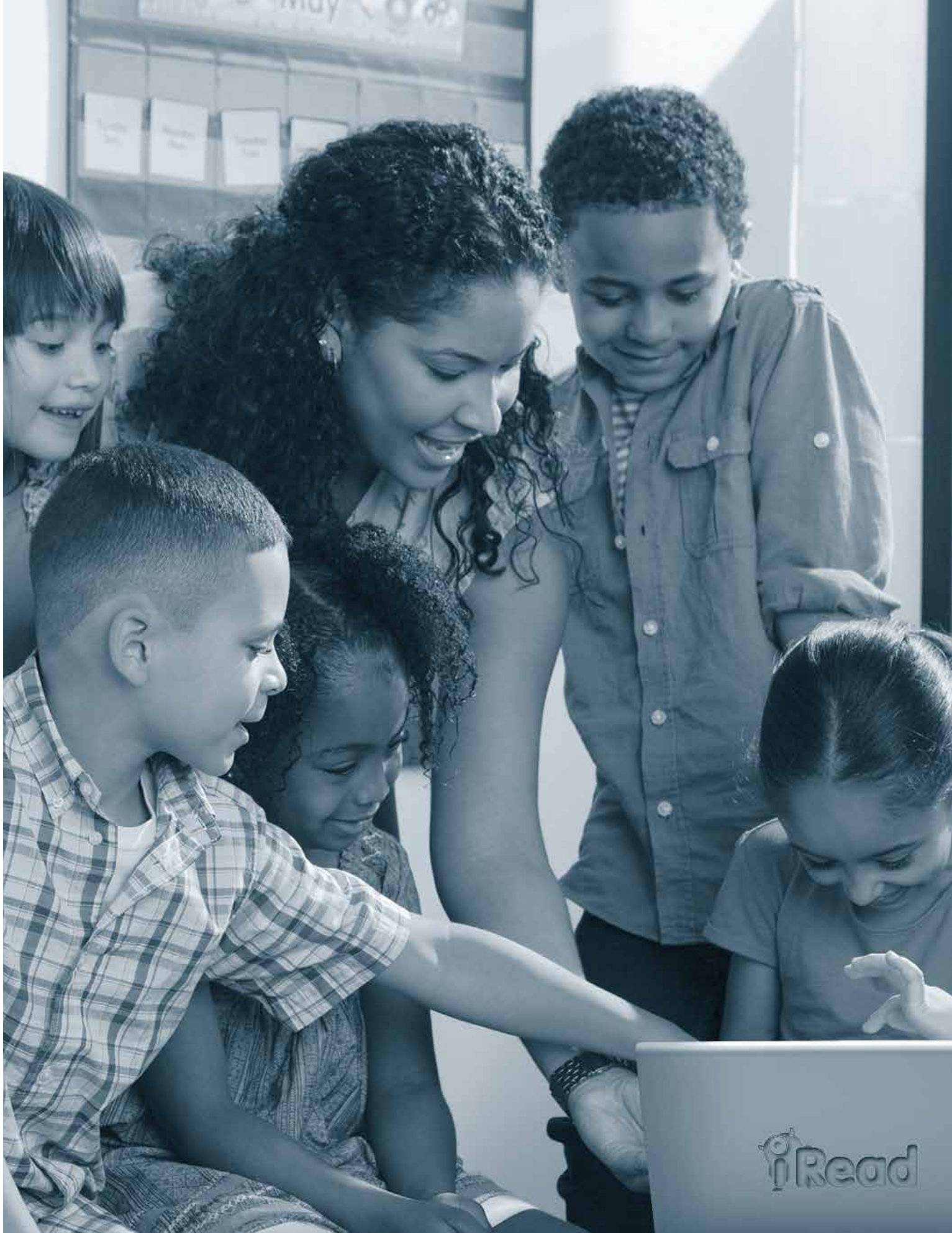


Word Building

In addition to these multimedia interactive activities, *iRead* offers 51 controlled-vocabulary eBooks—an approximately even mix of fiction and nonfiction texts—that follow research-based guidelines to ensure that all interactions support and extend learning, rather than distract from it. Each eBook features word pronunciation and definitional support, both of which are under the control of the student.

