Promoting Morphological Awareness in Children With Language Needs
Do the Common Core State Standards Pave the Way?

Cheryl Smith Gabig and Elena Zaretsky

Recent research has acknowledged the importance of morphological awareness, beyond phonological awareness, to literacy achievement in both reading and writing for children, adolescents, and adults. Morphological awareness is the ability to recognize, reflect on, and manipulate the sublexical structure of words—the roots, prefixes, and suffixes. In this paper, we examine the Common Core State Standards in English Language Arts (CCSS/ELA) to identify explicit grade-specific morphological awareness standards. We then discuss the standards-by-grade within the framework of learning morphology type and morphological aspects, for example, semantic, syntactic, and productive properties. Finally, we discuss the role of speech-language pathologists in collaboration with classroom teachers to support students with speech-language impairment and ELs to achieve standards in the area of morphology. Keywords: collaboration, Common Core State Standards in English Language Arts (CCSS/ELA), English Language Learners (ELLs), language disability, morphological awareness, morphological knowledge

WORD READING AND SPELLING involve the processing of linguistic units, including phonological and morphological information contained in the written word form

Author Affiliation: Department of Speech-Language-Hearing Sciences, Lehman College, City University of New York, Bronx (Dr Gabig); and Department of Curriculum and Instruction, College of Education and Human Development, University of Massachusetts, Boston (Dr Zaretsky).

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Corresponding Author: Cheryl Smith Gabig, PhD, Department of Speech-Language-Hearing Sciences, Lehman College, The City University of New York, 250 Bedford Park Blvd. West Bronx, NY 10468 (cheryl.gabig@lehman.cuny.edu).

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(Singson, Mahony, & Mann, 2000; Verhoeven & Carlisle, 2006). Over the past 30 years, phonological processing in word reading and spelling has been emphasized as central to the understanding of how children learn to read and write in an alphabetic system (Adams, 1992; Bradley & Bryant, 1983; Fox & Routh, 1975; Liberman, Shankweiler, & Liberman, 1989; Pennington & Lefly, 2001; Stahl & Murray, 1994; Stanovich, 1982, 1985). When reading or spelling words, children must understand and apply the relationship between graphemes and phonemes, creating a phonological representation from print while reading words, or transforming an abstract phonological word shape into a spelling pattern while writing.

More recently, researchers have focused on the role of morphological processing in word identification while reading and spelling (Carlisle, 2003; Carlisle & Fleming, 2003; McCutchen, Logan, & Biangardi-Orpe, 2009; Mahony, Singson, & Mann, 2000; Verhoeven...
Morphological processing during reading and spelling refers to the awareness of how the morphological structure of words is represented in English orthography (Carlisle, 1995). Children’s sensitivity to the morphological structure of words contributes unique variance to word reading accuracy in first grade children, beyond the contribution of phonological awareness (Apel & Lawrence, 2011), and influences word reading and spelling accuracy throughout early elementary grades (Carlisle, 1995, 2003; Fowler & Liberman, 1995; Wolter et al., 2009). The influence of morphology on reading and spelling is also seen in upper elementary and middle school grades, with morphological processing making significant contributions to reading comprehension, reading vocabulary, and spelling in children from fourth grade to the upper grades (Carlisle & Fleming, 2003; Nagy, Berninger, & Abbott, 2006; Singson et al., 2000; White, Power, & White, 1989).

Despite the documented evidence of the importance of morphological knowledge to reading and spelling, many educators and speech-language pathologists (SLPs) have limited familiarity with the concept of morphological processing or how this area of language ability relates to literacy and classroom functioning. In addition to a lack of familiarity with morphological processing and its role in literacy and language development in children and adolescents, school-based SLPs are now faced with the requirement to support the achievement of the Common Core State Standards Initiative for English Language Arts (CCSS/ELA, 2011). This requirement goes beyond the traditional service delivery model by SLPs of serving individuals with speech-language impairments almost exclusively to include a collaborative role with classroom teachers and other support personnel to help identify and provide appropriate instruction to other students at risk for school failure, such as English Language Learners (ELLs).

**PURPOSE**

The purpose of this paper is threefold. First, we examine the Common Core State Standards Initiative for English Language Arts (CCSS/ELA), K–12, with the objective of identifying grade-specific standards that focus on aspects of explicit morphological processing. Next, we present an overview of identified standards within the framework of morphological knowledge outlined by Nagy, Diakidoy, and Anderson (1991) and Tyler and Nagy (1989). These researchers have noted that full knowledge of morphology includes both a grasp of the types of word morphology, as well as knowledge and use of the semantic, syntactic, and productive aspects of each morphology type. A third purpose of this paper is to discuss the role of SLPs in supporting the acquisition of morphological knowledge and morphological awareness by students with language disabilities, and by ELLs, with or without speech-language impairment.

