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The influence of decodability in early reading text on reading achievement: a review of the evidence

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Abstract The purpose of this review is to synthesize the existing research on decodability as a text characteristic examining how reading decodable text impacts students' reading performance and growth. The results are organized into two sections based on the research designs of the studies: (1) studies that described student performance when reading texts of varying decodability levels, and (2) studies that compared the reading performance of students after participation in a treatment that manipulated decodable text as an independent variable. Collectively the results indicate that decodability is a critical characteristic of early reading text as it increases the likelihood that students will use a decoding strategy and results in immediate benefits, particularly with regard to accuracy. The studies point to the need for multiple-criteria text with decodability being one key characteristic in ensuring that students develop the alphabetic principle that is necessary for successful reading, rather than text developed based on the single criterion of decodability.

Keywords Beginning reading · Text factors · Beginning texts

Introduction

A fundamental component of every reading program is the text that students read. Yet, surprisingly, there is relatively little research to provide answers to the questions concerning the interactions among text, instruction, and student characteristics, particularly questions relating to the earliest stages of reading development (Hiebert & Fisher, 2007). Currently, a variety of text types are available that provide

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scaffolds designed to aid beginning readers with word recognition, including predictability, high frequency words, and decodability (Mesmer, 2010). In 1999, Hiebert emphasized the need for early reading text to address multiple criteria, including decodability; however, currently most early reading text primarily emphasizes only one criterion (Hiebert, 1999; Mesmer, 2010). Single-criterion decodable text primarily provides scaffolding of the alphabetic principle as it includes a high percentage of phonetically regular words comprised of taught letter-sound correspondences, (i.e., words that can be decoded sound by sound). Researchers agree that decodable text allows students to practice and improve their decoding skills and is consistent with theories of reading development that view deliberate decoding of text as critical to early stages of reading development; however, the degree to which a text should be decodable is unclear (Chall, 1996; Ehri & McCormick, 1998; National Institute of Child Health and Human Development (NICHHD), 2000; Snow, Burns, & Griffin, 1998). In recent years, the type of text included in early reading programs has shifted toward an emphasis on decodability, yet theory and research regarding how text characteristics relate to reading growth remain limited (Hiebert & Fisher, 2007). Although the intent of decodable text is to foster the development of decoding skills, some have argued that reading highly decodable text may result in unintended negative consequences. The typically short sentences, simple story lines, and repetitive language characteristic of common decodable texts may result in awkward unnatural language that actually impedes fluency and comprehension (Adams, 2009; Goodman, Goodman, & Martens, 2002). In this review, we synthesize the existing research on decodability as a text characteristic examining how reading decodable text impacts students' reading performance and growth.

Current use of decodable text in classrooms

Several influential national policies and documents have encouraged the use of systematic explicit phonics instruction. The National Reading Panel (National Institute of Child Health and Human Development [NICHHD], 2000) encouraged educators to teach phonics explicitly and systematically and provide students with opportunities to practice these skills in context. Also, The No Child Left Behind Act of 2001 (2002) required schools to use research-based instruction and materials in order to receive certain federal funds; section 1,208 of this mandate specifically required phonics instruction. Since teachers are encouraged to teach phonics, it seems intuitive that they need to use texts that will effectively foster the development of those phonics skills.

Although no federal documents have mandated the use of decodable texts in conjunction with phonics instruction, two large states that heavily influence publishers, Texas and California, have mandated the use of decodable texts. The Texas mandated curriculum, the Texas Essential Knowledge and Skills written by the Texas Education Agency (TEA, 2008), specifies that all first-grade students should read (among other texts) engaging, well-written decodable texts in order to develop understanding of letter-sound relationships. Additionally, teachers are required to teach students in first through third grades to decode words by decoding all of the

letter-sound correspondences within a word, which implies that the texts they read must include a reasonable percentage of decodable words. Again, texts that students read do not all need to be highly decodable, but students must read at least some decodable text (i.e., text including a high percentage of phonetically regular words comprised of taught letter-sound correspondences). California has similar requirements for first and second grade (California English/Language Arts Committee, 2007). By including these requirements in the state documents, these states are requiring the use of decodable texts in first- through third-grade classrooms.

The textbooks used in classrooms also reflect the wide use of decodable texts in beginning reading classrooms. For example, two major textbook publishers, SRA/McGraw-Hill (Bereiter et al., 2005) and Scott Foresman (Afflerbach et al., 2008), include decodable texts in reading textbooks and in supplemental readers. In fact, Scott Foresman sells their core and supplemental reading programs to schools in every state in the United States, providing books with decodable text to millions of students across the country (K. Miller, personal communication, August 24, 2011).

Together, the encouragement to use systematic explicit phonics instruction at a national level, the requirement of some states to use decodable texts, and the wide use of textbooks with decodable texts across the country, lead to the conclusion that countless students spend at least some time reading decodable texts. Although some schools and districts do not use commercial core reading programs and may use a differing approach to reading instruction and different types of texts, it is clear that many students are reading decodable texts.

Theoretical framework: becoming a good reader

Since decodable texts are used widely, it is important to consider the theoretical support for reading decodable texts and how it relates to early reading development. Research consistently demonstrates that good readers effortlessly recognize words and link words to their meanings in order to comprehend text (see Adams, 1990; Ehri, 2005). Although good readers recognize words automatically, evidence is clear that they do fully process the print, attending to the inner structure of words (Adams, 1990; Ehri, 2005). Further, when text is meaningful, good readers tend to read with greater fluency (Adams, 1990).

Ehri (2005) identified four phases of alphabetic knowledge through which students progress as they develop fluent word recognition skills. In the first phase, *pre-alphabetic*, students have no knowledge about the alphabetic system, but instead read words by recognizing familiar signs or symbols. During the second phase, *partial alphabetic*, students recognize some letter names and sounds, using this knowledge to assist them in recognizing words. Students in this phase often struggle with vowels and decoding as they do not fully understand the alphabetic system. Students in the third phase, *full alphabetic*, have a complete understanding of the alphabetic system; they know and successfully apply most of the letter-sound correspondences. During this phase students successfully decode by analyzing each letter or cluster of letters within words and are learning the complete spellings of some words. In the fourth phase, *consolidated alphabetic*, students read many words

automatically, and have the skills to decode unfamiliar words fairly quickly by grouping the letters into known parts. In other words, students attend to all of the letters in the words in order to develop fully specified orthographic representations of the words and unitize the words (i.e., recognize automatically or by sight).

