Benchmark Phonics Research Foundation

Introduction

Benchmark Phonics is a Tier 1 and Tier 2 solution for phonics instruction for students in grades K-2. Benchmark Phonics is designed to meet the growing interest and need for materials aligned to science of reading research. Developed with the expertise of phonics expert Wiley Blevins, this program ensures that phonics is explicitly and systematically taught with prevalent spiral review to achieve mastery for transfer. It is aligned to the same scope and sequence and unit topics as Benchmark Advance, which allows for knowledge building, vocabulary development, and easy integration into core instruction.

This research foundation provides information on the research results that influenced the creation of this program. Many of these results and recommendations "have become "settled" science–that is researchers are no longer debating the importance of systematic multiyear phonics and word analysis instruction or of a large academic vocabulary" (Moats, 2020, p. 7). This document is not intended to inform someone of how to implement the Benchmark Phonics program. Information on how to implement the program can be found within the program materials and the professional development that comes with the program.

This research foundation will start with several definitions of phonics and foundational skills instruction, followed by background information on readiness skills, systematic phonics instruction, reading connected text, including decodable books, building knowledge, vocabulary, sight words, and high-frequency words. These topics are followed by the reading and writing connection, teaching spelling, small group instruction, including struggling readers and English learners in small group, and assessment. The final section, before the summary, provides information about what makes a good phonics program.

Definitions of Phonics and Foundational Skill Instruction

The IES Educator's Practice Guide (Foorman et al., 2016) titled *Foundational Skills to Support Reading for Understanding in Kindergarten Through 3rd Grade*, focuses on "the foundational reading skills that enable students to read words (alphabetics), relate those words to their **oral language** and read **connected text** with sufficient accuracy and **fluency** to understand what they read" (p. 1). The practice guide recommendations are based on studies published since 2000 and intended for students from K to 3rd grade. The focus of the practice guide is on three interrelated themes for improving instruction in foundational reading skills. These themes include: 1) "reinforcing the effectiveness of instruction in alphabetics, fluency, and vocabulary"; 2) "providing instruction in broad oral language skills"; and 3) "integrating all aspects of reading instruction" (Foorman et al., 2016, p. 1). The four foundational skills recommendations and sub-recommendations made by the practice guide based on these themes follow (Foorman et al., 2016, p. 2).

1. Teach students academic language skills, including the use of inferential and narrative language, and vocabulary knowledge.
    a. Engage students in conversations that support the use and comprehension of inferential language.

   b. Explicitly engage students in developing narrative language skills.
   c. Teach academic vocabulary in the context of other reading activities.
2. Develop awareness of the segments of sounds in speech and how they link to letters.
   a. Teach students to recognize and manipulate segments of sound in speech.
   b. Teach students letter-sound relations.
   c. Use word-building and other activities to link students' knowledge of letter-sound relationships with phonemic awareness.
3. Teach students to decode words, analyze word parts, and write and recognize words.
   a. Teach students to blend letter sounds and sound-spelling patterns from left to right within a word to produce a recognizable pronunciation.
   b. Instruct students in common sound-spelling patterns.
   c. Teach students to recognize common word parts.
   d. Have students read decodable words in isolation and in text.
   e. Teach regular and irregular high-frequency words so that students can recognize them efficiently.
   f. Introduce non-decodable words that are essential to the meaning of the text as whole words.
4. Ensure that each student reads connected text every day to support reading accuracy, fluency, and comprehension.
   a. As students read orally, model strategies, scaffold, and provide feedback to support accurate and efficient word identification.
   b. Teach students to self-monitor their understanding of the text and to self-correct word-reading errors.
   c. Provide opportunities for oral reading practice with feedback to develop fluent and accurate reading with expression.

Fisher (2017) stated phonics instruction is a "necessary component of an effective literacy instructional effort" and "we need to be sure that students receive this type of instruction as part of their early literacy learning" (p. xiii). Fisher further suggests students need to understand the way language works, which needs to be "combined with oral language development, fluency, vocabulary learning, and comprehension" making it "a concerted effort…to teach every child to read" (p. xiii).

Blevins (2017) stated the research over the past 50–60 years is consistent, "learning the alphabetic principle is essential to learning to read, and phonics is best taught when it is systematic and explicit" (p. xxv). Blevins defines systematic instruction as that which "builds from easy to more complex skills with built-in review and repetition to ensure mastery" (p. xxv). Explicit in this instance means "that sound-spelling correspondences are initially taught directly to students, rather than using a discovery, or implicit, method" (p. xxv). When there is an understanding by teachers that there is a connection between phonics and comprehension, an observer will see strong phonics instruction taught where "the bulk of the lesson is devoted to applying those skills to real reading and writing experiences (where learning occurs and is consolidated)" (p. xxv).

Readiness Skills

Alphabet recognition and phonemic awareness are the two best predictors of early reading success (Adams, 1990; Beck & Juel, 1995; Chall, 1996; Ehri, 2020; & Stanovich, 1992). Blevins (2017) states "without a deep knowledge of the English letters and an awareness that words are made up of sounds, students cannot learn to read" (p.3). Castle, Rastle, and Nation (2018) state "it is important to note that even skilled adult readers continue to use alphabetic decoding and phonological processes as a matter of routine" (p. 16) indicating the continuing importance of these abilities.