SLPs have an opportunity to engage students with language disabilities in multiple settings. They also may consult with teachers of ELLs in schools regarding the explicit teaching of word formation processes and how to analyze the morphological structure of words, including a word’s meaning, pronunciation, and grammatical role. The goal of explicit teaching of morphological processing to children and adolescents is to facilitate word reading, reading comprehension, vocabulary development, and spelling, supporting not only overall English language competence, but also academic language in the content areas.

**COMMON CORE STANDARDS IN ENGLISH LANGUAGE ARTS (CCSS/ELA) K–12**

The Common Core State Standards in English Language Arts and Literacy (CCSS/ELA), as well as the Common Core State Standards in History/Social Science and Technical Subjects (Common Core State Standards Initiative, 2011) are a codified set of learning and end-of-year achievement expectations for
children and adolescents from Kindergarten through Grade 12. The grade-specific standards for English Language Arts and Mathematics are conceptualized as cumulative. Once attained, standards are expected to be carried forward to the next grade and applied across educational and social contexts. The standards were developed by the National Governors Association Center for Best Practices in collaboration with the Council of Chief State School Officers and participating state representatives in education, business, content area experts, national organizations, and community groups. Currently, 45 states and the District of Columbia have adopted the CCSS and have agreed to implement them by the year 2014.

An overarching principle guiding the CCSS is the expectation that all students should be career and college ready when they graduate from high school, including students in the general education classroom, students with disabilities, and ELLs. With this in mind, Anchor Standards (College and Career Readiness Anchor Standards, CCRAS), as well as grade-specific content standards, are defined both for English Language Arts and Mathematics.

The CCSS/ELA encompasses four broad curriculum strands: Reading, Writing, Speaking and Listening, and Language. Thus, they cover areas of the curriculum that rely on an individual’s competence in spoken and written language. The Language strand of the CCSS/ELA standards further codifies expectations into three subareas specifically pertaining to English language knowledge and use: Conventions of Standard English, Knowledge of Language, and Vocabulary Acquisition and Use.

**MORPHOLOGICAL KNOWLEDGE AND MORPHOLOGICAL AWARENESS**

Morphological processing is a broad construct that encompasses knowledge in understanding and skill in using the morphological aspect of language in word formation processes, including the construction of meaning and the fitting of morphologically affixed words into syntactic frames. Within the broad paradigm of morphological processing are two separate yet related constructs of cognitive-linguistic functioning: morphological knowledge (MK) and morphological awareness (MA). MK is the internalized cumulative knowledge about how the English morphological system works—how words are formed and new meanings created, as well as how words function in the syntactic frame of a sentence (Stolz & Feldman, 1995). MA is a type of linguistic awareness that refers to the individual’s conscious awareness of the internal, meaning-related structure of words, as well as the ability to reflect on and manipulate that structure (Carlisle, 1995; McCutchen, Green, & Abbott, 2008).

Morphological knowledge and awareness are intrinsically related constructs; yet, they may vary in their expression on a continuum of implicit versus explicit manifestation. For example, a three-year-old boy demonstrates implicit MK when he tells his mother not to “unerase” something he has drawn, which shows an emerging appreciation for how word structure reflects meaning. If questioned, however, this child would not be able to consciously or explicitly decompose the word into its component morphemes and talk about why and how he created the new word to reflect specific meaning. Explicit MA is the systematic accumulation and amalgamation of information about types of morphology and know-how about how the morphological aspect of the English language works, including its semantic and syntactic features, orthographic representations, and the morphophonological patterns of derived words (Berninger, Abbot, Nagy, & Carlisle, 2010; Jarmulowicz & Hay, 2009; McCutchen et al., 2008; Nagy et al., 1991; Stolz & Feldman, 1995; Tyler & Nagy, 1989). Children’s increasing awareness of the morphological structure of spoken and written English words unfolds gradually, influenced by experiences with morphologically complex words while reading and spelling, as well as by the degree of orthographic, semantic, and phonological transparency between a derived or affixed word and its base word (Carlisle, 1995;
Jarmulowicz & Hay, 2009; McCutchen et al., 2008). The important distinction between MK and MA is that fully realized, explicit MA is evident when individuals are able to reflect on and analyze word structure and meaning including the process of word formation, as well as the semantic relationship between and among sublexical parts of words (Berninger et al., 2010; McCutchen et al., 2008), the morphophonological properties of words influencing stress patterns and word pronunciation (Jarmulowicz & Hay, 2009), and a word’s fit into syntactic frames (Nagy et al., 1991; Stolz & Feldman, 1995; Tyler & Nagy, 1989).