“Power words” are featured throughout the eBook collection, including the high-utility academic vocabulary. Definitions, also available in Spanish, are accessible at the click of a mouse. After each eBook reading, engaging activities help students reflect on reading and reinforce their new vocabulary skills and comprehension.

At the partial alphabetic and alphabetic stages, students listen to an eBook read aloud, with the option to vary the speed of the reading. On the second reading, students can choose to read the book aloud themselves or have it read to them. They can also record themselves reading the book out loud for later assessment by the teacher via a provided rubric.





iRead assesses students' performance as they engage in a systematic sequence of interactive activities. Providing students with immediate and corrective feedback in the course of those activities, *iRead* seamlessly combines instruction with assessment, and performance-based data automatically adjusts into the student's individualized instructional path.

Formative Assessment and Progress Monitoring

Research has shown that formative assessment and progress monitoring that guides the course and nature of instruction helps students learn more effectively.

Formative assessment includes “all those activities undertaken by teachers, and/or by their students, which provide information to be used as feedback to modify the teaching and learning activities in which they are engaged” (Black & Wiliam, 1998a, pp. 7–8).

Progress monitoring is a specific type of formative assessment that tracks student progress over time, as specified in the Response to Intervention literature (Hasbrouck & Tindal, 2006; National Center on Response to Intervention [NCRTI], 2012).

Formative Assessment for Early Literacy

Formative assessment improves instruction by providing information on student needs, identifying instructional strategies that meet those needs, and allowing for a systematic look at children’s early literacy skills.

Research Evidence and Expert Opinion

Based on a review of 250 research studies, Black and Wiliam (1998b) found that “strengthening the practice of formative assessment produce[d] significant and often substantial learning gains. . . . Typical effect sizes of the formative assessment experiments were between 0.4 and 0.7” (p. 40). The learning gains attributable to formative assessment are considerable, “amongst the largest ever reported for educational interventions” (Black & Wiliam, 1998a, p. 61). While formative assessment can benefit all students, it has been shown to produce especially good results with struggling students by highlighting troublesome areas and providing them with guidance as to what must be done to overcome them. For such learners, facilitating their metacognitive awareness, that is, helping them understand and strengthen their own learning dispositions and behaviors, can be of particular value (Black & Wiliam, 2009). Black and Wiliam (2009) note that “students’ willingness to maintain learning intentions and persist in the face of difficulty depends on their awareness of and access to volitional strategies (metacognitive knowledge to interpret strategy failure and knowledge of how to buckle down to work)” (p. 14).

More specifically, research experts stress the value of formative assessment in literacy instruction. Roskos and Neuman (2010) note that “effective reading instruction revolves around flexible grouping practices” (pp. 310–311) and is thus dependent on accurate formative assessment to support such groupings and to enable instruction to be tailored to each group’s abilities. Based on their review of the research on formative assessment, Shepherd and Marzola (2011) conclude that “teachers who incorporate formative assessment into lessons for achieving and struggling readers produce higher scores on reading achievement tests than teachers who do not use formative assessment” (p. 453).

