The purpose of this study was to examine a model of early reading acquisition that hinged on a phenomenon seldom explored in beginning reading research: a child’s concept of word in text. Previous research in early literacy acquisition has centered on the role phonological awareness—the ability to consciously attend to and manipulate the sound structure of spoken language—plays in early reading development. However, a small but promising line of research suggests that children’s ability to match spoken words to written words while reading connected text—a concept of word in text—is a pivotal event in early reading acquisition that bridges a primitive form of phonological awareness with a more sophisticated form of phonological awareness. In this study, 56 kindergarten children were assessed on measures of beginning consonant awareness, concept of word in text, full phoneme segmentation ability, spelling ability, and word recognition ability. Analysis of the data supported the proposed model and essentially replicated a previous study (Morris, 1993). Most important, the findings of this study strongly support the notion that a child’s concept of word in text plays a linchpin role in early reading acquisition. The results of this general line of work may inform early identification for children at risk of reading failure, beginning reading instruction, and future research in early literacy acquisition.

Over the past three decades, phonological awareness—the ability to consciously attend to and manipulate the sound structure of spoken language—has been the most extensively studied aspect of the beginning reading process. Not only have correlation studies established a strong relation between phonological awareness and early reading ability, but phonological awareness measured in children as
young as preschool age has been found to be a robust predictor of later reading achievement. Perhaps most important for teachers of beginning readers, explicit instruction in phoneme awareness—the understanding that a spoken word can be conceived as a sequence of sounds—results in significant gains in reading achievement. Furthermore, instruction that teaches the child to map the phonological segments onto letters seems even more effective. In sum, the research strongly suggests that phonological awareness is not only correlated with early reading achievement, but actually plays a causal role in learning to read (for reviews of the literature on phonological awareness and its relation to beginning reading, see Adams, 1990; Blachman, 2000; National Reading Panel [NRP], 2000; Snow, Burns, & Griffin, 1998).

However, this is not the entire story; that is, the relation between phonological awareness and learning to read is not simply a unidirectional one, but appears to be much more complex and nuanced. Many researchers have found a reciprocal relation between early reading acquisition and phonological awareness (e.g., Stahl & Murray, 1994; Wagner et al., 1997; Wagner, Torgeson, & Rashotte, 1994); presently, researchers posit that a basic level of phonological awareness may be necessary as a “bootstrapping” mechanism for early reading, but that more sophisticated levels of phonological awareness may actually be the result of formal reading instruction (Perfetti, 1992). However, according to Blachman (2000), “exploration of the exact nature of the reciprocal interplay between phonological awareness and word recognition is still in the early stages” (p. 486).

In short, although it is widely agreed that there exists a reciprocal relation between phonological awareness and early reading ability, the exact nature of this relation is not yet clearly understood. This leaves important theoretical and pedagogical questions for those interested in beginning reading: Is there a threshold level of phonological awareness necessary for a child to start reading? Once a child begins to read, is additional phonological awareness instruction necessary or even helpful? Does phonological awareness develop in concert with other critical early literacy skills, such as word recognition and spelling ability? If so, how do we teach these skills in an integrated manner that honors their concurrent, reciprocal development? Presently, we have no definitive answers for teachers of beginning readers. In response to this dilemma, the NRP called for future research that identifies “what teachers need to know and be able to do to teach PA [phonemic awareness] effectively and integrate this instruction with other elements of beginning reading instruction or instruction directed at older, disabled readers” (NRP, 2000, pp. 2-7–2-8).

One small but promising line of research that may help to explain the reciprocal relation between reading and phonological awareness has centered on a concept that has rarely been studied in beginning reading research—a child’s concept of word in text. This study examines a model of early reading acquisition that includes a concept of word in text as a central feature.
THEORETICAL FRAMEWORK

The theoretical framework that guided this study draws from three lines of related research: orthographic awareness, phonological awareness, and word awareness. Research in how children learn to spell and read words has helped clarify how the first two types of knowledge—orthographic awareness and phonological awareness—develop together.

The Development of Phonological and Orthographic Awareness

Based on the work of Frith (1985), Stuart and Coltheart (1988), the developmental spelling researchers (Henderson & Beers, 1980), and her own laboratory studies, Ehri (1998) put forth the most complete model to date of word knowledge growth in beginning readers. According to Ehri’s developmental theory of word learning, children progress through four stages of word knowledge, each stage building on the previous one and characterized by a more sophisticated and conventional understanding of how print works. The first three stages of Ehri’s developmental theory (prealphabetic, partial alphabetic, and full alphabetic) are most germane to this study. In the prealphabetic stage neophyte readers “remember how to read sight words by forming connections between selected visual attributes of words and their pronunciations or meanings and storing these associations in memory” (Ehri, 1998, p. 18). For example, a prealphabetic reader might remember the word *camel* because of the two “humps” in the middle, or the word *McDonald’s* because of the accompanying golden arches in the logo. Because these visual cues are arbitrary and idiosyncratic, children experience difficulty discriminating between visually similar words (e.g., camel, jump, and tunnel all have “humps” in the middle).

Next, in the partial alphabetic stage, beginning readers “remember how to read sight words by forming partial alphabetic connections between only some of the letters in written words and sounds detected in their pronunciations” (Ehri, 1998, p. 19). Specifically, partial alphabetic readers will often select the initial and final letter sounds in words because these are often the most salient. For example, to remember how to read *bat*, the reader in this stage might attend to the initial /b/ phoneme and the final /t/ phoneme. Linking these phonemes to their corresponding letters is aided by the fact the names of these letters (“bee” and “tee”) provide clues to the sounds they represent (/b/ and /t/). Thus, the word *bat* might be stored in this child’s lexicon as bt. The obvious advantage of this stage over the previous one is that the child selects cues that are no longer arbitrary or idiosyncratic; instead, the partial alphabetic reader is beginning to exploit a more or less reliable system based on letter–sound relationships.

“During the full alphabetic phase, beginners remember how to read sight words by forming complete connections between letters seen in the written forms of
words and phonemes detected in their pronunciations” (Ehri, 1998, p. 21). Specifically, a reader in this stage can fully segment words into each of their phonemes (including the all-important medial vowel) and link each phoneme to its respective letter. Thus, concluded Ehri, “the spellings of these sight words are fully bonded to their pronunciations in memory” (p. 22). It is in this way that phonemic awareness allows the child to store the word’s orthographic elements in memory. In contrast to phonetic cue readers, full alphabetic readers are able to distinguish between such similarly spelled words as bet, bat, and bit because they represent these words completely in memory.

In conclusion, Ehri’s (1998) theory of word knowledge development centered on the reader’s increasingly sophisticated understanding of the spelling system—with children’s phoneme awareness ripening in concert with a growing orthographic awareness. However, we are still left with a question: If phoneme awareness and learning to read are reciprocal, how does the act of learning to read itself facilitate gains in phoneme awareness? One possible answer to this question may lie with a concept that has rarely been studied in beginning reading research: a child’s concept of word in text. According to the few researchers who have examined this phenomenon, a child’s awareness that spoken words match to their written counterparts—a concept of word in text—plays a pivotal role in early reading acquisition and may help us understand, at a fine-grained level, the interplay between reading and phoneme awareness.