Types of English morphology

Morphemes are the smallest meaningful units in a language. The English language contains three different types of morphemes: lexical, inflectional, and derivational. The three morpheme types are subclassified as either free or bound; free morphemes can stand alone with meaning, bound morphemes can only be used when attached to a free morpheme or stem. Lexical morphemes are referred to as free, base, or root morphemes. Although they can stand alone with meaning, not all lexical morphemes are alike. There is a difference between content lexical morphemes, and lexical morphemes that are function words. Words such as house, stone, dog, mark, touch, take, kiss, pretty, and tall are examples of free content lexical morphemes, whereas words such as a, the, is, and, if, by, and can are function words, and also free morphemes.

Through a process called compounding, two content lexical morphemes may be combined to create a new meaning as in dog + house, doghouse, or touch + stone, touchstone. The resulting compound word is two morphemes in length. Compounding does not apply to function words, even though they are free lexical morphemes. Function words play a role in the grammatical structure of a phrase or sentence, signaling clauses and prepositional phrases. Children acquire knowledge of the specific class of monomorphemic words, which are lexical morphemes that are permitted to be combined to create novel meaning.

The other two kinds of morphemes, inflectional and derivational, are bound morphemes. They are referred to as affixes because they are attached to a word stem to produce morphologically complex words such as walk/walking, misery/miserable, reconcile/reconciliation, and magic/magician. Inflectional morphemes are the grammatical suffix markers that children acquire in their oral language during the preschool years to mark tense (-ing; -s; -ed), number (-s), and possession (-’s).

Derivational morphemes also are bound affixes, either prefixes or suffixes, which modify the meaning of the base word or word root. Derivational morphemes occurring in the suffix position modify the meaning of the word and also change the part-of-speech of the base word. For example, the suffix -able, when applied to the verbs love and touch, creates loveable and touchable, altering the grammatical role of each stem word from a verb to an adjective. Prefixes also are derivational morphemes, yet prefixes do not change the part-of-speech of the base word; rather they alter the overall meaning of the base word to create new meanings. For example, the prefix re- when applied to the verb make, results in the word remake, a verb meaning to make again. Sensitivity to the three different morphology types—lexical, grammatical, and derivational, the ability to understand the meaning represented by an affix (i.e., a prefix or suffix), and competence in the processes of word formation (compounding, prefixation, and suffixation), all are aspects of MK.

Aspects of word morphology

In addition to the basic types of word morphology, children also acquire broad understanding of the semantic, syntactic, and productive features of each morphology type. Tyler and Nagy (1989) and Nagy et al. (1991) describe three broad aspects of full MK: relational, syntactic, and distributional. Aspect refers to the way a morpheme can be viewed or interpreted. As children gain experience
with morphologically complex words, they acquire different ways to view and analyze the morphemes that make up words, resulting in an amalgamation of knowledge of how words are structured.

**Relational knowledge**

Relational knowledge involves awareness that two or more words share a common morpheme, and thus a common meaning. Relational knowledge can be as transparent as seeing the *love* in *lovely*, or as opaque as recognizing the stem *-ceive* in *receive*, *deceive*, and *perceive*, and the shared meaning of the stem *-ceive* (to take hold) across the three words. Relational knowledge begins to develop early in school-age children when they learn to read and spell phonetically and semantically transparent words containing grammatical morphemes and early developing prefixes and suffixes (e.g., *-ly; -un; -er*) (Berninger et al., 2010; Carlisle, 1995; Nagy et al., 1991; Tyler & Nagy, 1989). Phonetic and semantic transparency means that the base word can be clearly seen and heard in the inflected form. Grammatical inflections marking the present progressive *-ing*, past tense *-ed*, and plural marker *-s* occur frequently in words within first and second grade reading material; children at these grade levels are able to read words containing early grammatical morphemes, and attempt to represent the morpheme in spelling (Rubin, 1988; Wolter et al., 2009).

Relational knowledge advances in mid-to-late elementary school (third to sixth grade) as children are exposed to more complex words containing shared roots and derivational morphemes (Berninger et al., 2010; Mahoney et al., 2000). Learning to appreciate the semantic transparency between related words is assisted by awareness of phonological shifts in pronunciation that result with the addition of derivational morphemes. Mahoney et al. (2000) asked children in grades three through six to judge the relatedness of word pairs that varied on a continuum of semantic and phonetic similarity. Children circled “yes” if the derived word “came from” the first word and “no” if it did not. Results showed that knowledge of the morphological relatedness between word pairs increased by age and grade, with the older, sixth grade children more able to correctly judge word pairs with more complex phonological shifts from the base word (e.g., *nature/natural; decide/decision*), and to correctly reject foils (*insult/insulation*) than younger children.