As readers develop, they may use multiple strategies as they progress through these stages, including predicting, memorizing whole words by sight, decoding, and analogizing (Ehri, 1994); however, decoding is viewed as a primary method for learning to recognize words (Adams, 1990). Predicting is guessing an unknown word based on context and letter clues such as height, shape, and some letter sounds. It is a beginning word identification strategy that students use less frequently after they have learned how to apply letter-sound correspondence more fully, particularly vowel sounds and their corresponding letter patterns (Chall, 1996). Predicting is unlikely to lead to the development of the alphabetic principle because it does not encourage readers to attend to the complete spelling of the word, which is necessary for words to become unitized (Adams, 1990). Another strategy used heavily in the early stages of reading development is memorizing whole words by sight without decoding them first. This strategy is necessary for students to learn words with highly irregular word patterns, particularly the most common irregular words (i.e., was, have, come); however, memorizing the thousands of words required for fluent word reading is highly inefficient. Further, memorizing whole words does not allow students to learn new words independently (Adams, 1990). Decoding, as previously described, is when students sound out the letters or clusters of letters, and blend them into words. Decoding draws the reader's attention to all of the letters within words. Analogizing is when students relate new words to already known words, such as being able to read *stuck* because *duck* is already known. Decoding and analogizing are related in that students typically become familiar with common letter patterns through decoding, gradually increasing the speed with which they recognize words and letter sequences. Then they use these common letter patterns as they analogize.

The overarching goal of word recognition is for the reader to unitize (i.e., recognize automatically or by sight) the words being learned, eliminating the need for a strategy. Although developing readers may use several strategies, a decoding strategy is critical because it requires students to process the complete spellings of words, which leads to unitization. Many researchers believe decodable texts play a critical role in the development of word recognition skills because they provide students with opportunities to practice and apply decoding skills (NICHHD, 2000; Snow et al., 1998). When students read decodable texts they can more readily apply their knowledge of letters and sounds, making it more likely that they will process all of the letters within words and develop fully specified orthographic representations of words. Recognizing words in this way allows the reader to focus mental energy on comprehension rather than word recognition.

Characteristics of decodable text

Decodable text is designed for students in the full and consolidated alphabetic phases and has particular characteristics intended to provide students with

opportunities to apply phonological skills so that they are more likely to become successful readers who effortlessly process all of the letters within words. Although previous research has measured decodability in a variety of ways (see the *Findings* section for examples), the definition of decodable text generally identifies two primary characteristics: (a) a high degree of words that are phonetically regular and (b) a high degree of words that include letter-sound combinations that have been previously taught in phonics instruction (Mesmer, 2001). Words are phonetically regular when the letter-sound patterns that comprise the words follow common letter-sound correspondences (Mesmer, 2005). Texts consist of various degrees of decodable words, and therefore have a degree of decodability instead of being entirely decodable or entirely not decodable. An example of a highly decodable sentence is *My hat is big and red*. The words *my* and *is* are common sight words which students are usually taught to memorize early in beginning reading programs. These are irregular words because at least some of the letters in these words do not represent their most common sounds (e.g., the *y* in *my* represents a vowel sound rather than the more common consonant sound, the *s* in *his* represents the /z/ sound). The letters in the remaining words (i.e., *hat, big, and, red)* represent their most common sounds and are, therefore, decodable. Although decodable text is text with a high percentage of decodable words (i.e., words comprised of letters and letter patterns that have been taught), it is unclear what percentage of decodable words found in a text is necessary for it to be considered *decodable*. The second fundamental component is the degree to which the words in the text match taught skills; this is often referred to as lesson-to-text match (Mesmer, 2001). Students must have been taught the letter sounds in the words or the words are not decodable to them, even if the words are phonetically regular, because the students would not have learned the skills required to decode the word. For example, the word *red* in the sentence above would not be considered decodable for students who had not been taught that /e/ is the most common sound for the letter *e*. Therefore, decodability is a combination of phonetic regularity and match to previous phonics instruction.

Purpose of the present study

Given the central role of text in all reading programs and the emphasis on decodable text in the law and in practice, it is important to understand what we already know about decodable text and the role of decodability as a text characteristic. Despite the current widespread use of decodable text, there are very few studies that have specifically analyzed the role of decodable text in early reading development. In fact, in their comprehensive review and summary of reading research, the National Reading Panel (NICHHD, 2000) concluded that there was not enough evidence to draw research-based conclusions regarding the decodability of text. Several years have passed since the call for more research on decodability and several new studies have been reported; however, questions remain about how effective it is in increasing overall reading ability and specific reading skills, the extent to which texts need to be decodable in order to be effective, and how to avoid the possible

deleterious effects of reading decodable texts (Allington & Woodside-Jiron, 1998, Goodman et al., 2002). It is important to review all of the existing research on decodable text to see if the perceived benefits of decodable text are supported by empirical evidence and to determine critical research questions that remain unanswered. This article describes the research base regarding the use of decodable texts and synthesizes these findings in order to determine the influence of decodability as a text characteristic on reading performance and reading growth. Implications for future research are discussed.

Method

Definitions

Researchers do not agree on a standard way of rating the decodability or difficulty of a text (Allington & Woodside-Jiron, 1998), nor do the publishers who publish sets of decodable books. Although decodable text is text with a large number of decodable words (i.e., words comprised of letters and letter patterns that have been taught), it is unclear how to interpret the degree of decodability required for a text to be considered *decodable*. In the studies in this review, the percentage of phonetically regular words in text varied considerably according to the purpose of the study and the manner in which decodability was measured (e.g., an exact word count vs. a scale evaluating the holistic decodability of the text).

Inclusion criteria

Three criteria were used to select research that addressed the question of how reading decodable texts impacts student reading performance and growth. Our goal was to include all peer-reviewed studies that specifically addressed research questions regarding decodable text. First, all selected studies were published in peer-reviewed journals. Second, decodable text was manipulated as an experimental variable and specific data regarding these comparisons was provided (i.e., means, standard deviations, etc.); therefore, the studies selected all evaluated the isolated impact of decodable text and provided information necessary to fully interpret their findings. For example, a study on text difficulty conducted by Hiebert (2005) was not included because it did not specifically address decodability. A study by Beverly, Giles, and Buck (2009) was not included despite the manipulation of decodable text because the number of participants, pretest means and standard deviations were not provided for the comparisons between students who did and did not read decodable text.