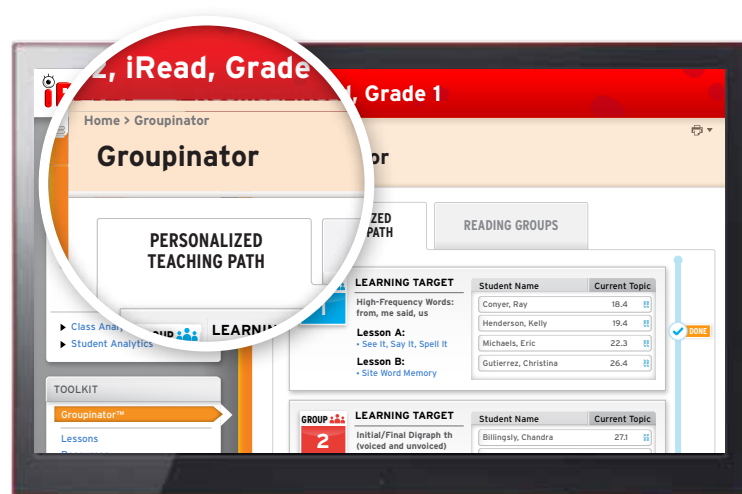
RECOMMENDATION

Use in-lesson formative assessment to guide instructional pathways, offer appropriate, actionable feedback to students, and encourage the development of metacognitive strategies to promote early literacy success for students at all reading-readiness levels.

iRead’s Approach

Much of the literature on formative assessment refers to feedback as an important tool to guide the course of future instruction, and implicitly assumes that teachers have the time and ability to use that feedback to make appropriate instructional decisions. With *iRead*, though, the guesswork is taken out, as its FASTT software design (see previous section: Personalized, Differentiated Reading Instruction) seamlessly combines instruction with assessment. Because *iRead* tailors future instruction on the basis of past and present inputs, feedback is automatically incorporated into an individualized instructional path.

iRead assesses students’ performance as they engage in its sequence of interactive exercises, and provides them with immediate and corrective feedback in the course of those activities. SAM Central offers additional formative assessments suitable for small-group or whole-classroom use. In addition, SAM Central includes the Groupinator®, a grouping tool that provides recommendations and supporting resources for small-group instruction based on formative assessment data.



The Groupinator®

Progress Monitoring and Oral Fluency Assessment for Early Literacy

Oral fluency assessment is a specific form of progress monitoring designed to track student growth in oral reading fluency. Oral fluency assessment measures words correct per minute (WCPM), and research has shown that it is “an accurate and powerful indicator of overall reading competence, especially in its strong correlation with comprehension” (Hasbrouck & Tindal, 2006, p. 636).

Research Evidence and Expert Opinion

Research has long supported the notion of assessing reading progress frequently to spot and correct problems early on. By identifying struggling learners as well as the skills they are struggling with, progress monitoring provides guidance for developing more effective subsequent instruction for these students (Hasbrouck & Tindal, 2006).

Progress monitoring has gained momentum and support with the advent of the Response to Intervention (RTI) methodology that calls for multitiered support and intervention based on frequent measurements of student performance against expected benchmarks. Recent RTI practice guidelines specifically call for teachers to “screen all students for potential reading problems at the beginning of the year and again in the middle of the year, [and] regularly monitor the progress of students who are at elevated risk for developing reading disabilities” (Institute of Education Sciences [IES], 2009, p. 9). IES RTI guidelines further suggest that students who are not making sufficient progress with regular classroom instruction (Tier 2) should be monitored at least once a month, and that the resulting data be used to evaluate whether further intervention is required. For those students who continue to make insufficient progress (Tier 3), individualized, more intensive intervention strategies are recommended (IES, 2009).

RECOMMENDATION

Employ progress monitoring and oral fluency assessments to evaluate student progress and to guide instructional decisions.

iRead’s Approach

iRead offers a variety of tools and resources for measuring and tracking student progress over time, including reports of ongoing student performance, an oral fluency assessment, and other instruments focused on specific early literacy skill areas.

To support the effective use of the data resulting from its within-lesson formative assessments, *iRead* provides clear, actionable student performance analytics, readily accessible from SAM Central. Individual results can be downloaded for offline analysis or for emailing to parents, literacy coaches, and/or other intervention specialists.

- The Screener Analytic provides an overview of the class’s performance on the initial Screener, including the overall score for each student, and their placement point in the software based on their performance on the initial Screener.