Seidenberg (2017) concludes letter recognition is a categorization problem, meaning "all of the variants must be treated as exemplars of the same letter" (p. 108). Fortunately, all the A's, for instance, no matter the font or size, or whether they are uppercase, lowercase, manuscript, or cursive, have one thing in common, which is the name. The name is the glue in forming a category. Seidenberg, along with others, also suggests the alphabet song is important in teaching children the names of 26 categories of letters which proves useful when gathering data on the visual properties and sounds of the letters. Blevins (2017) states the goal "is to get students to rapidly name all the letters" (p. 4) because, as Adams (1990) suggests, when student can recognize letters with accuracy and speed, learning the sounds associated with them becomes easier.

Shanahan and Lonigan (2013) state phonological awareness "is considered to represent an umbrella term that includes children's sensitivity to, and capacity to manipulate, sounds within spoken language at varying levels of linguistic complexity, from the whole word to the phoneme" (p. 96). Shanahan and Lonigan further state "phonemic awareness is a subset of phonological awareness and includes both the understanding that words are made up of individual phonemes and the ability to manipulate phonemes" (p. 236). Blevins (2017) notes phonemic awareness deals with sounds in spoken words and is therefore, mostly associated with oral activities. However, Blevins (2017) also notes the combination of oral and print can be very powerful and especially beneficial for activities such as segmentation and phonemic manipulation.

Blevins (2017) identifies five basic types of phonemic awareness activities that are designed to increase student understanding of how sounds work in words. These five basic types include 1) Rhyme, Alliteration, and Assonance, 2) Phoneme Categorization, 3) Oral Blending, 4) Oral Segmentation (including counting sounds), and 5) Phoneme Manipulation. Blevins states "many students struggle with phonics because they don't have the prerequisite phonemic awareness skills other children acquire through years of being read to, singing nursery rhymes, and playing with sounds through songs. … However, phonemic awareness can be taught. And, it doesn't take a great deal of time" (p. 6).

Blevins (2017) identified the most important aspects of teaching readiness (phonological and phonemic awareness) skills include

- Activities from multiple activity types can be taught within the same instructional cycle, i.e., clapping syllables and identifying rhyming words.
- Use of supports (i.e., picture cards or manipulatives) help with remembering, make activities concrete, and help to engage students.

- Use of strong instructional routines for oral blending and oral segmentation that use steps to introduce the skill, followed by modeling (I do), then guided practice/practice (We do/You do), with corrective feedback and practice, as needed.

Implementation within Benchmark Phonics

Instruction in the foundational skills of phonological awareness, concepts of print, and alphabet recognition begin in kindergarten and continue as a part of the lessons though 2nd grade where manipulation of phonemes is the focus. The scope and sequence for Benchmark Phonics identifies the skills being targeted across units and weeks within the units. Practice suggestions and how to model the skills are provided.

Systematic Phonics Instruction

Kilpatrick (2015) defines phonics as "a system for approaching reading that focuses on the relationship between letters and sounds. Phonics helps with sounding out unfamiliar words" (p. 363). Blevins (2017) states "explicit phonics instruction, when done effectively (i.e., not rote, but active and thought-provoking, instruction), is a transitory phase of learning to read, and never keeps students from reading and engaging with high-quality trade books" (p. xvi). Castles et al. (2018) state "systematic phonics refers to reading instruction programs that teach pupils the relationship between graphemes and phonemes in an alphabetic writing system" (p. 12).

"Systematic phonics instruction should be viewed as a natural and logical consequence of the manner in which alphabetic writing systems represent spoken language" (Castles et al., 2018, p. 12). "Phonics programs are systematic when they teach grapheme-phoneme correspondences in an ordered manner" (Castles et al., 2018, p. 12). "It is better to teach the code system of written English systematically and explicitly than it is to teach it randomly, indirectly, or incidentally. The units of instruction (sound, syllable, morpheme, word) should vary according to students' reading and spelling skill" (Moats, 2010, p. 17).

Beck and McCaslin (1987) and Adams (1990) discuss how quickly phonics elements and skills are usually introduced, about one a week, in reading programs. This does not provide students with enough practice of these new elements. Systematic not only refers to "the sequence of phonics skills progressing from simplest to the most complex, but also to the internalized review and repetition built into that scope and sequence" (Blevins, 2017, p. 51). "When a new skill is introduced, it should be systematically and purposefully reviewed for the next four to six weeks. That means there should be significant instructional and practice opportunities for students" (Blevins, 2017, p. 203).

Blevins (2017), Moats (2010), and Stuart and Stainthorp (2016) provide summaries of research related to learning phonics, including

- Teaching the names of letters and their sounds simultaneously tends to be more effective.
- The scope and sequence should be built from simplest to the most complex skills in ways that take advantage of previous learning, so many words can be formed as early as possible.
- After initial modeling of blending and the inclusion of blending examples in a small portion of the phonics lesson, decoding should take place in connected text (decodable text, book, or story) rather than in isolation.

- In skilled reading, visual word recognition is usually achieved through lexical processing, so students need to develop orthographic representations linked to phonology and word meaning. The two best types of exploration exercises for increasing word recognition are word building, including blending and word awareness, and word sorts, including open, closed, and timed sorts.
- Dictation, guided spelling practice, allows students to transfer phonics skills from reading to writing, can accelerate students' use of taught phonics skills in their writing, and provides the opportunity to model and practice how to write letters and words.
- Start work with multisyllabic words towards the end of 1st grade into 2nd grade by modifying the blending instruction to directly teach the six syllable types in English, Closed, Open, Consonant + *le* (Final stable syllable), Vowel Team, *r*-Controlled, and Final *e* (vowel-silent *e*).
- Direct instruction about base words, inflections, and compounds can begin in 1st grade. Students in 2nd and 3rd grade should continue to learn base words, prefixes, suffixes, and suffix ending rules.
- Effective phonics instruction is based on the gradual release model (Blevins, 2017; Moats, 2010; Pearson & Gallagher, 1983), where the teacher provides a brief introduction to the skill (I Do), then the teacher models again while the students join in during guided practice, when the teacher slowly turns over the responsibility of practice to the students (We Do), culminating in the students practicing collaboratively with a partner or on their own (You Do).