Third, the decodable text variable was not manipulated in conjunction with different instructional methods. In other words, text type was the only independent variable. Studies that evaluated different interventions in general or different interventions in conjunction with different types of text were not included. Although reading intervention studies that used a combination of

phonics instruction with decodable text demonstrate the potential importance of decodable text (Mathes & Torgesen, 2000; Mathes et al., 2005), the strong effects found cannot be solely attributed to the type of text read because decodable text was part of a comprehensive intervention and not an isolated independent variable. Since the results did not yield conclusions specifically regarding decodable text, such studies are outside the scope of this review. For example, a study by Foorman, Francis, Fletcher, Schatschneider, and Mehta (1998) was not included despite the manipulation of decodable text in each treatment group because each treatment group also received different instruction. Results, therefore, could not be attributed solely to the text, but to the combination of text and instruction.

Search procedure and identified studies

We used numerous electronic databases (i.e., ERIC, PsycINFO, JSTOR, ProQuest Education Journals, ArticleFirst, Wilson Select Plus, and Academic Search Complete) using a variety of terms to search for studies that met the inclusion criteria. Search terms included *decodable*, *decodable text*, *decodable books*, *little books*, *leveled books*, *leveled text*, or *text and factors* and *reading*. This resulted in six studies meeting all of the inclusion criteria: Compton, Appleton, and Hosp (2004), Hiebert and Fisher (2007), Hoffman, Roser, Patterson, Salas, and Pennington (2001), Jenkins, Peyton, Sanders, and Vadasy (2004), Mesmer (2005), and Mesmer (2010). The reference sections of these articles and related literature were reviewed and one additional study was identified: Juel and Roper/Schneider (1985). Study design, statistical power, or other study characteristics were not specified as part of the inclusion criteria since so few studies specifically addressed questions regarding decodable texts. These characteristics were considered when drawing conclusions based on these studies.

The results are organized into two sections based on the types of research designs used in the studies. One type of research described student performance while reading books of varying levels of decodability; these studies did not include an intervention. Compton et al. (2004), Hiebert and Fisher (2007), Hoffman et al. (2001), and Mesmer (2010) conducted these descriptive studies. The other type of research compared the reading performance of students who participated in different treatment groups who read different types of texts. Jenkins et al. (2004), Juel and Roper/Schneider (1985), and Mesmer (2005) conducted such intervention comparison studies. These studies examined student response to using different types of decodable texts in one of two different ways: as part of the core reading instruction (Juel & Roper/Schneider, 1985) or with supplemental phonics tutoring (Jenkins et al., 2004; Mesmer, 2005). Tables 1 and 2 provide a summary of the participants, types of texts used, and major conclusions of each study. Following is a description of the results organized by the two types of research designs: studies that described reading performance with different texts and intervention studies that compared groups of students after they had participated in an intervention during which they read either more decodable text or less decodable text.

Table 1 Summary of descriptive studies

Authors (Year)	Participants (Grade; ability level)	Text description	Results
Compton et al. (2004)	248 second graders; mixed ability	Passages of equivalent levels, without regard to decodability	High frequency words related to accuracy and fluency; decodability related to fluency
Hiebert and Fisher (2007)	36 first graders; mixed ability	Low versus high critical word factor (measure of decodability and taught irregular words)	Critical word factor related to speed, accuracy, and comprehension
Hoffman et al. (2001)	105 first graders; mixed ability	Leveled readers (7 levels)	Text decodability related to accuracy, rate, and prosody
Mesmer (2010)	74 first graders; middle to high performing	Decodable versus qualitatively leveled text	Analysis of accuracy was not conclusive; students read more fluently with qualitatively leveled text

Table 2 Summary of intervention studies

Authors (Year)	Participants (Grade; ability level)	Text description	Results
Jenkins et al. (2004)	99 first graders; low performing	More versus less decodable text	Treatment groups together outperformed control on battery of measures; Type of text made no difference in performance between treatment groups
Juel and Roper/ Schneider (1985)	93 first graders; average ability	More versus less decodable text; text became more similar as year progressed	Treatment group used phonological decoding strategy, applying letter-sound correspondences more and read more new words on proximal word list; initial differences on standardized measures, but no differences by the end of the year
Mesmer (2005)	23 first graders; average ability	More versus less decodable text	Treatment group made more graphically similar errors, read more accurately, were told words less, and repeated themselves more than the control group

Findings

Descriptive studies

Compton et al. (2004)

The largest descriptive study examined the relationship of reading accuracy and fluency with various text characteristics (Compton et al., 2004). Two hundred

forty-eight second-grade students (44 low achieving readers and 204 average achieving readers) orally read texts with varying text characteristics. One conclusion the researchers made was that second-grade students with average skills read more accurately in text that was more decodable than text that was less decodable. The researchers hypothesized that this was because the average skilled readers had the decoding skills needed to correctly read the decodable text.

The researchers analyzed 15 texts on several different characteristics, including readability, decodability, average number of words per sentence, percentage of high frequency words, and percentage of multisyllabic words. Decodability was established using a modified version of Menon and Hiebert's (1999) word decodability levels that categorized the types of words and word patterns to determine the level of text decodability. Level one words included consonant–vowel words (e.g., *me*, *we*, *by*). Level two words were short vowel words not ending in *l* or *r* and not including consonant blends (e.g., *cat*, *up*). Levels one and two both consisted of words in which every letter represented one sound, which is easier for students in the full alphabetic phase who need to practice basic decoding. Level three added words with consonant digraphs and blends (e.g., *she, that, scrap*). Level four added the final e word pattern commonly referred to as the "magic *e*" rule (e.g., *bake, strike*). Level five added vowel digraphs (e.g., *pain, say, chief, moon*). Level 6 added words r- and l-controlled vowels (e.g., *farm, tall*). Level 7 added diphthongs (e.g., hawk, trout) and Level 8 added multisyllabic words (e.g., dinosaur, petulant). Level 9 included nondecodable monosyllabic words (e.g., two, though). In sum, levels one and two included words where each letter represented a single phoneme, or sound. Levels three through eight included words in which letter combinations represented a single phoneme, such as digraphs and diphthongs. The ability to recognize letter combinations as single sounds is an indicator of students in the full alphabetic or consolidated phases, who have moved beyond basic one to one correspondences. Therefore, words in levels one through seven and some words in level eight were phonetically regular and could be sounded out if the students had been taught the necessary letter-sound correspondences. Percentages of high frequency words were calculated using the 500 most frequently printed words according to Zeno, Ivens, Millard, and Duvvuri (1995).