- The Growth Analytic provides an overview of the class's progress through the *iRead* scope and sequence. Each child's data is color coded (red, yellow, or green) to make it easy to identify where he or she is against grade-level benchmarks.
- The Student Software Performance report affords the deepest dive into individual student performance, enabling teachers to see patterns in their skills development. The report shows each student's initial program placement, how many cycles were required for mastery of each topic, how many minutes the student spent on each program session, the number of sessions completed each week, and the student's score on key activities in the topic. An overview helps teachers easily grasp individual student progress toward benchmarks in the scope and sequence.



Growth Analytics

- In addition, the Family Report provides an overview of each student's performance on the software, including recent topics the student has engaged in, and skills mastered in *iRead* (as well as specific student sample words from these specific topics and skills). The report includes the total number of words the student has read and the names of recent eBooks the student has read in the software, along with additional suggested downloadable eBooks the student can read at home. The Family Report links to the Family Portal, where parents can find additional resources to support their student's progress.

Additional progress monitoring assessments include the following:

- *phonological awareness*: recommended as a one-on-one teacher-administered assessment for students who perform poorly on the Screener assessment, or who struggle with phonological awareness exercises in the *iRead* software. This assessment evaluates all phonological skills cited in rigorous state standards.
- *Print concepts*: a prompt-based survey administered one-on-one at the beginning of kindergarten and first grade, focusing on print concepts that are critical to reading success, and reinforced in the *iRead* program. For children who are struggling with print concepts, SAM Central offers access to printable downloadable resources, and the *iRead Professional Guide* offers teachers instructional routines for using the Success eBooks to reinforce print concepts.
- The *iRead* oral fluency assessment follows the research-based method of measuring words read aloud correctly per minute, using passages that were developed, nationally normed, and validated by an independent educational research and development organization. This assessment is administered in the middle and end of first grade, and at the beginning, middle, and end of second grade. For more informal oral fluency assessment, students are able to record themselves reading Success eBooks. Teachers can evaluate the recordings with a provided rubric.
- *Spelling inventory*: a diagnostic given to the whole class at the middle and end of first grade, and again at the beginning, middle, and end of second grade. The assessment offers 30 words at each administration that span the scope and sequence for each grade level so that progress can be measured and problem areas readily identified across the class.
- *Reading interest*: given at the beginning of the school year to provide baseline data on each child's interest in reading, reading habits at home, family literacy activities, and more.

The *iRead Professional Guide* contains guidelines and resources to help teachers administer, analyze, and use these assessments effectively. Additionally, the *Professional Guide* offers expert advice on effective feedback from learning motivation specialist, David Rose.