"The fundamental insight that graphemes represent phonemes in alphabetic writing systems does not typically come naturally to children. It is something that most children must be taught explicitly, and doing so is important for making further process in reading" (Castles et al., 2018, p. 11). Castles et al. summarize that "explicit teaching of phonics assists all children to access text material relatively early in reading instruction" (p. 13). Additionally, Snow and Juel (2005) add that explicit phonics instruction is particularly vital for some children (i.e., students who have a high probability of starting school as struggling readers due to being nonnative speakers of English or due to economic disadvantage).

Implementation within Benchmark Phonics

Benchmark Phonics provides a detailed scope and sequence for each grade. The sequence of skills progresses for simple to complex skills, with built-in review, repetition, and spiral review to ensure students reach mastery. Phonics skills are reviewed over time. High-frequency words and secondary skills, such as inflectional endings, syllable types, and affixes, are introduced and applied to authentic text. Towards the end of 1st grade and into 2nd grade, there is a transition from single-syllable words to multisyllabic words that support the phonics elements and link to meaning.

Reading Connected Text, Including Decodable Books

The connection between what is taught and what we have students read has a powerful effect on their word-identification strategies (Juel & Roper-Schneider, 1985) as well as their phonics and spelling skills (Blevins, 2006). Blevins (2017) states the type of text that is ideal for practicing a new target skill is decodable text. "This text is controlled based on the phonics skills taught up to that point in the scope and sequence, with an emphasis on the new target skill for that instructional cycle (e.g., week of instruction)" (Blevins, 2017, p. 215).

"Decodable books are texts written for children that consist primarily of words that they can read correctly using the grapheme-phoneme correspondences that they have learned" (Castle et al., 2018, p. 15). These books provide students with concentrated practice based on the instruction they have received (Moats, 2010). Hatcher, Hulme, and Ellis (1994) indicate phonics instruction is more effective when students are provided with immediate practice opportunities, making the decodable books a valuable tool during the early stages of learning to read. Castle et al. (2018) conclude "once children move beyond the very early stages of reading, the benefits of decodable readers are likely to be outweighed by their limitations" (p. 16) such as not maintaining children's interest in reading and not building vocabularies and knowledge (Solity & Vousden, 2009).

Implementation within Benchmark Phonics

Benchmark Phonics contains many texts for students to read. The decodable texts directly correspond to and support with practice the phonics elements being taught, allowing students to immediately apply new skills to connected text. The decodable texts are written to provide a story or useful information and are readable and interesting. As students make progress, the texts in the students' consumable My Reading and Writing (K-1) and My Word Study (Grade 2) provide daily practice with texts to build fluency, vocabulary, and dictation, based on the skills being learned.

Building Knowledge

Kaefer (2020) states "background knowledge is essential for reading comprehension and learning from stories" (p. S173). Further, early development of content knowledge, increases exponentially the amount of background knowledge children will develop and is key to academic success for all students (Neuman, Kaefer & Pinkham, 2014; Pinkham, Kaefer, & Neuman, 2012). Among other things, sufficient background knowledge, allowing students to draw appropriate inferences about a text, is needed to successfully comprehend that text (Kaefer, 2020).

In a study of background knowledge, Kaefer found that "students with higher levels of knowledge on a topic that was activated through prereading activities attended more to the relevant illustrations and made more appropriate inferences than did students who acquired new knowledge from prereading activities" (p. S180). Kaefer also found that "when students did not already have background knowledge related to the topic at hand, they were unlikely to engage in inductive inferencing, even if they successfully learned the information shared in the prereading activities" (p. S180-S181).

According to Kaefer (2020), read-alouds are a popular way to convey content knowledge and build literacy skills, but to be most effective, they should be interactive (Barnes & Dickinson, 2017) and involve multiple genres (Duke, Halvorsen, & Knight, 2012). Additionally, Keafer suggests the usage of diversified books may provide all students a chance that they may hear books that address knowledge they have already developed. The simple comprehension that can be achieved by providing knowledge in prereading activities may be the first step towards developing a rich background of information on a topic.

If there is not enough background information to enable complex comprehension using read-alouds, different strategies for building background knowledge could be used. Knowledge is best built when it can be processed in depth (Beck & McKeown, 2007; Coyne, McCoach, Loftus, Zipoli, & Kapp, 2009), when it is repeated over time (Pinkham, Neuman, & Lillard, 2011), and when it can be connected to

information that students already know (Shing & Brod, 2016). With this information, it may be better to use knowledge building activities in a subject area in addition to read-aloud activities.

Building Vocabulary

Stuart and Stainthorp (2016) describe two types of vocabulary, receptive and expressive or productive. The receptive vocabulary is the set of words that are understood but not necessarily used daily. Having a large receptive vocabulary means understanding a wide range of spoken and written communications. The expressive vocabulary contains the words we use and if we have a large expressive vocabulary, we can better convey our meaning. Vocabulary size grows with age as more words are encountered and added.

Kilpatrick (2015) indicates vocabulary belongs primarily on the language comprehension side of the simple view of reading (Gough & Tunmer, 1986), however "oral familiarity with a word plays the primary role in sight-word development, and any benefits of the semantic properties appear to be secondary" (p. 90). Stuart and Stainthorp (2016) state "the more extensive the breadth and depth of one's vocabulary, the better one's comprehension of texts is likely to be. The larger the vocabulary, the greater the chance that meanings of words in texts are already known" (p. 130).