Once a week, for 15 weeks, each student's teacher listened to the student read one of the leveled passages and recorded reading performance and correct words per minute. The researchers analyzed the relationships between student reading performance (accuracy and fluency) and text characteristics. Results showed a statistically significant bivariate correlation between the percentage of decodable words and fluency, as well as statistically significant bivariate correlations between the percentage of high frequency words and both fluency and accuracy. Similarly, a commonality analysis indicated that the percentage of high frequency words accounted for 25% of the variance in student accuracy and 20% of the variance in student fluency. The percentage of decodable words accounted for 23% of the variance in fluency.

When bivariate correlational analyses were conducted separately for struggling and average readers, the results were slightly different. The percentage of high frequency words was correlated with both accuracy and fluency for both low achievers and average achievers, yet the percentage of decodable words was

correlated with both fluency and accuracy only for average readers, not struggling readers. The researchers hypothesized that decodability did not correlate with the accuracy or fluency of low readers because the way decodability of text was measured did not include consideration of word patterns of varying difficulty (i.e., *rid* vs. *raid*) or lesson-to-text match. The decodability measure did not take into account actual student ability, which may have resulted in decodability ratings that were invalid for low readers. In other words, the lower performing students likely did not have the decoding skills required to read the decodable words in the passages. This illustrates the importance of including lesson-to-text match to effectively determine the decodability of a text.

In summary, this study demonstrated that all students were more successful readers with texts with higher percentages of high frequency words and average students were also more successful readers with texts with higher percentages of decodable words. It seems likely that average skilled readers were more accurate in decodable texts because they had the decoding skills needed to read those texts. The lower readers in this study may not have had the decoding skills necessary to decode words with more advanced phonics patterns included in the decodable texts.

Hoffman et al. (2001)

Similarly, Hoffman et al. found that the reading performance of first-grade students was correlated with text decodability; however, in contrast to the Compton et al. study (2004), this finding held true for students of varying ability levels. This second large-scale study analyzed the impact of text decodability with 105 first graders who read books of varying difficulty (Hoffman et al., 2001). The purpose of the study was to evaluate two systems for rating the difficulty of text, but in doing so Hoffman et al. also drew conclusions regarding how decodability affects reading performance, finding that decodability positively impacted reading performance for readers with a variety of ability levels.

The researchers first analyzed selected books from three sets of small books that were already present in the two participating schools, and leveled them based on the Fountas/Pinnell system and the Scale for Text Accessibility and Support—Grade 1 (STAS-1: Hoffman et al., 1994). It is important to note that decodability and predictability were both used to level the books, with each factor measured separately. Decodability was determined by rating the text on a 5-point scale with 1 being *highly decodable* (i.e., short, one syllable phonetically regular words or short, common sight words), 2 being *very decodable* (i.e., some vowel and consonant combinations, less-decodable words that are high-frequency, simple compound words, contractions, and some irregular words related to the story), 3 being *decodable* text (i.e., regularly spelled one and two-syllable words, less common rimes, and irregular function words), 4 being *somewhat decodable* text (i.e., many one-and two syllable words, derivational endings, infrequent words, and longer irregular words) and 5 being *minimally decodable* (i.e., a variety of letter combination patterns, many derivational endings, and longer and less phonetically regular words). The degree of lesson-to-text match was not included in the scale. This classification of decodability varied greatly from scales used in other studies,

and only the first level consisted mainly of words that could be read with only basic, one-to-one letter-to-sound correspondence knowledge. The books were categorized into seven levels of increasing difficulty. Then three books were selected from each of the levels and randomly assigned into one of three different book sets, resulting in three book sets with one book from each of the seven levels in each set.

The 105 first-grade students were divided into three ability groups (low, middle, and high) based on performances on the Qualitative Reading Inventory (Leslie & Caldwell, 1990), and assigned to an experimental condition. For the first condition, students previewed the text and could receive assistance with challenging words. For the second condition, students read the text after following along in the text as it was read aloud to them. For the third condition, students read the text with no support. In order to prevent frustration, all students, regardless of treatment condition, were told unknown words if the words were not read correctly within 5 s. The different conditions were chosen to reflect the variety of ways students commonly read text in classrooms. Student readings were recorded to allow for later analysis of accuracy, rate, and prosody (referred to as fluency by the researchers).

An analysis of the text characteristics and student reading measures revealed statistically significant bivariate correlations of student accuracy, rate, and prosody with both decodability and readability. Additionally, there were statistically significant bivariate correlations between accuracy and sentence length, prosody and syllables per sentence, as well as rate and predictability. These were not the only statistically significant correlations, but were the highest among the characteristics of the text. An analysis of variance revealed statistically significant differences on student prosody and accuracy based on passage level. Therefore, as the difficulty level of the passages increased, student prosody and accuracy decreased. Rate could not be included in the same analysis as rate was only calculated for students when they achieved 75% accuracy. However, there was a statistically significant difference for rate with middle and high performing students according to the available data (collected for students achieving 75% accuracy). Comparing the different treatment conditions, the condition in which students heard the text read aloud before reading the text themselves resulted in better prosody and accuracy than the other conditions (previewing the text and no support).

Overall, student performance was correlated with text decodability. This finding is consistent with the findings of Compton et al. (2004) in that decodability positively impacted reading performance; however, in this study the relationships between text decodability and reading performance were strong and statistically significant for all levels of students and were not limited to students with average skills. These correlations suggest that decodability plays a part in student performance. Furthermore, since this finding was consistent for all students, it may be that benefits of decodable text might be beneficial for students in a range of stages of beginning reading. As was the case with the Compton et al. (2004) study, decodability was determined by analyzing word characteristics, and without analyzing lesson-to-text match. It is likely that the correlations would have been even stronger if text had been matched to instruction, but that was not evaluated in this study. It is also interesting to note that text classified as *very decodable* included some high-utility vowel teams and consonant digraphs; some simple compound

words and contractions; and, on an infrequent basis, irregular words that were considered high-interest and related to the story (e.g., *that, boat, pitch, Carlotta, higgledy-piggledy*). In other scales, text with these words would not have been considered *very decodable*. Still, even with these additions and without considering lesson-to-text match, the more decodable the text, the better students of all levels were able to read it.