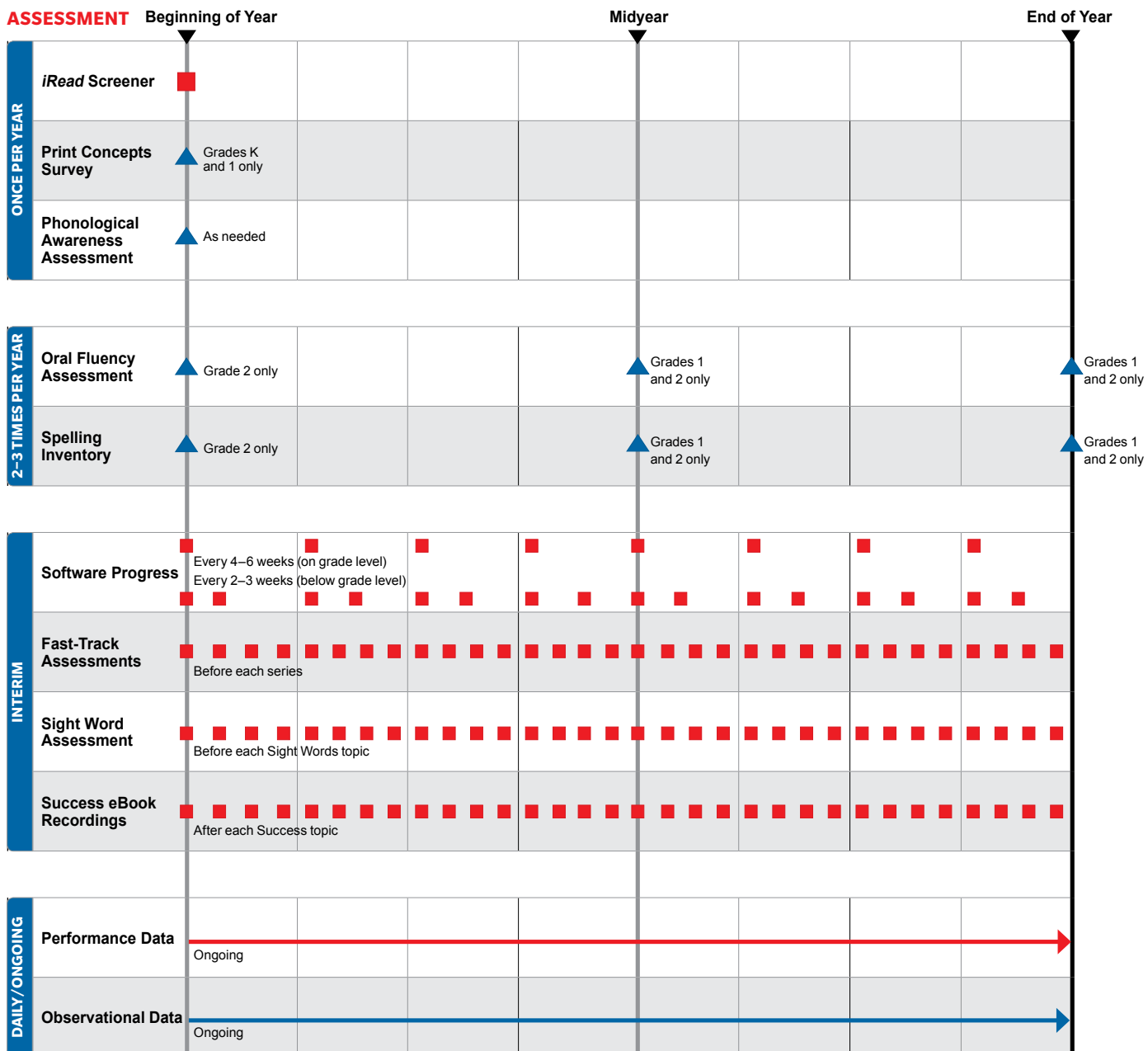
Assessments and Data

iRead Assessment Time Line

Use the suggested time line below to incorporate *iRead* assessments into your overall assessment plan for the year.

■ Software-Based Assessments

▲ One-on-One Assessments





With more than 250 online lesson plans, a high-level data-view home page, detailed analytics and a grouping tool that supports small-group instruction, *iRead's* SAM Central gives teachers the tools they need to understand the needs of each young reader—and to structure the classroom to best meet those needs.

iRead reframes a potentially frustrating subject as exciting and attainable. To encourage positive attitudes toward reading, and enhance students' metacognitive abilities, *iRead's* lively characters, personalized pacing, and interactive activities keep young minds engaged and on task.

Supporting Positive Student Behavior

Research and expert opinion support the benefits of strategies that promote positive student behaviors and attitudes related to instruction and learning.

Classroom Management Practices That Support Positive Student Behavior

Research shows that consistent teacher-led routines that lead to well-defined expectations for students help establish a positive climate for learning (Marzano, Marzano, & Pickering, 2003; Roskos & Neuman, 2010; Sousa & Tomlinson, 2011). And since behavior that distracts from learning is problematic for both the disruptive student and her or his peers, expert opinion suggests that effective disciplinary interventions are also a necessary component of a well-managed early literacy classroom (Roskos & Neuman, 2010).

Research Evidence and Expert Opinion

In an analysis of over 100 studies, though, the aspect of classroom management that showed the strongest effect on learning was the teacher-student relationship (Marzano et al., 2003; Sousa & Tomlinson, 2011).