**Word Awareness in Oral Language**

At first glance, one might reasonably assume that a first-grader, who is beginning formal reading instruction, already knows what a word is. After all, the average 6-year-old entering first grade possesses an expressive vocabulary of approximately 2,600 words, can understand between 8,000 and 10,000 words, and can use these thousands of words in incredibly sophisticated and syntactically appropriate combinations to convey meaning (Owens, 2001). However, research into children’s word awareness has found that most young children entering school are not conscious of words as units of spoken language and, perhaps even more surprising, are not even aware of what the term *word* means (Chaney, 1989; Downing & Oliver, 1974; Holden & MacGinitie, 1972; Karpova, 1955).

Karpova (1955) conducted a seminal investigation of Russian preschool children’s understanding of word units in oral speech. Karpova (as cited in Adams, 1990) asked children to repeat orally presented sentences and to count the words and identify the first, second, and third word, and so on. Karpova’s major and surprising finding was that $3\frac{1}{2}$- to 7-year-old children could not reliably segment an orally presented sentence into word units. The youngest children divided the sentence into propositions, or idea units. Thus, the sentence “Peter and Catherine went fishing” might be segmented as “Peter went fishing” and “Catherine went fishing.” Children with more sophisticated linguistic knowledge would divide sentences by
subject and predicate phrase. Thus, “Misha threw the ball” might be divided into “Misha” and “threw the ball.” Finally, the most advanced children did begin to segment by words; however, whereas these children were most successful at isolating nouns, even they experienced considerable difficulty isolating the more abstract prepositions and conjunctions from the surrounding words. Moreover, they sometimes confused syllables with words. Thus, Karpova’s finding suggested that young children perceive larger linguistic units (e.g., propositions or phrases, as opposed to words) as the more natural units of oral language (see also Holden & MacGinitie, 1972).

Chaney (1989), in a series of experiments, tested 4½- to 6½-year-old children’s metalinguistic knowledge of word boundaries. Chaney found that children’s ability to segment words in oral language became more sophisticated with age. Specifically, they progressed from segmenting by phrase to segmenting by syllable to finally segmenting by word. In addition, although Chaney (like other researchers) found that function words were more difficult than content words, she also noted that children’s ability to segment these function words grew with age. Finally, Chaney found that children who had begun to read were more aware of word boundaries than their nonreading same-age peers; Chaney thus reasoned that learning to read enhances metalinguistic knowledge of word boundaries.

Why is the act of segmenting the stream of oral speech into word units—a task that appears so straightforward to literate adults—so difficult for children? At least part of the answer lies in the fact that

There is no simple physical basis for isolating words in speech. A spectrographic examination of utterances spoken at a normal rate reveals that words are not separated by pauses or other obvious word boundaries; that is, there are usually no “spaces” between successive spoken words, as there are in printed text. (Tunmer, Bowey, & Grieve, 1983, p. 570)

This is why when we overhear two people speaking a foreign language, we cannot tell where one word ends and the next begins.

Another part of the answer lies in the fact that when we speak or listen to someone else speak, we focus on the meaning of the entire message without having to consciously think about the fact that speech is composed of separate words. In fact, it is only in learning a written language that a conscious awareness of words as separate linguistic units truly becomes necessary. As Adams explained (1990),

Surprising as it may seem, the evidence concurs that children are not naturally prepared either to conceive of spoken language as a string of individual words or to treat words as individual units of meaning. What they listen for is the full meaning of an utterance, and that comes only after the meanings of the individual words have been combined—automatically and without their attention. (p. 298)
Children’s Ability to Match Spoken Words to Written Words: A Concept of Word in Text

The converging evidence reviewed in the preceding section leaves us in a theoretical ‘catch-22’ when it comes to beginning reading instruction. To learn to read, children must be able to match spoken words to printed words. Indeed, even using the term *word* seems inescapable in beginning reading instruction. However, most children begin reading instruction without a complete grasp of this very concept—the understanding that the stream of speech they have been producing and perceiving for years is composed of word units. So, the apparent paradox is this: How do we teach beginning readers about words in print, if they are not already aware of words in speech? According to Adams (1990), we may be looking at this problem from the wrong end: “As children become aware of the one-by-oneness of words in print, they begin to notice and isolate words in speech” (p. 299). Thus, it appears that the very act of reading, of attempting to perceive the printed correlates of spoken words arrayed from left to right with spaces in between, drives the concept of word in both print and speech.

A small group of researchers have focused on the importance of matching spoken words to printed words as a critical phase in early reading acquisition. Clay (1972) was one of the first to highlight the importance of a beginning reader accurately matching spoken words to written words—“reading the spaces”—as an important milestone in early reading development. Echoing the early work of Clay, Henderson (1980, 1981) posited that the beginning reader’s ability to match spoken to printed words—what he termed a concept of word in text—was a seminal event in early reading acquisition. Henderson stated that children achieve the temporal and spatial match between spoken and written language gradually and tacitly as they engage in supported reading experiences with familiar texts. Moreover, Henderson elaborated on Clay’s position when he put forth an intriguing notion: A child’s attainment of a concept of word in text would foster an awareness of phonemes in words. He stated,

The ability to identify words in a text as individual and nameable objects appears to be a “watershed” event in learning to read. Children who cannot point to individual words as they “read” a memorized text learn few words and cannot reliably segment spoken words. Children who can identify individual words in text learn words and are able to segment phoneme by phoneme with astonishing accuracy. It seems to me that the notorious difficulty prereaders have with tasks of auditory discrimination hinges on this phenomenon. It is not that prereaders cannot discriminate phonemes or learn so called letter sounds; in fact, they must in order to speak. It is simply that, lacking a stable concept of word as a bound figure with a beginning and an end, they cannot know where to focus their attention. (Henderson, 1980, pp. 9–10)

Morris, a student of Henderson’s, proposed a developmental model of early word knowledge growth with concept of word as a central feature (see Figure 1).
Because the primary purpose of this study is to evaluate Morris’s (1993) model, this model and its theoretical underpinnings are explained in detail next.

According to Morris (1993), the beginning reader is not able to accurately match spoken words to printed words while reading. This is because without knowledge of letter–sound relations or the ability to apply this knowledge while reading, the young child has no reliable way to identify where one word ends and another begins. From the beginning reader’s perspective, a line of text may appear as shown here: a random string of letters, with no boundaries between words. In this case, the difficulty beginning readers experience accurately tracking words in text is not surprising.

Child’s perception of text: Bxxpxxxxxxxxxxxxxxxx.
Text: Ben plays soccer for fun

In Morris’s (1993) first stage, the reader starts attending to the first letter or sound of a word (e.g., the /b/ in Ben). This beginning consonant awareness, coupled with the memory support of a familiar text and awareness of the spaces between words, enables readers at this stage to begin matching spoken words to printed words while finger-point reading. In the following example, the beginning reader can use the p in the word play to accurately “identify” the word.

Child: Bxx pxxxx sxxxxx fxx fxx.
Text: Ben plays soccer for fun.

With experience, the beginning reader will further refine his or her ability to accurately match spoken words to written words. As awareness of words as units of language stabilizes, the neophyte reader is now free to examine other parts of the word. At this point, a word’s spelling can provide the reader important information about its phonemic properties. For example, after encountering the word fun many times during repeated readings of the same text, the beginning reader may begin attending to not only the initial consonant f, but eventually to the ending letter n, also.