Hiebert and Fisher (2007)

Text decodability was also found to impact student reading ability when Hiebert and Fisher (2007) evaluated the reading performance of 36 first graders as they read leveled books. One important difference of this study from Hoffman et al. (2001) and Compton et al. study (2004) is that the books in this study were leveled with the Critical Word Factor, a system that determines the difficulty of text based on the percentage of irregular (i.e., nondecodable), untaught words. The researchers referred to these as *hard words* because the students were not expected to know them or to be able to decode them based on taught skills. Therefore, both decodable words and irregular words that had been previously taught by sight were considered to be readable words. Each student read a total of four text passages, two with a high Critical Word Factor (i.e., high percentage of *hard* words) and two with a low Critical Word Factor (i.e., low percentage of *hard* words). The texts did not include illustrations (books were retyped onto separate paper) to ensure that students relied solely on word and context clues for decoding. Student speed (words read per minute), accuracy (number of errors), and comprehension were evaluated for each text read. Comprehension was measured by asking the students what the story was about and rating the response on a five-point rating scale.

Findings revealed that students read with greater speed, accuracy, and comprehension when they read books with a low Critical Word Factor as compared to when they read books with a higher Critical Word Factor; these differences were all statistically significant. Hiebert and Fisher (2007) concluded that texts that control for the Critical Word Factor, texts that have a lower number of *hard words*, may increase the rate of growth of reading proficiency. These findings are consistent with the findings of Compton et al. (2004) and Hoffman et al. (2001), as they provide evidence that the decodability of text impacted reading performance, although this study also classified previously taught irregular words as readable words.

Mesmer (2010)

Similar to the findings of Compton et al. (2004), Hoffman et al. (2001), and Hiebert and Fisher (2007), decodability was again found to impact student fluency when Mesmer (2010) conducted a study with 74 first graders that compared student performance in decodable and qualitatively leveled books across the academic year. All participants read a decodable book and a qualitatively leveled book in October, January, and May. Text decodability was measured by dividing words into three levels of increasing difficulty. Level one included one or two-letter words, short

vowel words, and simple consonant cluster words. Level two words included words with vowel digraphs, r-controlled vowels, silent-e, and diphthongs. Level three words included multi-syllabic words and words with contractions or apostrophes. Both text types had similar numbers of level one and level two words, indicating similar levels of word difficulty. For each text type, an easier book and a more difficult book were selected. Students either read the easier books or the more difficult books, based on their approximate reading levels in October. Students read the same books again in January and May. Accuracy and fluency scores were calculated. Repeated measures ANOVAs were used to investigate group differences.

Findings with regard to accuracy were inconclusive and suggest that text features (i.e., word patterns and the number of high frequency words) rather than text category (i.e., decodable or qualitatively leveled) may better explain reading performance. In the easier set of books, the analysis indicated that accuracy did not improve when the book was read multiple times, but students did perform better in the decodable texts than in the leveled texts. In other words, students read more accurately in the decodable book than the leveled book, regardless of practice, if they read the easier set of books. This was not the case with the students who read the harder set of books. These students performed better in the leveled texts than in the decodable texts and for these students performance did improve with practice. One possible explanation for this finding is that the leveled texts included a higher percentage of high frequency words improving performance and that the more challenging decodable text included words with difficult blends (i.e., *str-*, *-nd*) lowering performance. This suggests that the features of the text (i.e., percentage of high frequency words, difficulty of decodable words) may have influenced accuracy more than the overall text type. Accuracy improved across the school year for all students in all books, but for students reading the more difficult books, these gains were greater in leveled text.

Unlike Compton et al. (2004), Hoffman et al. (2001), and Hiebert and Fisher (2007), the findings in this study regarding fluency indicated that students read leveled books more fluently than decodable books. Students (both those reading easier books and those reading more difficult books) read more fluently in leveled texts than decodable texts and the size of the difference increased with practice. Analyses examining performance across the school year indicated that students continued to read more fluently in January and May, but the differences did not become larger across time. A careful analysis of the features of the text in this study provides likely hypotheses regarding this finding. First, in the specific texts used in this study, leveled texts had approximately twice as many high frequency words. Another potentially advantageous feature is that language patterns in the qualitatively leveled texts were similar to patterns children use in oral language. A final feature of the leveled texts that undoubtedly influenced fluency was the repetition of the stem of the sentence throughout the books; this format is used in the earliest leveled readers. Further, the decodable texts, particularly the higher leveled texts, included some low frequency words not likely to be common in the student's oral language. These words, though decodable, may have required additional time to decode or caused readers to pause because they were likely to be less familiar to the reader and unexpected. However, when the decodable text contained words with

letter-sound correspondences the students already knew (as determined by an initial spelling test), the students were able to read more fluently (as evidenced by the performance of students who read the lower leveled books).

Synthesis of descriptive studies

Although the results were somewhat mixed, overall the results of the descriptive studies suggest that students in the early phases of learning to read were able to read decodable texts with greater success than less decodable texts (Compton et al., 2004; Hiebert & Fisher, 2007; Hoffman et al., 2001; Mesmer, 2010). Decodability impacted student reading performance, especially reading accuracy, rate, and prosody (Compton et al., 2004; Hiebert & Fisher, 2007; Hoffman et al., 2001). When the texts students read included words with letter-sound correspondences that allow students to practice the decoding skills they had been taught, they were more successful readers. In other words, these studies indicate that at a given point in time, students tend to read with more success when they are reading more decodable text. However, some students read predictable texts with greater fluency than decodable text (Mesmer, 2010). This is likely due to the common and repetitive language in the predictable text that enables students to memorize books aurally using minimal visual cues, which does not lead to the development of the alphabetic principle. Evaluating the potential benefit of reading decodable text, it is clear that the textual scaffolds provided in decodable texts do support reading development, specifically the development of the alphabetic principle. However, these studies did not evaluate whether or not reading more decodable text produces greater growth in reading ability across time than reading less decodable text. Therefore, it is important to evaluate the findings from intervention studies that analyzed the impact of text on reading growth.

Comparison intervention studies

Juel and Roper/Schneider (1985)

The earliest study that manipulated decodable text as an experimental variable evaluated decodable text with typically achieving readers. Juel and Roper/Schneider (1985) investigated the effects of reading either a basal with more decodable texts or a basal focused on high frequency words as part of the regular reading instruction for 93 first grade students. Among other conclusions, the researchers found that the students reading the more decodable text made stronger early gains in reading and were better able to apply their phonics skills to a set of untaught words at the end of first grade. These findings are consistent with the descriptive studies in that they demonstrate that decodability positively impacts the acquisition of the alphabetic principle.