One important characteristic of young students who exhibit positive academic behavior is self-regulation. Self-regulation in children is the ability to delay gratification and control impulses long enough to consider possible consequences of actions and more appropriate alternative actions. According to Bodrova and Leong (2005), “It is the capacity to control one’s impulses both to stop doing something (even if one wants to continue doing it) and to start doing something (even if one doesn’t want to do it)” (p. 32). One of their suggestions for “promoting self-regulation in the early childhood classroom” is to provide all students with practice in following rules and multistep directions (p. 33).

RECOMMENDATION

Implement specific classroom management practices, routines, and transitions that help develop positive teacher-student and peer relationships and support early reading success.

iRead's Approach

Student behavior in the *iRead* context is framed as a set of skills that, like any other, needs to be taught, practiced, reinforced, and monitored. *iRead* provides an array of features to support teachers in their roles as effective classroom managers and as supportive and caring guides on the reading journey. The on-computer lessons provide ample practice following rules and directions in the context of a supportive learning environment.

The *iRead Professional Guide* provides a wealth of advice and resources to help teachers create a highly effective and engaging learning environment conducive to early literacy success. Classroom management topics encompass individual, small-group, and whole-class instruction, and include organizing the classroom and materials, establishing routines and procedures, managing transitions, and scheduling reading time/software sessions. Also featured are a variety of practical techniques for creating an engaging and high-functioning classroom, in which all children have opportunities to respond, such as Thumbs Up or Down (for monitoring student understanding), Think-Pair-Share (to promote collaboration and understanding), and Write and Reveal to promote independent thinking and response.

With more than 200 online lesson plans, a high-level data-view home page, detailed analytics and a grouping tool that supports small-group instruction, *iRead*'s SAM Central gives teachers the tools they need to understand the needs of each young reader—and to structure the classroom to best meet those needs. In addition, Learning Center ideas enable teachers to extend the positive learning climate to off-computer activities. An Expectations matrix in the *Professional Guide*, developed by student behavior expert Allison Bruhn, outlines clear behavioral expectations (“Be Respectful, Be Responsible, Do Your Best”) and gives examples of what each looks like in different school settings.

Use of PBIS

Positive Behavior Intervention and Supports (PBIS) is a multitier system of intervention that, like RTI, establishes “universal supports found successful in the past (e.g., setting expectations) plus . . . secondary/targeted interventions . . . [and] tertiary/intensive interventions for . . . students for whom primary [i.e., universal] . . . supports are not working” (Roskos & Neuman, 2010, p.309).

Research Evidence and Expert Opinion

As noted above, positive student behavior is a set of skills that must be practiced and reinforced. Students, especially those new to the school environment, cannot be expected to have full mastery of these skills without clear and consistent guidance from their teacher. But what sort of support is most effective? PBIS is a promising new model.

PBIS is founded on the concept of differential susceptibility, which posits that some children are more sensitive to both positive and negative environments, and thus require different levels and/or types of behavioral reinforcement. Roskos and Neuman (2010) noted that PBIS is showing evidence of success in early literacy research. Experts recommend that PBIS be implemented school-wide to support positive behaviors throughout the school building and school day (Carter, Lane, Crnabori, Bruhn, & Oakes, 2011; Roskos & Neuman, 2010).

RECOMMENDATION

If the district or school supports it, manage the classroom in the context of a PBIS model.

iRead's Approach

While *iRead* is not a comprehensive PBIS solution, it can be an effective supporting component in schools where PBIS has been adopted.

iRead's FASTT model and the corrective feedback built into it enable students to engage more deeply in their learning and become more self-reliant in their approach to reading. SAM Central and the *Professional Guide* offer information, tools, and materials to help teachers create a positive and productive learning climate. Specific guidelines are given for building a classroom culture that draws on many varied language experiences and supports academic achievement and social-emotional growth. Also featured are strategies for creating a literacy-rich classroom that supports vocabulary development, with special emphasis on the academic vocabulary necessary to access content in mathematics, science and health, social studies, and the arts.