<table>
<thead>
<tr>
<th>Stage One: Beginning consonant knowledge</th>
<th>Stage Two: Concept of word in text</th>
<th>Stage Three: Phoneme segmentation ability</th>
<th>Stage Four: Word recognition</th>
</tr>
</thead>
</table>

**FIGURE 1** Morris’s (1993) model of early reading development.
With experience and instruction, the reader will eventually come to realize that the final letter \( n \) matches with the final sound /n/ of the word. As the beginning reader becomes more adept at attending to these word boundaries (i.e., beginning and ending consonants), he or she also becomes increasingly accurate tracking text. At this point, the child may perceive the text as follows:

Child: Bxx pxxx sxxxxr fxr fxn.
Text: Ben plays soccer for fun.

It is important to note the two-syllable word—soccer—in the preceding example. Some beginning readers, when attempting to track text, may operate under the hypothesis that each written word corresponds with a single syllable. In this case, the child’s finger-point reading might look like this:

What the child points to: Ben plays soccer for fun.
What the child says: Ben plays “socc” “er” for fun.

As the child begins attending to the word boundaries (the \( s \) and the \( r \) in soccer), he or she realizes the mismatch between what is said (“er”) and what is pointed to (for). This attention to the initial and final parts of words may help beginning readers realize, on a tacit level, that syllables are not the same as words and that some words contain more than one syllable. Thus, the child’s developing orthographic and phonemic knowledge will help him or her stabilize a concept of even multisyllabic words.

In the third stage, with the word as a stable frame of reference, Morris (1993) posited that the reader’s attention might now be freed up to examine the internal parts of the word—in particular the often-elusive medial vowel. The vowel letters may provide clues to the reader about the vowel phonemes in words. In the preceding example, the letter \( u \) in fun provides the reader with a concrete referent to aid in the abstract process of consciously attending to the medial vowel phoneme (the /u/). It is in this way that acquiring a concept of word in text may facilitate full phoneme segmentation ability.

In Morris’s (1993) final stage, the reader attains full phoneme segmentation ability. This allows for the complete processing of all letter sounds in words, enabling the complete and accurate representation of words in memory (Adams, 1990; Ehri, 1998).

To test this proposed developmental sequence, Morris (1993) observed the literacy development of 53 kindergartners over the course of an entire school year. The kindergartners were tested four times at 2-month intervals on tasks measuring alphabet recognition, beginning consonant awareness (BC), concept of word in text (CW), full phoneme segmentation (PS) ability, and word recognition (WR). The results of a time-lag correlation and a Guttman scale analysis provided convergent
support for Morris’s model. Of the 210 pattern instances examined in the study, more than 90% correctly fit with the predicted developmental sequence (BC → CW → PS → WR), strongly supporting this sequence. Morris, Bloodgood, Lomax, and Perney (2003) recently published a path analysis study that replicated this developmental sequence.

**Children’s Invented Spellings as a Measure of Phoneme Awareness**

Phoneme awareness was a critical variable in Morris’s (1993) model. Interestingly, this variable can be assessed in different ways. For example, Read (1971), in examining preschool children’s invented spellings, found that children applied a tacit knowledge of the phonological structure of language in their invented spellings. Further, he concluded that these children’s spellings were not random, as had been previously assumed, but rather were systematic and based on the children’s underlying knowledge of how speech sounds are produced in the vocal tract.

A number of subsequent researchers have provided converging evidence that children’s invented spellings are sensitive measures of their phoneme awareness (Mann, Tobin, & Wilson, 1987; McBride-Chang, 1998; Morris & Perney, 1984; Richgels, 1986; Stage & Wagner, 1992; Stahl & Murray, 1994). Mann et al. (1987) found that performance on a spelling test administered midway through kindergarten could successfully predict first-grade reading ability. Mann et al. also found that the ability to analyze words into their constituent phonemes and letter sound knowledge were highly correlated with invented spelling ability, suggesting that the task of spelling taps these two skills. McBride-Chang (1998) tested kindergarten and first-grade children on a variety of reading-related skills four times over 1½ years. She found that measures of invented spelling were: (a) highly stable over time, (b) highly associated with traditional measures of phonological awareness, and (c) significantly predictive of later spelling and word and nonword decoding tests. McBride-Chang concluded that phonological and orthographic processes are involved in invented spelling and that invented spelling may serve as an excellent diagnostic tool for predicting subsequent reading achievement.

**THIS STUDY**

I attempted to replicate Morris’s (1993) study. I tested the validity of Morris’s model in two different ways. First, I tested the model one stage at a time using a cross-tabulations procedure. My research questions for the cross-tabulations were: (a) Is a child’s mastery of beginning consonant awareness a necessary but not sufficient condition for mastery of a concept of word in text? (b) Is a child’s mastery of a concept of word in text a necessary but not sufficient condition for a mastery of
full phoneme segmentation ability? (c) Is a child’s mastery of full phoneme segmentation ability a necessary but not sufficient condition for mastery of a core sight vocabulary? Second, I tested the overall validity of the model using a Guttman scale analysis. My research question for the Guttman scale was this: To what extent does Morris’s (1993) model accurately predict the sequential development of beginning consonant awareness, concept of word in text, full phoneme segmentation ability, and sight word knowledge?

I examined a very specific, but important, aspect of word awareness—a beginning reader’s ability to match spoken words to written words while finger-point reading a familiar text. Further, I examined the role two types of knowledge—phonological and orthographic knowledge—play in a child’s developing concept of word in text. Other researchers, such as Clay (2005), have examined how other features of word awareness—such as the importance of learning about direction, recognizing sequences, and becoming aware of the spaces between words—play in the early stages of learning to read. Although children need to internalize these multiple aspects of word awareness to progress as readers, they were not the focus of this study.

Participants and Setting

Fifty-six kindergarten students (26 girls and 30 boys) from two elementary school classrooms participated in the study. Sixty-nine percent of the children in the school were White, 11% were African American, 3% were Asian or Pacific Islander, 3% were Hispanic, and 14% were multiracial. The ethnic makeup of the two kindergarten classrooms reflected the ethnic makeup of the entire school. The kindergarten children’s socioeconomic status (SES) was primarily middle and upper middle class (11% were eligible for free or reduced-cost lunches).

Only children who spoke English as their primary language and who were neither qualified for nor receiving special education services were included in the study. These criteria were included to promote homogeneity within the participant group to improve the internal reliability of the study (Gay, 1996). All kindergarten children from the two classrooms in the school who fit the inclusionary and exclusionary criteria and provided a signed informed consent form from their primary caretaker were included in the study.

Kindergarten Literacy Instruction

Over a 4-month period during the spring, each kindergarten teacher was observed twice during her language arts block and interviewed once to determine the type of instruction provided (see Appendix A for interview questions). Both teachers were fully licensed to teach in the state of Virginia and had at least 10 years’ experience teaching kindergarten children. Based on the two classroom observations and the
interview, both teachers were judged to be providing a “balanced approach” to kindergarten literacy instruction. For this study, balanced literacy instruction was defined as instruction that incorporates the teaching of both specific skills (e.g., phonemic awareness, phonics) and the application of these skills in meaningful contexts during which children read and write for real purposes (e.g., writing a grocery list; Pressley, 1998). The two kindergarten teachers provided systematic instruction in phonological awareness and letter–sound relations in a mix of whole-group, small-group, and individual settings. In addition, both teachers guided their students’ application of these skills in meaningful literacy experiences, such as morning messages, interactive writing, shared reading, read-alouds, and multiple opportunities to write and draw stories and respond to literature.