Participating students were selected from the middle reading groups in their classrooms and all scored above the 40th percentile on a standardized measure of literacy skills and language ability. At the beginning of the year their teachers considered the students to be nonreaders. All students received the same scripted

phonics instruction as part of their regular classroom reading instruction, but then practiced reading with different types of texts as part of the class instruction. The more decodable text group read a basal with more decodable text and the high frequency text group read stories from a basal focused on high-frequency words. Each level of the texts was analyzed on a number of different factors including the total number of unique words, the number of word repetitions, the number of letters in the words, the number of syllables in the words, the difficulty of the letter-sound correspondence patterns in the words, the positional bigram frequencies (how often letter combinations appeared in the same position of words, such as *th* at the beginning of a word), and the number of different words in which the bigrams appeared (how many different words the letter combinations appeared in the same position, such as *th* at the beginning of *the* and *that*). Word regularity was also determined by classifying each unique word as one of three types: (a) predictable and easy words that followed common grapheme-phoneme patterns (print to sound patterns) and had basic word structure, such as consonant–vowel-consonant, consonant–vowel-vowel-consonant (*cat*, *home, beat*); (b) predictable and hard words that included vowel diphthongs (*cow*), consonant digraphs *(that)*, or *r*, *l*, or *w* controlled vowels (*car*); and (c) unpredictable and irregular words that did not follow common grapheme-phoneme patterns (*pear*, *come*). Specific text factors were not provided, but it was reported that the texts differed most at the beginning of the school year and became increasingly similar as the year progressed. In fact, no discernable differences were found between the two text types beyond the preprimer level.

Students were tested three times a year on decoding skills (reading nonwords), reading of words from their assigned texts both with and without context, and reading of words unique to the other group's texts (to see if skills were transferred to new texts). Students also read passages from each book upon completion and researchers recorded the words read correctly. At the end of the year students were given the reading comprehension and reading vocabulary subtests of a standardized achievement test.

Although the overall results of the assessments were mixed, students who read the more decodable basal decoded nonwords better than students who read the high frequency basal on the first two test administrations, conducted in November/ December and February. Throughout the year, even to the end of first grade, the students who read the more decodable texts used primarily a phonological word identification strategy, as evidenced by a regression analysis that showed decodability was the strongest correlation to word identification. For the students who read the high frequency basal, a regression analysis showed that the number of letters in the word, the number of syllables, the decodability, and the number of word repetitions were predictors of word reading. There was also a statistically significant interaction between decodability and bigram versatility, with nonversitile words being read correctly more often. This lead to the conclusion that the students did use decoding to some extent, but used mainly a visual word identification strategy such as relying on word length or memorizing letter sequences to determine the word, since unique words were more prevalent and correctly read with the high frequency basal series. Additionally, there were statistically significant differences

in favor of the more decodable text group when reading the unique words from the other group's text at the end of first grade. The researchers hypothesized that this difference was due to the phonological decoding skills the decodable text group had developed in reading decodable texts that the basal group lacked. However, at the end of the school year there were no statistically significant differences between the two groups on the standardized tests of decoding ability, reading comprehension, or reading vocabulary. Importantly, regardless of the type of text practiced, students who finished the year with strong letter-sound correspondence knowledge performed better on standardized measures.

Overall, the use of decodable texts in the beginning of the year positively impacted the initial rate of growth of letter-sound correspondence knowledge and the use of decoding as a word identification strategy throughout the year. Juel and Roper/Schneider (1985) concluded that when the initial texts used with core reading instruction matched the method of instruction, students were better able to apply and develop their phonics skills than when the texts did not match instruction. They also hypothesized that text may be more influential than method of instruction, since both groups received the same explicit phonics instruction yet used different word identification strategies. These conclusions extend the findings of the descriptive studies, demonstrating the ongoing role of decodability as an important factor of text used during a year-long intervention.

Mesmer (2005)

Mesmer (2005) conducted a somewhat similar study with 23 first graders of average reading ability, but Mesmer evaluated the impact of decodable texts when read in conjunction with a supplemental explicit phonics intervention (provided for 20 min per day for 14 days) versus the core reading instruction. Consistent with the primary findings of Juel and Roper/Schneider (1985), students in this study who read more decodable text more readily applied their phonics skills than students receiving the same instruction but who read less decodable text. Instruction was provided to small groups of four students, each who had been randomly assigned to either the treatment or control group. The only difference in the lessons was that the treatment group read books that were more decodable and the control group read books that were less decodable. Both book sets were published by the same company and were therefore similar in printing, binding, and other visual attributes.

Statistical analyses demonstrated that the books read by the treatment group were very different, as expected, from the books read by the control group. The decodable books used by the treatment group had a greater percentage of words that matched instruction and phonetically regular words with short vowels (*blast, cat*), the silent *e* rule (*came, ripe)*, vowel digraphs (*beat, goat*), and diphthongs (*cow, oil*), as well as more content words and repetitions of words. These differences were all statistically significant, as were the differences in the number of syllables per word. The text for the treatment group also had greater lesson-to text match (about 40% for decodable text as compared to 8% for less decodable text) than the control group text did. Each student's reading skills were assessed individually with a running record every fourth day.

The results revealed that students in both groups made about the same number of overall substitutions, but the students in the treatment group who read decodable books made more graphically similar errors (i.e., errors in which two or more phonemes matched the actual text). Based on that finding, Mesmer (2005) concluded that students who read decodable books applied the letter-sound correspondences taught to a greater extent than students who read less decodable books. Analysis of student behavior when reading revealed that the students in the treatment group read slightly more accurately than the control group and had the examiner tell them fewer words while reading; however, they also had more repetitions of words while reading. The groups did not differ in regards to the percentage of self-corrections made, meaning that the treatment group did not correct errors more than the control group.

Mesmer's (2005) study confirmed the results of Juel and Roper/Schneider (1985), and extended them with a detailed analysis of the errors students made during reading and instruction, and with an evaluation of small group instruction rather than large, whole-class instruction. Students who read decodable texts were more successful readers, as measured by reading accuracy and the amount of help needed to identify words. However, they also repeated words more frequently and did not self-correct more frequently than the students in the control group. Since student growth was not measured, the results of this study do not allow conclusions to be made regarding whether or not the students progressed from the partial alphabetic to full alphabetic or from the full alphabetic to consolidated phase. However, Mesmer specifically pointed out that the participants were at least in the partial alphabetic phase and hypothesized that decodable text would not have been appropriate for students in the pre-alphabetic phase. Therefore, for students in the partial or full alphabetic phase, reading decodable texts not only allowed them to apply their phonics instruction to connected reading more than students who read less decodable texts, but also made them more successful, independent readers.