Before starting school, children build their vocabulary from their oral environment. The backgrounds from which children come, will play a role in the size of vocabularies. "A limited vocabulary hinders many aspects of life, including educational progress and social interaction" (Stuart & Stainthorp, 2016, p. 104). Kilpatrick (2015) states "students from low SES backgrounds are more likely to arrive at school having heard far fewer words, and therefore have fewer words in their phonological lexicon" (p. 89) and "students from high SES backgrounds likely have larger phonological lexicons, which facilitates orthographic mapping" (p. 89). "The impact of low vocabularies on reading comprehension only becomes apparent in grades three, four, and above, when the comprehension of written materials begins to exceed may children's vocabulary" (Biemiller, 2003, p. 123).

Wasik, Hindman, and Snell (2016) report on book reading practices as they relate to increases in vocabulary. Findings show six strategies that are consistently used in studies. These include: reading and re-reading texts; explicitly defining words; encouraging dialogue about book-related vocabulary through questions and discussion; re-telling; using props to illustrate word meanings; and encouraging students in post-reading activities that promote the exploration and discussion about vocabulary. A clear theme from the review of the literature showed adult-child interaction during book reading is critical for vocabulary learning to occur. These strategies allowed the deeper exploration of vocabulary opportunities, supporting growth in background knowledge.

Stuart and Stainthorp (2016) indicate reading to students has a long tradition, supports implicit vocabulary learning, and is supported by evidence (e.g., Robbins & Ehri, 1994). In the Flack, Field, and Horst (2018) meta-analysis of research on storybook reading, the authors identified what influenced the new word learning during shared storybook reading, including: reading style; use of dialogic techniques such as pointing, providing definitions, or asking students questions during reading; and increasing the number of times students hear words during reading through repeated readings and asking questions about targeted words.

From the research, Adams (1990) determined that vocabulary instruction generally results in an increase in students' word knowledge and in reading comprehension. The methods of vocabulary instruction that were most effective included both information about the words' definitions and examples of the words' usages in context. However, the amount of classroom time available for, or used for, vocabulary instruction does not account for the estimated number of words learned by students in a year, over 3,000 words per year or more than 8 words per day. This leads to the conclusion that the majority of words learned come from independent reading where vocabulary acquisition comes from learning from context.

Oakhill, Cain, and Elbro (2015) identify two purposes for teaching vocabulary: helping students to learn the meaning of specific words, and to help students learn how to best figure out the meaning of new words through independent reading. When teaching the meanings of specific words, it is helpful to explain key words and link those words to topic knowledge before students read the text. It is also helpful to provide instruction on tier two words (Beck, McKeown, & Kucan, 2005). Additionally, repetition of new vocabulary words is also helpful.

Oakhill et al., identify two ways to help students learn how to best figure out the meanings of new words. These methods are not mutually exclusive. Teaching students how to derive meanings from context is one way to figure out the meanings of new words. Oakhill et al., state "children can be taught to search the context for clues about the unknown word's category ('what sort of thing is it?'), for defining characteristics ('how can you describe it?'), and for likes and opposites ('do you know of something similar or the opposite?')" (p. 66).

The other method is to teach word knowledge through morphology (Oakhill et al., 2015). Moats (2010) states "direct instruction about base words, inflections, and compounds can be started in first grade. Second- and third-grade students should continue to learn base words, prefixes, suffixes, and suffix ending rules" (p. 143). Suggested activities to build morphology include

- listening for specific parts of words (i.e., suffixes, prefixes, or base words);
- combining words to make compound words;
- removing inflections and simple suffixes from base words;
- sort past tense or plural words by the sound of their ending; and
- categorize words by the meaning (words for things or words that describe) or by form (compound words or contractions).

Morphemes are the smallest meaningful units of language (Moats, 2010). Morphology is the study and description of the meaning components of words, morphemes (Oakhill et al., 2015). Moats (2010) states "knowing morphemes enhances reading, vocabulary and spelling. Awareness of morphemes is one aspect of a verbally proficient person's word knowledge" (p. 118). Moats (2010) continues by stating "with morphological knowledge, a good reader can guess at a definition for a word first encountered in text" (p. 118) and concludes by stating "the ability to use words well depends on levels of linguistic knowledge that are gained slowly with much exposure to text–knowledge of words' sound structures, grammatical categories, meanings, and spellings" (p. 119).

Derivational morphology occurs when a new word is derived from an old word by the addition of affixes (Stuart & Stainthorp, 2016). Some affixes are prefixes and must come before the root and some are suffixes and must come after the root. “Using affixation to support vocabulary extension in school can be very productive and fun and has the benefit of supporting spelling skills as well” (Stuart & Stainthorp, 2016, p. 108).

Implementation within Benchmark Phonics

In Benchmark Phonics, building knowledge and vocabulary support each other. The topics found in the texts used to practice the skills being taught are aligned to the unit topics in Benchmark Advance. The knowledge and vocabulary associated with the topics begins the lessons in Benchmark Phonics. The topics are vertically aligned across kindergarten to 2nd grade in Benchmark Phonics and across kindergarten to 5th or 6th grade in Benchmark Advance. This means the topic for each unit remains the same, becoming more age appropriate, across grades. The vertical alignment facilitates the expansion of background knowledge and vocabulary as each topic becomes more complex and sophisticated in each higher grade.