A typical language arts block for these teachers began with a “morning message” during which the entire class would help the teacher write a message on chart paper (e.g., during one observation, the class wrote, “We are going to have a fun picnic tomorrow”). During this time, the teacher would integrate the teaching of multiple early literacy goals such as modeling how to spell unknown words (e.g., “ffffff fun. What letter is that?”), reminding the students of previously taught sight words, guiding the students in putting spaces between words, and cuing the students to apply basic punctuation rules while writing (e.g., “What do I put at the end of a sentence?”). After the morning message, the teacher would read aloud a big book to the class. Just as in the morning message, the teacher would integrate the teaching of multiple literacy skills into the read-aloud such as knowledge of the author and illustrator, use of picture cues in making sense of the story, and making predictions. After the read-aloud, the children would break into small groups for center time. During center time, children wrote in journals, practiced finger-point reading of smaller copies of the big book introduced earlier, or were engaged in word study activities such as sorting pictures by their initial sounds or making words out of individual letters. The teacher and an aide provided instruction and monitored the children in small groups or individually at one of these centers.

General Procedures

Following informed consent and participant identification procedures, all kindergarten children were individually assessed during the first 2 weeks of May. The assessments were administered over two 20-minute sessions held on different days (within a 1-week period) to prevent participant fatigue. Three individuals (the two kindergarten teachers and I), all experienced in early literacy assessments and trained in the assessments to be used in the study, collected the data. All testing was administered in a quiet area in the elementary school and scheduled to avoid distracting from the child’s classroom instruction. All assessments were completed within a 2-week assessment window to control for performance changes that might result from classroom instruction or maturation.
Measures

The five measures comprising the assessment battery were as follows: (a) beginning consonant awareness, (b) concept of word in text, (c) spelling, (d) phoneme segmentation, and (e) word recognition. All of the measures except for the phoneme segmentation measure were taken directly from the Phonological Awareness Literacy Screening–Kindergarten (PALS–K; Invernizzi, Meier, Swank, & Juel, 2003a, 2003b), a literacy assessment commissioned by the Virginia Department of Education and used in kindergarten classrooms across Virginia to screen for students who are at risk of reading failure. The reliability for the PALS–K measures was assessed by Cronbach’s alpha and interrater reliabilities. The Cronbach’s alpha values ranged from .80 to .90 and the interrater reliabilities ranged from .97 to .99. Although there was no psychometric information available on the phoneme segmentation task developed by Morris (1993), similar tasks reviewed by Yopp (1988) have yielded reliabilities of .88 and .95 (Appendixes B–E contain the items used in each of the five tasks).

Beginning consonant awareness. Beginning consonant awareness was measured in two ways. In Subtask 1, children were provided with a keyword cued by a picture (e.g., the examiner said the word bat and pointed to a picture of a bat). To the right of the picture of the bat were three pictures that the examiner identified aloud (e.g., bird, lips, and ring). The child was asked to circle the picture that began with the same beginning sound as the keyword bat. Items were scored as incorrect (0) or correct (1); 10 items were presented for 10 possible points.

In Subtask 2, children were provided a series of 10 picture cards (e.g., net, fish) and asked to sort these spoken words on the basis of their beginning consonant sounds. For example, when provided with a picture of a pot, the child’s task was to place the picture under a target word (picture) that began with the same sound (e.g., the picture of a pot is placed in the /p/ category under the picture of a pig). Items were scored as incorrect (0) or correct (1); 10 items were presented for 10 possible points. The two subtask measures were added together for a combined beginning consonant sound awareness score of 20 possible points.

Concept of word in text. This measure examined children’s ability to accurately finger-point read two memorized poems and to identify words in context following the readings. One poem, “Humpty Dumpty,” is a PALS–K measure (Invernizzi et al., 2003a). A second poem, “Sam, Sam, the Baker Man,” although not a PALS–K measure, was administered and scored in the exact same manner as “Humpty Dumpty.” The concept of word in text measure was divided into two submeasures: (a) pointing, (b) and word identification in context. Both poems contained multisyllabic words to differentiate between children who were segmenting
language by syllable with those who were able to track multisyllabic words accurately.

In the pointing subtask, the examiner taught the child to orally recite the poem with the aid of picture cues. Once the examiner was certain that the child could accurately recite the poem, the text was introduced. The examiner then modeled how to finger-point read the text. Finally, the examiner asked the child to finger-point read the text by himself or herself. Children’s finger-point reading attempts of each line were scored in an all-or-none manner: The child had to accurately point to each word in the sentence to receive a point for that sentence. There were five lines in “Humpty Dumpty” (each line on a separate page with an accompanying picture), yielding a pointing score of 5 possible points. There were four lines in “Sam, Sam, the Baker Man” (two lines per page, each page with an accompanying picture), yielding a pointing score of 4 possible points.

For each poem, after the child finger-point read each page, the examiner asked the child to identify target words from the poems. After each page of either poem was read, the examiner pointed to two target words in the line and asked, “What word is this?” One point was awarded for each word the student correctly identified. Only single-word responses (e.g., “the” vs. “the tree”) were scored as correct. Self-corrections were scored as correct. There were 10 target words in “Humpty, Dumpty,” yielding a word recognition in context score of 10 possible points. There were eight target words in “Sam, Sam, the Baker Man,” yielding a word recognition in context score of 8 possible points. The concept of word in text measure yielded a total score of 27 (9 points for pointing and 18 points for word recognition in context across the two poems).

Spelling. This measure examined children’s ability to apply their letter sound knowledge in spelling five words (fan, pet, rug, sit, mop). The examiner began by modeling a sounding-out spelling of mat.

We’re going to spell some words. I’ll go first. The word I want to spell is mat. I am going to begin by saying the word slowly. MMM-AAA-TTT. Now I’m going to think about each sound I hear. Listen. MMM. I hear a /m/ sound so I will write down the letter m. MMM-AAA. After the /m/, I hear an /a/ sound so I will write down the letter a. MMM-AAA-TTT. At the end of the word, I hear a /t/ sound, so I will write down the letter t. Now I want you to spell some words. Put down a letter for each sound you hear. You can use the alphabet strip at the top of your sheet if you forget how to make a letter. Ready?

During the administration, the examiner was able to prompt the student by saying, “What else do you hear? Do you hear any other sounds in the word ________?” The examiner was also able to probe any unclear letter formations by asking the student what letter he or she had written or by asking the student to point to the let-
ter on the alphabet sheet that he or she meant to write. In this case, the examiner would write the intended letter above the student’s attempt. Children received 1 point for each phoneme represented in the spelling (e.g., PT for pet earned 2 points; KAK for cake earned 3 points). Correctly spelled words earned an additional bonus point. Each word was worth a possible 4 points. Allowable phonetic substitutions for short vowels included the following: A for short e, E for short i, and O for short u. A total of 5 words were presented for 20 possible points.