To encourage positive attitudes toward reading, and enhance students' metacognitive abilities, *iRead*'s lively characters, personalized pacing, and interactive exercises keep young minds engaged and on task. Each child selects an on-screen reading buddy, who serves as a personal avatar throughout *iRead* activities. Animated reading buddy characters model enthusiasm, persistence, curiosity, and a love of reading. Online instruction takes place in an inherently playful, curious, imaginative place that children want to come back to each and every day to learn and play. The program builds on the class's real-world knowledge to enable students to easily navigate the virtual world.

iRead includes features that encourage students to put forth positive effort and track their own success at meeting expectations. *iRead*'s digital archive for students, My Backpack, enables young learners to create a personal collection of sounds, words, texts, and rewards. As a record of individual progress and rewards, it provides students with tangible evidence of their growth and perseverance as readers. By charting progress in this way, students are taking early and important steps in developing their own agency as learners.

In addition, *iRead* issues a variety of badges to celebrate students' achievements throughout their *iRead* experience. Badges are awarded for major milestone achievements (e.g., learning the primary sounds of the alphabet) and for smaller achievements along the way, including academic accomplishments (e.g., reading 100 words) and demonstrations of persistence (e.g., a Nerves of Steel badge for completing a second cycle on a topic that was challenging the first time). *iRead* is designed to award each child 30–40 badges per level. Students also have periodic opportunities to earn new accessories and features for their *iRead* Reading Buddy.

Of paramount importance perhaps, *iRead* promotes positive learning dispositions, by celebrating student achievement with the chance to read more—thus, helping children see reading as its own reward.



Student Dashboard



iRead is a partner to families and caregivers, at every step of their child's reading journey. When students are enrolled in *iRead*, each family receives an invitation to the Family Portal. The portal offers access to a wealth of family print and video resources, including printable children's eBooks, downloadable decodable books, an overview of the program, a walk-through of the child's experience, and informative guides on key educational topics such as phonics instruction and reading levels.

Family Engagement

Parental Involvement in Education

Experts recommend family engagement as a strategy to improve reading performance and interest among beginning readers.

Research Evidence and Expert Opinion

Expert opinion consistently recommends efforts to engage families in student learning, noting that such programs and interventions “are linked to higher student achievement” (Henderson & Mapp, 2002, p. 25).

Research shows that students are eager for their families to be knowledgeable and active supporters of their education, and are more likely to be successful in school if they see their parents playing this vital role (Epstein, 2010).

In her empirical study of inner-city parent involvement (n = 2,317), Epstein (2010) reports:

Parents in all the schools in this sample are emphatic about wanting the school and teachers to advise them about how to help their children at home at each grade level. Parents believe that the schools need to strengthen practices such as giving parents specific information on their children’s major academic subjects and what their children are expected to learn each year (Epstein, 2010, p. 196).

RECOMMENDATION

Engage families in their child's learning by providing them with information about curriculum expectations and their children's academic performance, and offer guidance about how to help their children at home.

iRead's Approach

iRead is a partner to families and caregivers at every step of their child's reading journey. When students are enrolled in iRead, each family receives an invitation to the Family Portal, structured around an A, B, C model where A stands for Access to resources, B for Books, and C for Community.

The portal offers access to a wealth of family print and video resources, including an overview of the program, a walk-through of the child's experience, and informative guides on key educational topics such as phonics instruction and reading levels. To further support families as partners in their child's reading success, 51 downloadable, printable eBooks and additional printable books are available, as well as book lists for supplementary reading suggestions, aligned to iRead topics and skills.

All online assessment reports are downloadable so that teachers can email individual results to each child's parents. The *Professional Guide* offers advice on how to communicate student performance assessment data to parents.