Sight Words and High-Frequency Words

“Orthographic mapping is the mental process we use to permanently store words for immediate, effortless retrieval. Orthographic mapping is the process [our] minds use to take an unfamiliar printed word and turn it into an immediately recognizable sight word” (Kilpatrick, 2016, p. 31). Growth of the sight word vocabulary, due to improvement of a student’s orthographic mapping, leads to improvements in reading fluency and reading comprehension (Kilpatrick, 2016). “Meaningful strings of letters (i.e., written words) can be anchored in permanent memory *if the reader is able to recognize why those letter strings are meaningful*” (Kilpatrick, 2016, p. 34).

Teaching sight words or high-frequency words at the same time as phonics is being taught does not interfere with phonics learning (Castles et al., 2018). The teaching of sight words, high-frequency words, word parts (i.e., prefixes, suffixes, word families), is known as word study, which is the process of matching the oral phonemes to the letters as a memory aid for future retrieval (Kilpatrick, 2016). Word study is the third part of orthographic mapping, the conscious or unconscious part is the connection making process used to remember words (Kilpatrick, 2016).

Implementation within Benchmark Phonics

In Benchmark Phonics, high-frequency words are taught in multiple ways using multiple modalities. Words are read in context, written, circled in the texts, spelled, used in conversations, among other things. The Say, Spell, Read, Write routine accelerate orthographic mapping as students attend to individual sounds in words and their spellings, both regular and irregular. Words come from the Dolch, Fry, and American Heritage Top 150 words in English lists. Challenge high-frequency words are also suggested. Multiple exposures, to high-frequency words and words that will eventually become sight words, help in the process to permanently store these words for immediate retrieval.

Reading and Writing Connection

A phonics scope and sequence should be tightly linked to the reading students do as follow-up work (Blevins, 2017). “Students make progress at a much faster rate in phonics when the bulk of instructional

time is spent on applying the skills to authentic reading and writing experiences rather than isolated skill-and-drill work" (Blevins, 2017, p. 211). Writing activities not only reinforce writing skills, but also provide opportunities for students to practice spelling. Spelling reinforces the phonics skills while improving spelling, phonological awareness, and reading (Graham & Santangelo, 2014; Kilpartick, 2015).

Writing practices that improve reading include, writing about materials read, writing as a means for becoming a better reader, and writing instruction that increases knowledge, all of these activities benefit reading (Graham & Herbert, 2011; Graham & Santangelo, 2014). When writing recommendations are made (cf. Graham & Harris, 2018), what is missing are reading practices that improve writing, such as reading text, observing how others interact and interpret text, critiquing text written by others, and teaching word and reading comprehension skills (Graham et al., 2018).

There is theoretical support for reading and writing connections (Graham, 2020). Graham states, "we write so others will read, and we read what others write" (p. S37), making the connection of reading and writing quite clear. According to the shared knowledge theory, readers draw on knowledge while reading that overlaps with the knowledge they draw on when writing, and vice versa (Tierney & Shanahan, 1991). According to the rhetorical relations theory (Rubin, 1984), readers may acquire new understands about writing when considering why the absent author uses a certain word, phrase, sentence, or rhetorical device, and writers may gain new perspectives about reading as they work to create text that readers will understand and appreciate (Graham, 2020). "The functional theory proposes that reading can be used to facilitate writing and vice versa and that both can be used to enhance learning" (Graham, 2020, p. S37).

Graham (2020, p. S37-S38) provides six examples of how past actions with reading and writing can theoretically build better future readers and writers, including

- By attending to the rules of logic when writing text for others to read, students must make their premises and assumptions explicit. This deliberation should make them more aware of these same issues when reading other text later, resulting in better comprehension. Similarly, reading leads students to think about how authors present and frame their assertions. This should make students more aware of doing the same in their own writing.
- Students are exposed to multiple forms of knowledge when reading, and this knowledge can be used as they write their own compositions. This includes purposes and structures of different types of text, new vocabulary, content information, and the correct spelling of words. Likewise, when students write their own text, they consider its purposes, how to organize it, what to say, which words to use, and how to correct misspellings. The knowledge gained from such activities supports students as they read text at a later date.
- Students gain content knowledge as they write about material read. This information can be used later as they write. In a similar manner, students' background knowledge increases as they read text to gather information for their writing. This information can be used to comprehend similar text read in the future.
- Students gain knowledge that helps them better understand an author's purpose and intent when they are taught about the functions and purposes of different types of text as they learn

to write them. Similar instruction for reading should enhance writing quality, as it provides students with knowledge to guide the writing process and think about the needs of readers.

- Students acquire knowledge about how to spell words when they receive instruction designed to improve phonological awareness, phonics skills, and reading fluency, as it provides them with information about how letters and sounds are connected. Correspondingly, teaching spelling should enhance word reading, as it provides students with schemata about the connections between letter patterns, making it easier to read words containing these same patterns.
- Students acquire procedural knowledge for how to compose text when they are taught strategies for comprehending text (e.g., questioning, monitoring, analyzing, summarizing, visualizing), as these same procedures are essential to good writing. Teaching the writing process (e.g., goal setting, accessing information, questioning, evaluating, analyzing) should produce congruent outcomes for reading, as students apply these same strategies to understand text.

Implementation within Benchmark Phonics

In Benchmark Phonics, each text that students read, in their student consumable, is associated with some type of writing exercise that is directly related to the text and its topic. These exercises show students how to plan and execute these projects, which can be shared with partners and others. Students deepen comprehension when connections are made to the text and its topic, which are then related to the students' own environments and surroundings.