**Phoneme segmentation.** This measure examined children’s ability to segment orally presented words into their constituent phonemes. The kindergarten participants were administered a phoneme segmentation task developed by Morris (1993). The child was presented with three pennies. First, the examiner modeled how to orally segment five training words (sun, pot, hug, red, and map) into their constituent phonemes (e.g., /s/-/u/-/n/) while pushing a penny for each phoneme in each word. After each training word, the child was given an opportunity to segment the word. Corrective feedback was provided if needed. On the 10 test words that followed (tap, neck, soap, job, feet, lip, race, mud, side, and move), the examiner pronounced each test word, the child repeated it, and then the child attempted to segment the word. No corrective feedback was provided on the test words. Children were awarded 1 point for each word correctly segmented into all three phonemes (e.g., sun–/s/-/u/-/n/). No credit was given for words segmented into onsets and rimes (e.g., sun–/s/-/un/). A total of 10 items were presented for 10 possible points.

**Word recognition in isolation.** This measure examined children’s ability to accurately identify words presented in isolation. Children were administered the preprimer word list from the PALS–K (Invernizzi et al., 2003a). In this measure, children were asked to point to each word in a list of 20 preprimer words as they pronounced it. Children were told that they could skip a word if they did not recognize it. This measure was untimed. A total of 20 words were presented for 20 possible points.

**Data Analysis**

Each of the five measures administered in the study was assigned a mastery criterion. For beginning consonant awareness, concept of word, and full phoneme segmentation ability, a mastery criterion of 90% was set. This criterion ensured a fairly stringent level of mastery for each of these measures. On the spelling measure, a child had to receive a score of 3 out of 4 points on all five words to achieve mastery. This criterion ensured that children who were awarded mastery represented every phoneme in their spellings with an allowable grapheme. Because this study investigated spelling as a measure of phoneme awareness, not simply
whether the child could spell the word conventionally, this criterion was appropriate. For the word recognition in isolation measure, a mastery criterion of 75% (15 out of 20 words) was set. Children who score at least 75% on the preprimer word recognition in isolation list are expected to be able to read preprimer texts successfully.

Analytic Techniques

To address the study’s first three research questions, children’s raw scores on the five measures were computed and then assigned a mastery or nonmastery designation. Then, a cross-tabulation was used to analyze a necessary but not sufficient relation between the two adjacent variables at each stage of Morris’s (1993) model. To assess the overall validity of the model, a Guttman scale analysis was used. A Guttman scale is a statistical technique that can be used to track a developmental hierarchy of skills. These two statistical procedures were chosen because both identify necessary but not sufficient relations between variables. Specifically, it was hypothesized that if mastery of certain early literacy skills (e.g., beginning consonant awareness) was found to be necessary but not sufficient for the mastery of other early literacy skills (e.g., concept of word in text), then this might provide evidence for a developmental sequence of early literacy skills.

RESULTS

The results are presented within the framework of the following research questions.

RQ1: Is a child’s mastery of beginning consonant awareness a necessary but not sufficient condition for mastery of a concept of word in text?

Cross-tabs were used to evaluate whether, as Morris’s (1993) model predicted, a child’s awareness of the initial consonant sound in words was necessary but not sufficient for mastery of a concept of word in text. Table 1 is a 2 × 2 cross-tabulation of the beginning consonant awareness and concept of word in text mastery scores. Due to incomplete data for 1 student, only 55 of the 56 kindergartners tested were analyzed for this research question.

Of the 55 students analyzed, 3 had not mastered either beginning consonant awareness or a concept of word in text. Fifteen students had mastered beginning consonant awareness, but had not yet mastered a concept of word in text. Thirty-seven students had mastered both of these early literacy skills. Thus, Morris’s (1993) theory, which is consistent with the preceding three possibilities, accounted for 100% of the cases that were analyzed for this question. No student had
mastered a concept of word in text without having already mastered beginning consonant awareness; all students in the sample fit Morris’s hypothesized pattern for Research Question 1. A chi-square test was used to determine whether beginning consonant awareness and concept of word in text were significantly associated with each other. The results of the Pearson chi-square test for this question demonstrated a significant association between beginning consonant awareness and concept of word in text ($p = .011$).

RQ2: Is a child’s mastery of a concept of word in text a necessary but not sufficient condition for mastery of full phoneme segmentation ability as measured by an oral phoneme segmentation task, and alternatively, an invented spelling task?

Morris’s (1993) model predicts that a child’s attainment of a concept of word in text is a necessary, but not sufficient, condition for the development of full phoneme segmentation ability as measured by an oral phoneme task, and alternatively, an invented spelling task. Table 2 is a cross-tabulation of the concept of word in text and the oral phoneme segmentation measures. Table 3 is the cross-tabulation of the concept of word in text and the invented spelling measures.

As Table 2 indicates, of the 56 students analyzed, 18 had not mastered either a concept of word in text or phoneme segmentation ability. Another 18 students had mastered a concept of word in text, but had not yet mastered phoneme segmentation ability. Twenty students had mastered both of these early literacy skills. Thus, Morris’s (1993) theory, which is consistent with the preceding three possibilities, accounted for 100% of the cases analyzed for this question. Most significant to this study, no student was able to reliably segment a single syllable consonant–vowel–consonant (CVC) word into its three constituent phonemes (e.g., $sun = s–u–n$) without having already mastered a concept of word in text. In addition, a chi-square test found a significant association between a concept of word in text and phoneme segmentation ability ($p = .000$).
The results presented in Table 3 are nearly identical to the results in Table 2. Of the 56 students analyzed in Table 3, 18 had not mastered either a concept of word in text or invented spelling ability. Twenty-one students had mastered a concept of word in text, but had not yet mastered invented spelling ability. Seventeen students had mastered both of these early literacy skills. Thus, Morris’s (1993) theory, which is consistent with the preceding three possibilities, accounted for 100% of the cases analyzed for this question. Most significant for this study, no student was able to reliably represent all three phonemes of single-syllable, CVC words in his or her spellings without having already mastered a concept of word in text; in other words, all students in the sample fit Morris’s hypothesized pattern for this question. A chi-square test found a significant association between a concept of word in text and invented spelling ability ($p = .001$). I hypothesized that this spelling measure would be an alternative way to assess children’s phoneme segmentation ability. In this study, spelling ability and full phoneme segmentation ability were significantly correlated ($r = .713$, $p = .01$), supporting this hypothesis.

RQ3: Is a child’s mastery of full phoneme segmentation ability as measured by an oral phoneme segmentation task a necessary but not sufficient condition for mastery of word recognition?
Morris’s (1993) model predicts that a child’s attainment of full phoneme segmentation ability is a necessary, but not sufficient, condition for the mastery of an initial core sight vocabulary. As Table 4 indicates, of the 56 students analyzed, 30 had not mastered either phoneme segmentation ability or word recognition. Six students had mastered phoneme segmentation ability, but had not yet mastered a core sight vocabulary. Fourteen students had mastered both of these early literacy skills. Thus, Morris’s (1993) theory, which is consistent with the preceding three possibilities, accounted for 89.2% of the cases analyzed for this question. However, 6 students had attained a core sight vocabulary without having already mastered full phoneme segmentation ability; in other words, 6 students in the sample did not fit Morris’s hypothesized pattern for Research Question 3. A chi-square test found a significant association between phoneme segmentation ability and word recognition ability ($p = .000$).