Family-Teacher Relationships and Engagement

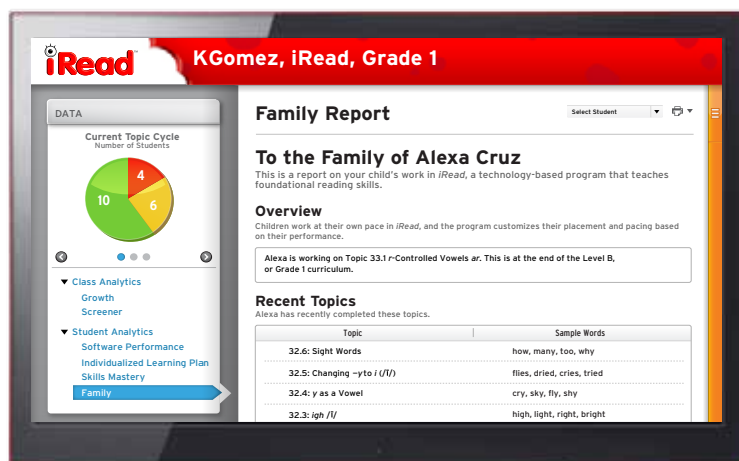
Parent-teacher engagement is more than just seeking families as partners; it also asks teachers to form effective and trusting relationships with families.

Research Evidence and Expert Opinion

Research shows that "early elementary students gain more in achievement when they and their families experience supportive relationships with teachers", a correlation that has been found for achievement in general as well as specifically for reading achievement (Hughes & Kwok, 2007, pp. 45–46). Developing productive relationships between their teachers and families seems of particular importance for students who are at risk of academic failure (Hughes & Kwok, 2007; Hunter, 2012).

Accordingly, based on her own empirical research, Epstein (2010) offers the following suggestions for teachers to foster partnerships with families:

- Provide an active program of learning activities to be done at home.
- Build parent confidence by providing workshops for parents on how to help with reading.
- Support parents with organizing home learning activities so that they feel more confident in helping their beginning readers.
- Develop procedures for parents to contact teachers when they have questions about at-home learning activities.



Family Report

RECOMMENDATION

Develop positive, effective, and productive family-teacher partnerships.

iRead's Approach

The *iRead Professional Guide's* Family Engagement section begins with tips for engaging families as partners in each child's learning, authored by Phyllis Hunter, a leading family engagement specialist and nationally recognized literacy consultant. Teachers receive support for building an *iRead* community by providing program information, communicating student progress, and celebrating student success. The Family Engagement section of the *Professional Guide* also provides teachers with strategies for communicating ways that families can support learning at home.

At-Home Reading Activities

Reading success depends on practice. Even with all the hours in the school day, additional time is needed to build fluent comprehension skills, thus the importance of at-home reading.

Research Evidence and Expert Opinion

A consensus of the early literacy research supports the value of programs that provide at-home support to beginning readers and their families, finding "statistically significant and moderate to large effects on children's oral language skills and general cognitive abilities" (NELP, 2008, p. ix).

Marilyn Adams (1990) stresses the value of family reading. She notes, "[T]he most important activity for building the knowledge and skills eventually required for reading is . . . reading aloud to children," thereby "engaging them regularly and interactively in the enjoyment and exploration of print" (pp. 86, 411). According to the most recent Scholastic Kids & Family Reading Report on children and family reading experience, 65% of parents read aloud to their children ages 6–8 at least once a week, but the remainder do not (Harrison Group, 2013). Expert opinion strongly recommends that teachers encourage out-of-school reading through at-home reading assignments, supplementary reading lists, and parent education (Adams, 1990; Epstein, 2010; NRC, 1998).

RECOMMENDATION

Family members can support the reading skills of young children by reading aloud to their children. Teachers should provide support to parents for at-home reading activities.

iRead's Approach

As mentioned above, *iRead's Professional Guide* offers constructive advice on supporting literacy learning at home from family engagement expert Phyllis Hunter.

In addition, printable readers and supplemental book lists provide reading materials and suggestions for families to use at home. These resources may be of particular value to low-income students whose homes may be lacking in rich print resources.

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