Jenkins et al. (2004)

Contrary to the findings of previous studies indicating positive effects from reading decodable text, Jenkins et al. (2004) manipulated text within an individually-administered tutoring program and found that the type of text students read (i.e., less decodable vs. more decodable) did not make a measureable difference in reading growth. Students who participated in the tutoring intervention, regardless of the type of text practiced during the lessons, responded favorably demonstrating similar ability on a variety of standardized reading measures, including pseudoword reading. Unlike the previously discussed intervention studies, an analysis of the types of errors made by students was not conducted. The design of this well-controlled study varied from previous studies in several important ways: (a) all readers were considered to be struggling readers, (b) instruction was individualized tutoring, rather than small group or regular classroom instruction, (c) a wide variety of reading assessments were used to assess student reading performance, and (d) an analysis of the types of errors students made during the reading of different types of text was not included. The decodability of the texts was measured by determining

the percentage of words in the texts that were comprised of only letter-sound correspondences that had been previously taught. The degree of decodability in the decodable text remained constant with 85, 72, and 80% of the words in the text being decodable in the first, second, and final third of the lessons, respectively. The degree of decodability for the less decodable text gradually increased as students learned phonics elements with 11, 40, and 69% of the words in the text being decodable in the first, second, and final third of the lessons, respectively. Nondecodable sight words that had been holistically taught were also tallied, and contributed to the count of the number of readable words in each text. The percentage of high frequency words was similar in both groups.

Jenkins et al. (2004) randomly assigned 79 struggling first graders to either a decodable group who read more decodable texts or a less decodable group who read books that were written without consideration of phonics elements. Students qualified for the study if they scored at or below the 25th percentile on a standardized comprehensive achievement test, ensuring that the participants were struggling readers in need of additional support. All treatment students were tutored individually by one of 33 paraprofessionals who provided scripted phonics instruction. The phonics lessons were conducted 30 min a day, 4 days a week, for 25 weeks, and were implemented with high fidelity. The only difference between the two groups was the type of text used in the storybook part of the lessons.

Overall, findings indicated that the supplemental, explicit phonics instruction was effective regardless of the type of text used and raised questions about the role of decodable text with well-designed interventions. Despite the statistically significant differences between the decodability levels of the texts, the results of the multivariate analyses of variance or covariance did not reveal statistically significant differences between the treatment groups on any outcome measure, including measures of receptive vocabulary, letter knowledge, naming speed, phonological processing skills, decoding skills, word reading, spelling, sight word reading, phonemic decoding, passage reading and passage comprehension. A Hierarchical Linear Modeling growth curve analysis was conducted on a proximal, researcher-developed high-frequency word reading probe given three times during the study, and analyses of variance on the same measures as mentioned before, but the analyses revealed no statistically significant findings.

As the authors of the study hypothesize, several factors may explain these seemingly contradictory findings, but overall they point to the need for further study of multiple text characteristics of which decodability is only one. One explanation is that the text was practiced in conjunction with an individually-administered tutoring program. During text reading students were supported by a trained tutor who provided scaffolding, including encouraging the application of phonics skills (i.e., use of a decoding strategy) and the provision of unknown words, which may have decreased the likelihood that assistance was provided to students for all or most errors. This was different from Juel and Roper/Schneider (1985) who provided instruction to a whole class and Mesmer (2005) who provided instruction in small groups. A second explanation is that students in both groups were provided with sufficient opportunities to apply phonics skills. Students in the less decodable group

were likely to have practiced more decodable text outside of the tutoring sessions. In fact, 55% of the students in the less decodable group and 69% of the more decodable group read decodable text as part of their general education instruction, as reported by their teachers. These differences were not significant indicating that both students in the more decodable group and in the less decodable group had similar amounts of practice with decodable text outside of the tutoring sessions. Further, as the tutoring lessons progressed, the texts read by the less decodable group became increasingly more decodable and the amount of time devoted to practicing text became increasingly longer until 20 out of 30 min were spent reading. This is similar to Juel and Roper/Schneider (1985), who found no statistically significant differences between groups at the end of the year when text characteristics were similar for the more decodable text basals and the high-frequency text basals. Finally, other text characteristics may have influenced growth and enhanced both word recognition and fluency. The percentage of high frequency words was similar in both more decodable and less decodable texts and less decodable text may have had characteristics (i.e., predictability, coherence, etc.) that positively influenced growth.

Synthesis of comparison intervention studies

Results were inconsistent across the studies. When provided with the same phonics instruction, students who read decodable texts did not outperform students who read less decodable texts on measures of decoding, accuracy, fluency, or several other tests of word reading (Jenkins et al., 2004). However, students who read decodable texts did use decoding skills more than students who read less decodable texts as evidenced by correlations between reading and text decodability (Juel & Roper/Schneider, 1985), word reading of new words (Juel & Roper/Schneider, 1985) and the number of graphically similar errors students made when reading (Mesmer, 2005). Additionally, students who read decodable texts were more accurate, successful readers than students who read less decodable texts (Juel & Roper/Schneider, 1985; Mesmer, 2005). In two studies (Juel & Roper/Schneider, 1985; Mesmer, 2005) the text read impacted student reading. However, in the largest, most comprehensive study (Jenkins et al., 2004), the type of text did not measurably improve response to instruction. Together, the results of the intervention studies are mixed, although they do indicate some positive effects from reading decodable texts.

Discussion

The purpose of this review was to synthesize the existing research on decodable text in order to investigate how the decodability of text influences students' reading performance and growth. The most important conclusion we draw from these seven studies is that decodability is a critical characteristic of early reading text as it increases the likelihood that students will use a decoding strategy and results in immediate benefits, particularly with regard to accuracy. In other words,

decodability is one characteristic that should be considered when developing and selecting text for early readers. Although it is clear that some level of decodability is beneficial, the degree of decodability needed to produce positive outcomes is unclear. Only seven studies met the inclusion criteria, indicating a clear gap in the research. Perhaps the reason more studies have not been conducted that specifically isolated the impact of the decodability of text is the success of reading programs that include decodable text and the clear rationale that students need to practice reading with text they have been taught how to decode (Mathes & Torgesen, 2000). However, it is important to take a closer look at how text characteristics, particularly decodability, impact reading performance and reading growth.

Although the evidence is somewhat limited and the degree of decodability varied widely in each study, the studies point to the need for multiple-criteria text with decodability being one key characteristic in ensuring that students develop the alphabetic principle that is necessary for successful reading, rather than text based on the single criterion of decodability. In other words, early reading text should address multiple criteria (i.e., multiple criteria text), not just decodability. Unfortunately, early reading text continues to primarily address only one criterion at a time (i.e., single criterion text), such as predictability or decodability, forcing teachers to select different text for different purposes (Mesmer, 2010). Nonetheless, existing research demonstrates the importance of decodability as one key characteristic of early reading text.