**TABLE 4**

**Mastery of Phoneme Segmentation and Word Recognition Measures**

<table>
<thead>
<tr>
<th>Word Recognition</th>
<th>Did Not Master</th>
<th>Mastered</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Phoneme Segmentation Ability</strong></td>
<td>Did not master</td>
<td>Mastered</td>
<td>Total</td>
</tr>
<tr>
<td>Did not master</td>
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<td>6</td>
<td>36</td>
</tr>
<tr>
<td>Mastered</td>
<td>6</td>
<td>14</td>
<td>20</td>
</tr>
<tr>
<td>Total</td>
<td>36</td>
<td>20</td>
<td>56</td>
</tr>
</tbody>
</table>

RQ4: To what extent does Morris’s (1993) model accurately predict the sequential development of beginning consonant awareness, concept of word in text, full phoneme segmentation ability, spelling ability, and word recognition?

Although Research Questions 1 through 3 examined Morris’s (1993) theory one stage at a time, a Guttman scale analysis was used to assess the overall accuracy of the model. A Guttman scale can be used to track a developmental sequence of skills. For each skill mastered in the proposed sequence, one would expect all previous skills in the sequence to also be mastered. In other words, mastery of prior skills would be considered necessary, but perhaps not necessarily sufficient, for later skills to develop. As mentioned previously, each measure in this study was assigned a mastery criterion. For each task, children were awarded a 0 if they did not pass the criterion and a + if they did pass the criterion, yielding an individual performance pattern across the four tasks for each child. Children’s individual performance patterns were then compared to the five hypothesized patterns (diagrammed in Table 5) predicted by Morris’s model.
If a child’s pattern matched one of the five possible sequences, it was scored a hit. If not, it was scored a miss. Due to incomplete data for 1 student, only 55 of the 56 kindergartners tested were analyzed for this research question. Of the 55 pattern instances examined in this study, approximately 90% fit one of the hypothesized patterns, whether a child’s invented spelling (87.5%) or the oral phoneme segmentation task (89.3%) was used as a measure of full phoneme awareness, strongly supporting Morris’s (1993) proposed developmental sequence. In addition to calculating the simple percentage of cases that fit one of the five predicted sequences, a coefficient of reproducibility was calculated to determine the extent to which the observed patterns were identical to the predicted patterns. A coefficient of reproducibility is the common statistical test used in Guttman scaling to determine the significance of the results. A coefficient of reproducibility that is greater than .90 is considered significant (McIver & Carmines, 1983). The coefficient of reproducibility for these data was .95, again strongly supporting the proposed developmental sequence.

Based on the results of Research Question 3, it was not clear if full phoneme segmentation ability was indeed necessary for the acquisition of a core sight vocabulary (for 6 of 56 students, it was not). It might be the case that phoneme segmentation ability and word recognition develop together. In either case, I still wanted to determine if children’s mastery of a core sight vocabulary, a critical early literacy skill, depended on their already having mastered a concept of word in text. As in the preceding questions, cross-tabs were used to determine whether a necessary but not sufficient relation existed between the variables. Specifically, Morris’s (1993) model would predict that a child’s attainment of a concept of word in text was a necessary, but not sufficient, condition for the acquisition of an initial sight vocabulary.

As Table 6 indicates, of the 56 students analyzed, 18 had not mastered either a concept of word in text or word recognition. Seventeen students had mastered a concept of word in text, but had not yet mastered word recognition. Twenty-one students had mastered both of these early literacy skills. Thus, Morris’s (1993) the-

<table>
<thead>
<tr>
<th>Patterns</th>
<th>Beginning</th>
<th>Concept</th>
<th>Full Phoneme</th>
<th>Word</th>
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</thead>
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<tr>
<td></td>
<td>Consonant</td>
<td>of Word</td>
<td>Segmentation</td>
<td>Recognition</td>
</tr>
<tr>
<td>Pattern 1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
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<td>Pattern 2</td>
<td>+</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Pattern 3</td>
<td>+</td>
<td>+</td>
<td>0</td>
<td>0</td>
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<tr>
<td>Pattern 4</td>
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</tr>
<tr>
<td>Pattern 5</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
</tbody>
</table>
ory, which is consistent with the preceding three possibilities, accounted for 100% of the cases analyzed for this question. Most significant for this study, no student was able to reliably recognize words in isolation without having already mastered a concept of word in text; in other words, all students in the sample fit Morris’s hypothesized pattern. In addition, a chi-square test found a significant association between a concept of word in text and word recognition ability ($p = .000$).

**DISCUSSION**

The findings in this study replicate a study of a model of beginning reading development initially proposed by Morris (1993). A central idea in Morris’s formulation is that a child’s ability to match spoken words to written words while reading connected text—a concept of word in text—is a developmental skill that bridges a rudimentary form of phonological awareness (i.e., beginning consonant awareness) with a more advanced form of phonological awareness (i.e., full phoneme segmentation ability). In this study, it was particularly striking that none of the children who had not already mastered a concept of word in text could consistently segment one-syllable CVC words into their constituent phonemes (whether measured by an oral phoneme segmentation task or an invented spelling task). Along the same line, no children were found who had mastered a core sight vocabulary who had not already mastered a concept of word in text. Thus, it appears that a mastery of three critical early literacy skills—full phoneme segmentation ability, phonemic spelling ability, and word recognition—occurs after a child has learned to match spoken words to printed words while reading text.

This finding is significant for at least three reasons. First, the scientific principle of converging evidence states that, “issues are most often decided when the community of scientists gradually begins to agree that the preponderance of evidence supports one alternative theory rather than another” (Stanovich & Stanovich, 2003, p. 16). As mentioned earlier, only a few studies have been conducted in this concept of word in text area. In contrast to the literally hundreds of studies that have focused on phonological awareness and early reading acquisition, I identified only

<table>
<thead>
<tr>
<th>Concept of Word in Text</th>
<th>Did Not Master</th>
<th>Mastered</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
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</tr>
<tr>
<td>Mastered</td>
<td>17</td>
<td>21</td>
<td>38</td>
</tr>
<tr>
<td>Total</td>
<td>35</td>
<td>21</td>
<td>56</td>
</tr>
</tbody>
</table>
five studies in the past decade that have empirically explored the relation between phonological awareness and children’s awareness of word units in text (Ehri & Sweet, 1991; Morris, 1993; Morris, Bloodgood, Lomax, et al., 2003; Uhry, 1999, 2002). Although these studies differed in their methodology and research questions, all found children’s phonological awareness to be significantly related to their developing concept of word in text. In short, this small line of research showed promise, but issues were in need of additional examination.

Second, the findings in this study shed light on a theoretical question that has remained largely unanswered in beginning reading research: What is the exact nature of the reciprocal relation between phonological awareness and early reading development? In other words, exactly what is it about phonological awareness that enables the beginning reader to begin reading? Once a child gains an initial foothold in reading, what is it about the very act of reading that facilitates further gains in phonological awareness? In this study, an early reading skill (concept of word in text) was found to bridge—at least temporally—a rudimentary form of phonological awareness with a more advanced form of phonological awareness.

Third, these findings have meaningful pedagogical implications. Although they do not provide direct support for a specific type of instruction, they can serve as a guide for developmentally targeted teaching that attempts to balance instruction in critical early literacy skills such as phonemic awareness, spelling, word recognition, and contextual reading in a sensible manner.

In sum, this study’s findings are relevant because: (a) only a few studies had been conducted in this area, (b) these few studies are beginning to provide convergent support for an answer to an important theoretical question in reading research, and (c) they have meaningful pedagogical implications for those teaching beginning readers.