Teaching Spelling

Kilpatrick (2015) states "in reading research, *orthography* is used to refer to the correct spelling of words" (p. 82). There are two levels of orthography, recall and recognition. Orthographic recognition "is the essence of word recognition–a particular orthographic sequence is instantly recognized as a familiar word" (pp. 82-83). In reading, word recognition requires sufficient detail to distinguish between the many look-alike words in English. Orthographic recall is necessary to correctly spell words. Words that are or can be easily recognized (e.g., tongue, bouquet, colonel, rendezvous, or licorice) are not easy to spell. "Spelling is an index of orthographic knowledge. It demonstrates that a student knows the correct orthographic representation of a given word" (Kilpatrick, 2015, p. 186). "Spelling can sometimes be a window into a student's phonological and orthographic skills" (Kilpatrick, 2015, p. 187).

Graham and Santangelo (2014) authored a meta-analysis of 53 experimental and quasi-experimental studies, including 6,037 students in kindergarten through 12th grades, that looked at the impact of formally teaching spelling on performances in the areas of spelling, phonological awareness, reading, and writing. Formal spelling instruction can include a variety of activities "including teaching students: (1) how to spell specific word (e.g., through direct practice in spelling them); (2) how to use skills, rules, and strategies to spell unknown words; and/or (3) how to connect and extend students' grasp of the spelling system using systematic word study activities" (p. 1705). This meta-analysis provided "strong support for directly and systematically teaching students how to spell" (p. 1738), instruction which improves not only spelling, but also reading and phonological awareness skills.

Berninger et al. (2002) studied 96 third grade students in an urban setting with, among other criteria, verbal IQ in the normal range and with compositional fluency in the below average range. Students were

randomly assigned to spelling training only, composition training only, combined spelling and composition training, or a control condition. Results indicated that all the treatments increased the compositional fluency. Spelling and combined spelling and composition training were most effective for word-specific spelling. The teaching of alternations, the alternative ways of representing the same phoneme in English orthography, improved phonological decoding, and transferred to spelling in composing. Only combined spelling plus composing increased both spelling and composing.

Treiman (2018) reminds us that spelling instruction in schools could involve asking students to memorize a list of words for a test. This method is not especially effective. Phonics instruction improved spelling in typically developing kindergartners and 1st graders. Older students who struggle with reading benefit from phonics instruction also. Treiman states "for children to understand how the writing system works, studying words can become a content area, like studying animals or arithmetic" (p. 237). What is commonly referred to as Word Study usually starts around 2nd grade and continues from there. Treiman indicates that "since English spellings reflect morphology, spelling instruction can be integrated with vocabulary instruction" (p. 237), with benefits to both spelling and vocabulary development.

Implementation within Benchmark Phonics

Spelling is a mainstay in Benchmark Phonics. Spelling-sound correspondences are explicitly taught. When reading, the spelling-sound correspondences are identified and circled. When writing, spelling is a factor that can be observed and corrected as needed. Dictation is used to model, practice, and apply spelling to words representing the phonics skills being taught. Spelling is used when learning and practicing high-frequency words.

Small Group Instruction

Ideally, small group instruction provides an opportunity for the teacher to work with different types of readers. Teachers can look at the assets readers bring to the small group opportunity for planning the instruction. Use of explicit instruction "is a manner of providing instruction in which an unobservable process (e.g., thinking) is turned into an overt observable task" (Simmons, Darch, Hinton, & Padgett, 2017, p. 661). Simmons et al. provides an example of a teacher who "not only explains a concept, but delivers a series of carefully sequenced set of examples and provides students guidance in the implementation of tasks using the new knowledge" (p. 661).

Simmons et al. (2017) used the small group instructional situation to study the comparison of a traditional approach to spelling instruction (test-study-test method) to explicit instruction which teaches spelling rules students can use to spell words. The explicit instruction included six different strategies ranging from phonemic generalizations to dictation. While both groups, traditional and explicit instruction groups, improved across the study, the explicit instruction group made overall fewer errors than student who receive the traditional instruction. The small group instruction can supply more than just the same instruction already received, allowing students to build on what they know.

Duke (2019) expresses the importance of small group instruction, that ideally should allow students to be seen at least two to three times a week, with student who have greater instructional needs possibly being seen more often. Duke offers the following tips to make small group instruction as effective as possible.

- *Tip 1: Small group time should include instruction*. Planning and understanding of student needs are essential to time well spent for students.
- *Tip 2: Provide a balance of instruction and application*. To be most effective, students should receive instruction and then be allowed to apply that instruction while the teacher can still provide feedback.
- *Tip 3: Build world knowledge*. With the accountability framework focus on math and literacy, use of materials with additional rich content, including science and social studies texts, will help build the knowledge that is expected to be there in upper grades.
- *Tip 4: Use multiple grouping strategies*. Research-supported strategies include dyad or partner grouping, needs-based grouping, and interest-based grouping.
- *Tip 5: Know the weight of teacher expectations*. Consider the expectations of children when considering the grouping decisions.
- *Tip 6: Fine-tune time management*. Successful small groups are dependent on good classroom management, with students not working with the teacher engaged in productive, meaningful activities. Teachers also need to watch their time to make sure it is being used as designed.

English Learners and Struggling Readers in Small Group

Kilpatrick (2015) looks at a classroom, where both whole group and small group instruction opportunities are in place, as an opportunity to provide a double dose of instruction to those students who are at-risk. Students struggle with learning to read for many reasons, such as learning English as a second language, coming from a lower socioeconomic situation, having interrupted school attendance and missing critical instruction, students whose reading is impaired due to developmental neural and genetic anomalies that affect that skill, and so on. Studies with small group instruction have obtained results similar to one-to-one instruction (Torgesen, Rashotte, Alexander, Alexander, & MacPhee, 2003). It was also found that groups worked best when students had equivalent skills.