Why is decodability a key characteristic of early reading text?

Theoretical research and empirical evidence support the need for students to apply phonics skills in connected text; therefore, connected text designed for developing readers must include at least some words that are decodable. Evidence is very clear that decodable text positively impacts early reading progress. For example, studies demonstrate that decodable text fosters the use of a decoding strategy (Juel & Roper/Schneider, 1985; Mesmer, 2005). Clearly, with strong instruction students can apply decoding strategies even in text with relatively few decodable words; however, some opportunities to apply decoding strategies should be present in text (Jenkins et al., 2004). Secondly, studies also suggest immediate benefits in accuracy and fluency (Hiebert & Fisher, 2007; Hoffman et al., 2001; Juel & Roper/Schneider, 1985), although these findings are somewhat mixed (Compton et al., 2004; Mesmer, 2010). More research is needed to explore the relative benefits of high frequency words and decodable words in text (Compton et al., 2004). The study by Hiebert and Fisher (2007) provides insight into these conclusions because high frequency irregular words and decodable words were both incorporated into their measure of text (i.e., Critical Word Factor). They found immediate benefits to students who read texts with lower Critical Word Factors (i.e., fewer *hard* words), particularly accuracy and fluency. Mesmer (2010) found that the number of high frequency words in the decodable text in her study was particularly low and may have confounded her results. In the Hoffman et al. (2001) study, a few words with more challenging spellings were included in their *very decodable* text because they were of high utility or high interest, yet these texts were still advantageous to early

readers. Taken together, these studies indicate that there are immediate advantages to reading decodable texts, but that the impact of other factors (e.g. high frequency, high utility phonics patterns, high interest) should also be considered.

Very little evidence is available to address the question of the long-term impact on reading growth resulting from practice with decodable text as only two of the studies included in this review directly addressed this question (Juel & Roper/Schneider, 1985; Jenkins et al., 2004), neither of which found any statistically significant differences between students who read more decodable texts and students who read less decodable text on any standardized measure. However, in both studies, students were able to receive feedback when trying to read difficult words, which might have minimized the effects of decodable text. It may be that the degree of decodability is more important in some settings, such as during independent reading, when minimal support is available. Further, in both studies, the text read by students in the less decodable group became increasingly more decodable as the studies progressed with text toward the later part of the study having very similar degrees of decodability. These studies raise issues regarding the level of decodability that would be advantageous for students in the early stages of reading development.

Who should read decodable texts?

Theoretically, decodable texts provide opportunities for students in the partial and full alphabetic phases to apply their decoding skills in context (Adams, 1990; Chall, 1996; Ehri & McCormick, 1998; Hiebert, 1999; Snow et al., 1998). The empirical evidence, although scant, leads to the same conclusion. According to the descriptive studies, some students of mixed abilities in first and second grade read more decodable texts better than less decodable texts (Compton et al., 2004; Hiebert & Fisher, 2007; Hoffman et al., 2001). According to the intervention studies, first graders of average ability were better able to apply their decoding skills when reading more decodable text (Juel & Roper/Schneider, 1985; Mesmer, 2005), but low-achieving first graders who read decodable texts did not improve their reading fluency more than students who read less decodable texts (Jenkins et al., 2004). This leads to the conclusion that perhaps students need adequate beginning decoding skills in order to benefit from reading decodable texts. Once students are in the partial or full alphabetic stage, then they have the skills needed to benefit from decodable texts. In other words, students need to have the decoding skills required to read the words presented to them in text. Only one study reviewed here (Compton et al., 2004), a descriptive study, included second graders and the findings were mixed with regard to the role of decodability for these students. It may be that, once students can decode automatically, the scaffolds that decodable text provides are no longer as beneficial. This threshold of benefits needs to be investigated further. Future studies need to include students at a variety of reading levels and at various alphabetic phases.

It is important to remember, however, that one major conclusion of this review is that decodability should be considered a characteristic of text and not a *type* of text used with beginning readers. With this new way of thinking about decodability,

students are not presented "decodable texts" during particular developmental times. Instead, students in the partial and alphabetic phases should read texts with increased levels of decodability. It is likely that, as students progress through the consolidated alphabetic phase, the degree of decodability can decrease, while still providing the necessary scaffolds for fluent reading. Following this reasoning, it is important to determine what levels of decodability will provide maximum benefit for beginning readers.

What level of decodability makes decodable texts beneficial?

The descriptive studies provide evidence of a correlation between increased levels of decodability and increased reading fluency. Unfortunately, the design and results of the intervention studies do not allow for conclusions to be drawn about the percentages of decodability that are necessary before a text is beneficial for practicing decoding skills. The studies did not all use the same method to measure decodability (see study descriptions for details), and each intervention study used decodable texts of various degrees of decodability. Further, in some instances, the less decodable text group read texts that were very similar to the decodable group. As previously described in the largest intervention study (Jenkins et al., 2004), by the last third of the study, the more decodable group read texts very similar in decodability to the texts ready be the less decodable group (80.4 and 68.5% decodable, respectively). Similarly, in the study that is most commonly referenced in decodable text literature (Juel & Roper/Schneider, 1985), the texts used for each different group condition had no discernable differences in decodability after the preprimer text. In order to draw conclusions regarding the level of decodability that is optimal, more research needs to be conducted and standard procedures for measuring decodability, as well as other criteria, are needed as it would allow for better cross-study analysis.

Future research

Although the evidence indicates that decodability is a key early reading text characteristic, more research is needed to clarify the role of decodability. Specific questions that need to be addressed include:

- the most effective ways to measure decodability.
- the degree of decodability needed for various learners in different stages of development.
- the impact of the decodability of text during independent reading times.
- the impact of text characteristics other than decodability

Until such research is conducted, educational decisions can be based on the findings of the limited research discussed in this review, which support the importance of decodability as one critical characteristic of early reading text. Reading text with some degree of decodability is effective for helping beginning readers develop the understanding of the alphabetic principle and progress through the alphabetic stages (Chall, 1996; Ehri, 2005). We believe the evidence supports

Hiebert's (1999) call for multiple criteria text that addresses a variety of text characteristics, including decodability, high-frequency words, degree of word repetitions, meaningfulness, etc. In sum, we believe the field needs to consider decodability as a text characteristic rather than a type of text.

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