Limitations

This study is limited in at least two ways. First, the population included only students who spoke English as their primary language and did not include students identified with special needs. Thus, the findings cannot be generalized to populations different than these participants. Second, this was a point-in-time study that examined necessary but not sufficient relations among critical early literacy skills. Because it was not an experimental study, causal connections between the variables cannot be made.

Statistical Methods

Some might question the simple statistical techniques I used. Whereas many different statistical methods have been used to study phonological awareness, it appears that not all methods are sensitive to the nature of phonological awareness de-
velopment. Stahl and McKenna (2001) argued for the use of simpler statistical methods such as scattergrams and cross-tabulations in examining phonological awareness and its relation to early reading development. According to Stahl and McKenna,

In nearly all of the studies done on phonological awareness and reading, both phonological awareness and reading have been treated as a single entity. This has been done so that the studies meet the assumptions of parametric statistics. However, treating phonological awareness and reading as continuous variables may obscure the relationship between the two. These relationships may be evident in a more fine-grained analysis. (p. 1)

Stahl and McKenna argued that by treating phonological awareness as a continuous variable, by normally distributing it, researchers may be distorting its very nature. Instead, phonological awareness might best be conceptualized as a series of separate insights that children attain (e.g., first a child develops an insight into how initial consonant sounds work; later this child becomes aware of how vowels operate). In support of this alternative view of phonological awareness, Stahl and McKenna reported that many children in their study reached a ceiling on certain measures of phonological awareness (e.g., awareness of initial consonant sounds), resulting in skewed distributions. Morris (1993) reported similar findings: On the beginning consonant, concept of word in text, and phoneme segmentation tasks, children tended either to have high scores (indicating they had mastered the concept) or low scores (indicating they had little if any knowledge of the concept). Few scores were reported in the middle range. A similar skewed distribution was found in this study, especially for the full phoneme segmentation measure. Given the skewed nature of the data, it appears that cross-tabulations and Guttman scale were the appropriate analytic methods for this study.

Related Concept of Word Studies

Three related studies (Ehri & Sweet, 1991; Uhry, 1999, 2002) that centered on the relation between children’s finger-point reading ability and phoneme awareness reported findings consistent with Morris’s (1993) study. In the finding most pertinent to this study, Ehri and Sweet (1991) found that phonemic segmentation ability contributed unique variance to children’s finger-point reading ability. At first, this finding seems to imply that children’s phonemic segmentation ability preceded their ability to finger-point read text—a finding that appears to contradict this study’s findings. However, a closer look at Ehri and Sweet’s study and data reveals a different picture. First, as this was a point-in-time study using regression analyses, only correlations between variables could be identified; no causal connections can be made. Thus, if finger-point reading were made the independent variable and
phonemic awareness the dependent variable (in other words, if they were switched), an equally plausible interpretation could be that the experience of finger-point reading text influenced children’s phonemic awareness. Second, Ehri and Sweet’s segmentation task included a combination of segmenting two- and three-phoneme syllables (e.g., /le/, /es/, /mel/). Segmenting the two-phoneme syllables (e.g., /le/ = /l/ + /e/) would be a similar task to this study’s beginning sound awareness task as it would entail segmenting a syllable into its onset and rime (this is a more rudimentary level of phonological awareness than segmenting a three-phoneme word into three separate phonemes). According to this interpretation of the data, Ehri and Sweet’s results are consistent with Morris’s (1993) model in which the ability to segment an onset (i.e., beginning consonant awareness) precedes a child’s attainment of a concept of word. Indeed, Ehri and Sweet (1991) seemed to echo this interpretation: “These data suggest that phonemic segmentation skill may emerge before finger-point reading and may be a necessary but not sufficient condition for its development. Note that the phonemic segmentation skill examined here is a rudimentary form: segmenting two-phoneme blends” (p. 452).

A more recent study by Uhry (2002) examined the relation among children’s finger-point reading ability and other critical factors associated with early reading development. Replicating the results from her 1999 study, Uhry found that invented spelling contributed unique variance (an additional 11%) to finger-point reading beyond the contributions of letter knowledge and two forms of phonemic segmentation. Uhry found that whether she entered onset-phoneme segmentation or full phoneme segmentation into the regression analyses, children’s invented spelling predicted additional variance in finger-point reading beyond that predicted by either measure of phoneme segmentation. This is consistent with the view that spelling provides a unique, authentic, and meaningful “window” into a child’s word knowledge because it requires not only an awareness of phonemes within words (an awareness tapped by oral phonological awareness tasks), but also knowledge of letter–sound relations and the ability to sequentially map phonemes onto letters. Because these same three abilities are also deeply implicated in the act of reading, it should come as no surprise that children’s invented spellings are highly correlated with their finger-point reading ability.

In summary, a small number of studies have explored and found a relation between children’s finger-point reading ability, phoneme awareness, and spelling. These studies, although differing in methodology, reported findings that were largely consistent with those in this study.

**Instructional Implications**

Morris’s (1993) developmental model was studied in the context of a balanced kindergarten literacy program. It is entirely possible that this developmental sequence could be influenced by different instructional methods. Research in early reading
acquisition has demonstrated that instruction can influence the word recognition strategies beginning readers use (Barr, 1972, 1974–1975). Despite this caveat, the type of balanced instruction offered by the kindergarten teachers in this study is supported by research on the characteristics of effective primary-grade teachers (Pressley, Rankin, & Yakoii, 1996). In addition, it is also the type of instruction advocated by emergent literacy theorists (Snow et al., 1998). Thus, this model represents a good fit with both effective primary-grades teachers and emergent literacy theorists because it was studied in the very instructional conditions that they practice and advocate.

The developmental progression of phoneme awareness outlined in this study is widely accepted in the field of early reading acquisition research (Ehri, 1998; Perfetti, 1992; Stahl & Murray, 1994). Whereas the model depicted in Figure 2 has improved our understanding of how children’s knowledge of sounds within words develops, it fails to account for how this word knowledge develops in conjunction with children’s experiences reading connected text. Should we teach these word knowledge skills in isolation, waiting until children have attained a threshold level of alphabet knowledge, phoneme awareness, and word recognition ability before beginning formal reading instruction in connected text (the phonics approach)? Or should we allow this word knowledge to develop naturally in the context of supported readings and immersion in quality children’s literature (the whole language approach)?

Of course, many (e.g., Snow et al., 1998) now argue for a balanced approach to literacy instruction in which children are taught skills and then coached to apply them in the context of meaningful reading experiences. Although the calls for balanced literacy instruction have become commonplace in reading education, we are still a long way from answering the important, practical questions teachers ask, such as these: What, exactly, should this balanced instruction look like? What should I teach? When should I teach it? How much of it should I teach? How do I teach related early literacy skills such as spelling, reading, and phonological awareness in a way that makes sense? To date, we have no definitive answers to these questions. This balanced approach cannot and should not be merely a hodgepodge of phonics activities sprinkled indiscriminately in with shared book experiences, nor should it be a dual curriculum in which children are systematically taught phonological awareness and phonics skills during one part of the day and immersed in shared reading experiences later, with no connections ever made between the two.