Blevins (2017) provides specific suggestions for struggling readers, English learners, and small group interactions, such as

- Adding articulation work, focusing on the position of the lips, teeth, and tongue, when students struggle with letter sounds and for English learners in whose native language a sound doesn't exist.
- Spending additional time on the non-transferable or challenging sound spellings with English learners, but not spending extra time on those sound spelling that are the same in English and a students' first language.
- Use blending lines, valuable word lists, during small group time to review decoding and focus on meaning for English learners, especially effective if students are given a definition, asked to act out the word, or synonyms and antonyms are provided to highlight meaning.
- For struggling writers and English learners, providing sentence stems help to support early writing attempts.
- Most students need 8-12 exposures to a word to commit it to memory, but struggling readers need many more exposures, making small group time a perfect place to review the cumulative phrase and sentence lists.
- Preview decodable texts so students can more fully participate in whole group lessons.

Implementation within Benchmark Phonics

In Benchmark Phonics, instruction occurs in both whole group and small groups. Small groups will likely be formed and reformed based on data and student need. Different types of support and suggestions are provided to meet the needs teachers might encounter. Language Transfer Support provides information to teachers on similarities and differences between languages. The Integrated ELD (iELD) provides three levels of support, light, moderate, and substantial, with instructional suggestions for each level to meet students needs. Multisensory Learning ideas and Alternate Learning Paths are also provided for teachers based on the current skills taught in the whole group mini-lessons. Also included in the small group instruction are suggestions for Independent Practice and Partner Work for those students who are not currently receiving small group instruction.

Assessment

Kilpatrick (2015) states “because the available tests are not always ideally suited for assessing the various components of reading, the best reading assessment tool is the evaluator’s knowledge of research on reading acquisition and reading difficulties” (p. 151). Dougherty Stahl, Flanigan, and McKenna (2020) describe two ways of bringing meaning to tests, comparing a student’s results with results of other children (norm-referenced test) and comparing a student’s results with a preestablished criterion or benchmark (criterion-referenced test). Both types of tests are useful, but Dougherty Stahl et al. state “a curriculum that consists of many specific skills to be learned is probably well served by a series of criterion-referenced tests (one per skill)” (p. 25).

According to Reynolds and Livingston (2012), while a formative assessment involves providing feedback to students, a summative evaluation involves the determination of the worth, value, or quality of an outcome. “In the classroom summative evaluation typically involves the formal evaluation of performance or progress in a course” (p. 271). Using the summative assessment as a pretest and then posttest after instruction has occurred, shows the progress across that instruction.

According to Heritage (2010) formative assessment was conceived as a feedback loop with the goal of closing the gap between a learner’s current abilities and the desired outcome. According to this model, the teacher gets feedback from formative assessment results and those results are used to both make changes in instruction and to provide feedback to the students about how to improve their own learning. Feedback that is focused on a task and provides students with suggestions, hints, or clues, rather than generalized praise or comments, is more effective (Bangert-Downs, Kulik, Kulik, & Morgan, 1991; Kluger & DeNisi, 1996).

Shore, Wolf, and Heritage (2016) suggest formative assessment might be better viewed as part of the instructional process rather than just a test instrument itself. Further, ongoing formative assessment can provide feedback about how students’ development is progressing, allowing teachers to adjust instruction if necessary, provide students with timely useful feedback, and encourage student to reflect on their own thinking and learning. Blevins (2017) states “assessment of phonics skills must be done over an extended period of time to ensure mastery. … Cumulative assessments help you determine which skills have truly been mastered. All skills should be evaluated based on two factors: accuracy and speed” (p. 235).

Implementation within Benchmark Phonics

Benchmark Phonics includes both summative and formative assessments, providing data that can be used to follow student progress, make small grouping decisions, and identify specific area that need additional instruction. The unit assessments provide the cumulative assessment directions and procedures along with information on how to use the data just collected to inform instruction. Cumulative Recording Sheets provides teachers with the review of previously taught skills, making sure learning does not decay and mastery is achieved. Within lessons, formative assessment suggestions and spiral review opportunities are identified at appropriate places.

In addition to the assessment with the units and lessons, Benchmark Phonics comes with the Quick Phonics Assessment (QPA) with Quick Spelling Assessment (QSA), authored by Jan Hasbrouck, Ph.D. The QPA and QSA are untimed, criterion-referenced diagnostic assessments that measure a student's ability to read or spell words focusing on specific phonics elements. Alternate assessment forms (A, B, and C) have been designed to be equivalent in difficulty. These alternate forms enable teachers to monitor students' progress across the school year. Assessments for phonological awareness, concepts of print, and alphabet recognition are also included in Benchmark Phonics.

What Makes a Good Phonics Program?

To understand what makes a good phonics program, it is worth looking at examples. Stainthrop (2020) presents a large-scale phonics program implemented across England. Blevins (2017) shares what ingredients are necessary for a successful phonics program based on experience.

Stainthorp (2020) reports on the changes that occurred in England with literacy instruction. As of 2007, all primary schools were expected to include a discrete, systematic phonics program for all children in KS1 (covers Years 1-2 for students aged 5-7 years), and if necessary KS2 (covers Years 3-6 for students aged 7-11 years). The adopted program, Letters and Sounds, is a free program designed by the Department for Education and Science, based on the Simple View of Reading (Gough & Tunmer, 1986). The Letters and Sounds program consists of six-phases.

- Phase 1 introduces students to sound discrimination activities and develops their phonological and phonemic awareness. This phase culminates with oral blending and segmenting.
- Phase 2 teaches pupils grapheme phoneme correspondences and how to blend and segment with letters so they can read simple regular words. High-frequency words are also taught at this stage. This phase lasts about 6 weeks when students should have learned 19 letters and sounds.
- Phase 3 lasts about 12 weeks and the few remaining letters and sounds are introduced, followed by consonant digraphs and vowel digraphs. Students should know 42 phonemes by a grapheme, to blend these into words for reading, and to segment words into component phonemes for spelling.
- Phase 4 is about 4 to 6 weeks and is designed to consolidate knowledge and secure blending for reading and segmenting for spelling.
- Phase 5 takes up the rest of Y1, around 12 weeks, and students learn many 2- and 3-letter graphemes that have alternative pronunciations. By the end of this phase, students are expected to read hundreds of words independently.

- Phase 6 takes up the whole of Y2 and is designed to build up speed, and accuracy in word reading. Students should have a rich diet of reading books independently and with support, and that listening to experienced readers reading aloud from a wide variety of texts.

The evidence, reported by the U.K. Department for Education (2017), from performance on the phonics screening check suggests fairly dramatic year-over-year improvements in children's phonic knowledge since 2012, when the test was introduced. Results show 58% of children passing in 2012, 69% in 2013, 74% in 2014, 77% in 2015, 81% in 2016, and 81% in 2017.

Another source of testing helpful in understanding the changes that occurred in the education system in England was PIRLS (Progress in International Reading Literacy Studies). PIRLS is taken by a sample of students who are around 10 years old. In the latest PIRLS (given in 2016), England's average performance score overall can be accounted for by improvements of the lowest performing students. This leads to "evidence about teaching phonics is that it is most effective at the start of instruction, and particularly helpful for those pupils who are at risk" (Stainthorp, 2020, p. 120).

The Stainthorp (2020) study shows that systematic and explicit phonics instruction makes a difference for students. Not only does phonics instruction work with English, but also with other alphabetic languages (Ehri, 2020). Ehri reports on studies from Portugal (Cardoso-Martins, Corrêa, Lemos, & Napoleão, 2006) and Brazil (Ferreiro & Teberosky, 1986).

Blevins (2017) recommends the following characteristics of and suggestions for strong phonics instruction.

- **Readiness skills**: Alphabet recognition and phonological and phonemic awareness are the two best predictors of early reading success and will open the gate to reading.
- **Scope and sequence**: The better scopes and sequences work from the simplest to the most complex skills; they allow for as many words as possible to be formed as early as possible; the focus is on high-utility skills first; instruction on easily confused letters and sounds is separated; and the scope and sequence that works for most students is the one adopted.
- **Blending**: Blending is the main strategy used to decode and teachers who spend larger amounts of time on blending, modeling blending and providing practice, achieve greater student gains.
- **Dictation**: Dictation can accelerate students' use of taught phonics skills from reading into writing through guided spelling practice.
- **Word awareness activities**: These activities allow students to explore the new skills being learned and incorporate this new learning into the established learning. The two best activities are word building and word sorts.
- **High-frequency words**: Words that appear most often in print are referred to as high-frequent words and without mastery of these words, fluency could be compromised.
- **Reading connected text**: The more opportunities students have to practice decoding words, the better their word recognition becomes, the more words students recognize on sight, the easier it becomes to read.

- **The teacher**: The teachers' background knowledge of phonics and linguistics, expertise in phonics practices, and attitudes about phonics, are ingredients that play a critical role in the instructional success of students. The teacher is critical.

Blevins (2017) makes a direct connection between phonics instruction and comprehension this way.

- **Phonics** instruction teaches students how to map sounds onto letters and spellings.
- The more phonics skills students learn, the better able they are to **decode**, or sound out words.
- The more opportunities students get to decode words (including repeated exposure to the same words), the stronger their **word recognition** skills become.
- When students begin to recognize many words automatically (through repeated exposure), the better their reading **fluency** becomes. This refers to the ease with which they can read (accuracy and speed). Students' store of sight words increases, thereby lessening the amount of mental energy required to work through words while reading.
- Reading fluency improves reading **comprehension**. As sentences become longer and more complex, students need to get through enough words fast enough to make a meaningful chunk. If they don't, their understanding breaks down. If students have to devote too much time to decoding, their reading will be slow and labored. This is characteristic of many struggling readers. (Blevins, 2017, p. xxvi)

Summary

"Because reading affects all other academic achievement and is associated with social, emotional, economic, and physical health, it has been the most researched aspect of human cognition" (Moats, 2020, p. 4). Moats (2020) states "it is our nation's dedicated teachers and their excellent teaching that will bring the rocket science that is research-based reading instruction to schools and classrooms across the country and will unlock the power and joy of reading for our children" (p. 7). "Teaching *is* rocket science. But it is also established science, with clear, specific, practical instructional strategies that all teachers should be taught and supported in using" (Moats, 2020, p. 9).

Benchmark Phonics is a new program built upon the established science for teaching phonics and its associated parts. Information in this research foundation identified the research upon which the program was created and designed. Brief descriptions of how the research was integrated into Benchmark Phonics were presented in the sections titled "Implemented within Benchmark Phonics". However, this research foundation was not intended to tell the whole story of Benchmark Phonics.

This program will become a part of the literacy instruction in classrooms. It will be combined with a core program, such as Benchmark Advance, or some other set of materials that makes up literacy instruction. It is worth repeating the eighth characteristic, identified by Blevins (2017), that makes up a strong phonics program: "You, the teacher" (p. xix). The teachers' background knowledge of phonics and linguistics, expertise in phonics practices, and attitudes about phonics, are ingredients that play a critical role in the instructional success of students. The teacher is critical.

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