![FIGURE 2](image_url) Developmental progression of phoneme awareness to word recognition.
Although this study does not provide direct evidence for a particular type of instructional method, the hypothesized model can provide kindergarten and first-grade teachers with a developmental road map to help navigate a balanced literacy curriculum. First, while kindergarten children are learning the alphabet letters and sounds, the teacher can provide the children multiple experiences finger-point reading familiar, engaging texts such as common nursery rhymes, dictated stories (see Stauffer, 1970, for the Language Experience Approach), or big books containing one or two lines per page. The teacher can model for the entire class how to match the familiar spoken words of the story to the printed words on the page. While modeling, the teacher can draw the children’s attention to the beginning (and later, ending) sounds and letters in words to facilitate accurate tracking while reading (e.g., “I know this word is ‘Sam’ because it starts with the SSSS sound”). These shared book experiences (Holdaway, 1979) will provide the children with enough support to later practice finger-point reading texts on their own or with guidance from the teacher in a smaller guided reading group. With increased practice and support finger-point reading, and with increased facility attending to the initial, and later final, letter sounds in words, the children will eventually develop a stable concept of word in text.

In addition to the guided reading experiences already described, the children should also be encouraged to write in many different formats (e.g., stories, pictures with captions, grocery lists, letters, journals) for varied and meaningful purposes. This type of writing (delivered in the same manner already described—with teacher modeling followed by opportunities for guided practice) will serve many purposes. First, children will begin to understand the larger purposes of writing such as to convey messages and to explain information. In addition, writing is also a meaningful way to automatize children’s spelling knowledge of high-frequency words, and writing with invented spellings provides children with meaningful practice segmenting the phonemes within words and applying letter sound knowledge while writing. Finally, the very act of writing will help the child refine his or her concept of word in writing and in reading. Indeed, a child’s spelling and concept of word develop together in a mutually supportive manner. For example, a child at the beginning of kindergarten may write the following sentence:

ILMD
(I love my dog)

This child’s invented spelling reflects an awareness of beginning sounds; however, the lack of spacing between letters indicates that the child does not yet completely understand where word units begin or end in writing. A few months later, with many carefully planned and scaffolded experiences reading and writing for authentic purposes, the same child may write like this:
The child’s later writing sample reflects a major shift forward in understanding: He or she is now attending to both the beginning and ending sounds in the spellings. This newfound knowledge of word boundaries aids the child in marking where one word ends and the next word begins; in other words, it helps the child to further elaborate and refine his or her developing concept of word in text. Whether it was the act of reading that initially cued the child to attend to beginning and ending sounds in writing, or whether it was experiences in invented spelling that enhanced the child’s perception of beginning and ending phonemes in reading, the child will eventually have to learn how to apply this burgeoning phoneme awareness in both reading and writing contexts to help stabilize his or her developing concept of word in text.

CONCLUSION

This study replicates Morris’s (1993) study and is also in line with the findings from four other studies that examined the relation between a child’s concept of word in text and phoneme awareness (Ehri & Sweet, 1991; Morris, Bloodgood, Lomax, et al., 2003; Uhry, 1999, 2002). Of these concept of word studies, three (Morris’s 1993 study; Morris, Bloodgood, Lomax, et al.’s, 2003, study; and this study) directly examined a proposed developmental sequence with a child’s concept of word as a central element. In each of these three studies, the developmental sequence was shown to be similar across three different populations (a suburban working class population, a rural low-to-middle SES population, and a somewhat more diverse middle-to-high SES population), using four different statistical methods (cross-tabulations, Guttman scaling, median change over time, and path analysis). Additionally, in all three studies, a beginning reader’s concept of word in text—a variable rarely studied in beginning reading research—was shown to play a linchpin role in early reading development.

Two recent studies (Morris, Bloodgood, & Perney, 2003; Warley, Landrum, & Invernizzi, 2005) have also demonstrated that a child’s concept of word in text is a robust kindergarten predictor of first-grade reading achievement. In Warley et al.’s (2005) study, concept of word, whether measured in the fall or spring of kindergarten, was found to be the single best predictor of spring first-grade reading achievement. In Morris, Bloodgood, and Perney’s (2003) study, alphabet knowledge and concept of word were the only two tasks to predict first-grade reading achievement at the beginning, middle, and end of kindergarten. Particularly important was the finding in both studies that a child’s concept of word in text, a seldom-used predictor variable, was a better predictor of first-grade reading achievement than two
widely used phonological awareness measures (beginning consonant awareness and phoneme segmentation). Morris, Bloodgood, and Perney (2003) explained, It is not surprising that concept of word, though mentioned infrequently in the research literature, turned out to be a good predictor of early reading ability. Concept of word in text is the vehicle that allows emerging phonological and letter/sound knowledge to be used in the act of reading. Until beginners can accurately point to words as they read (match spoken words to printed words), they will have difficulty establishing an initial sight vocabulary and using letter-sound cues (e.g., beginning consonants) to decode new words they meet in text. (p. 102)

In other words, it appears that a child’s concept of word in text is an important bridging skill that allows beginning readers to orchestrate their knowledge of the alphabet, beginning consonants, and letter sounds to gain an initial foothold into contextual reading. As the beginning reader gains experience finger-point reading, and this initial foothold into reading is stabilized, he or she is laying the groundwork for the further development of more sophisticated, critical literacy skills (e.g., phonemic spelling ability, full phoneme segmentation knowledge, and acquisition of an initial core sight vocabulary).

Whereas the number of empirical studies in this area is still relatively small (particularly in relation to the research literature on phonological awareness), the converging evidence on Morris’s (1993) proposed developmental sequence, and specifically on the importance of a concept of word, is particularly striking. The picture that emerges from these studies is that a concept of word in text is: (a) an important developmental milestone in beginning reading, (b) a robust kindergarten predictor of later reading achievement, and (c) an early reading skill that teachers can directly assess to inform instruction. What is needed next in this promising area are training studies to determine if intervention at a certain point in the developmental sequence leads to accelerated development of the next stage.

REFERENCES


APPENDIX A: Teacher Interview Questions

1. How much total time do you spend in language arts instruction per day?
2. How do you organize your language arts block? How much time is spent on each part of your block?
3. How do you teach the following: alphabet recognition, phonemic awareness, spelling, phonics/decoding, sight words, and writing?
4. Describe your guided reading instruction.
5. Have your instructional emphases changed over the course of the year? If so, how?
6. Have you modified your instruction with your at-risk readers? If so, how?

APPENDIX B: Two Beginning Consonant Awareness Measures

Note that both beginning consonant awareness measures were administered individually. On Part B: Group Beginning Sounds Awareness Measure, each word represents the picture that was presented to the child.
APPENDIX C: “Sam, Sam” Concept of Word in Text Measure

2. ("Sam, Sam")

Sam, Sam, the baker man
Washed his face in a frying pan
Combed his hair with a wagon wheel
And died with a toothache in his heel

“Humpty Dumpty” Concept of Word in Text Measure

Humpty Dumpty
Humpty Dumpty sat on a wall.

Humpty Dumpty had a great fall.

All the king's horses

And all the king's men
Couldn't put Humpty together again.

APPENDIX D: Spelling Measure

### Section III: Letter-Sound Knowledge

#### B: Spelling

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<th>Fan</th>
<th>Pet</th>
<th>Rug</th>
<th>Sit</th>
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**Benchmark: 12**

Score: ____/20
APPENDIX E: Word Recognition in Isolation Measure

Preprimer

cat
see
red
my
is
big
will
yes
the
it
but
and
run
dog
we
by
she
you
get
did

Score ____/20