**Syntactic knowledge**

Syntactic knowledge assumes the understanding of the grammatical role of affix when assigning word meaning (Nunes & Bryant, 2006). As children gain more experience with complex words containing derivational and/or grammatical affixes, they acquire faster recognition and more nuanced understanding of the different morpheme types and their grammatical functions. The syntactic aspect of MK acknowledges the grammatical function or syntactic category of the derivational or inflectional affix. For example, the affixes *-ing* or *-ed* are recognized as grammatical markers denoting verb tense, whereas the derivational suffixes *-tion* or *-ive* applied to a root word are processed as either denoting a noun, as in *creation*, or an adjective, as in *creative*. Research has shown that the syntactic aspect of word morphology begins to emerge before fourth grade, and continues to develop through middle school (Tyler & Nagy, 1989). Research suggests that third grade children are able to use context clues and knowledge of the syntactic function of the suffix to choose the correct word to fit a sentence frame, for example, correctly choosing a pseudoword ending in *-ist* to designate a noun/person in a sentence frame, or choosing a pseudoword ending in *-ize* to convey a verb (Mahoney, 1994).

**Distributional knowledge**

Finally, distributional knowledge is the understanding of restrictions or constraints on the generalization of prefixes, suffixes, and grammatical inflections. In English, language
users add -tion to some verbs to derive a noun, as in locate/location or fix/fixation, but not to other verbs such as sleep/sleeption (Tyler & Nagy, 1989). Distributional knowledge of morphology entails the understanding of the productive word formation processes of prefixation, suffixation, and compounding. This comprises the knowledge of how words are created and how meaning is derived from the sum of the individual parts into the whole word. Distributional knowledge is evident in the creative use of suffixation or prefixation to produce novel words to express a new meaning (Nunes & Bryant, 2006). For example, the comedian Stephen Colbert demonstrated distributional knowledge of morphology by inventing the unique word “truthiness” a play on truthful, to mean shades of truth, not quite true, but around the truth.

DEVELOPMENT OF MORPHOLOGICAL KNOWLEDGE AND AWARENESS

Explicit MA begins to emerge in first and second grade, as students become aware of the morphological structure of words while learning to decode (i.e., read) and encode (i.e., write/spell) words containing inflectional grammatical morphemes into the visual language system. Students begin to recognize and understand the orthographic spelling patterns seen in print that represent tense (-ing; -s; -ed), plurality (-s), and possession (-‘s) when writing/spelling, which indicate emerging explicit MK of word structure (Rubin, 1988; Wolter et al., 2009).

In addition to inflectional morphology, children in grades one through three also show emerging awareness of lexical morphology through the creation of new words by combining two free morphemes into a compound word. Frequent compound words may be common in the oral vocabulary of children entering school, but the explicit understanding or awareness of the individual lexical morphemes making up the compound word often lags. For example, the word grandfather is a common vocabulary word for young children, yet first graders often struggle to decompose the word into component parts, grand + father, and provide a definition (Jones, 1991).

Knowledge and awareness of derivational morphology emerges later, mainly because many complex words containing derivational morphemes do not appear in children’s texts until third and fourth grade and beyond (Nagy & Anderson, 1984; White et al., 1989). Certain derivational morphemes are noted earlier in the oral and written language of first and second grade children, especially the use of the comparative -er (e.g., bigger) and the superlative -est (e.g., biggest) derived forms of words.

Students are exposed to additional complex vocabulary words containing derivational morphemes beginning in grade three and extending into later grades, when they encounter words with complex morphological structure in textbooks, reading material, and academic classroom discourse contain vocabulary words created through the processes of compounding, prefixation, or suffixation (Anglin, 1993; Carlisle, 1995, 2000; Henry, 2010). For example, children in grade four mathematics may encounter the morphologically complex words: exponential, geometric, parallelogram, or in science: regeneration, germination, permeability. Grade eight science texts may contain neutralization, conductivity, geosynchronous, whereas Grade eight mathematics texts may describe experimental probability, rotational symmetry, and so forth (see Nippold, 2007). When children encounter unfamiliar multi-morphemic words, they may engage in the use of morphological decomposition (i.e., removing an affix) in order to determine the meaning of an unfamiliar word. For example, a child may recognize that neutralization contains a familiar root neutral, and apply that knowledge to derive the meaning of neutralization.

The development of explicit MA is a gradual yet consistent process in typically developing children as they move through early and late elementary years and into middle and high school, acquiring knowledge and awareness of different types of word morphology as
well as increasingly sophisticated knowledge about how the morphological system operates to create meaning (Nagy et al., 1991). As children and adolescents expand their internalized knowledge about word structure, they also improve their ability to decompose unfamiliar morphologically complex words in order to process the word’s meaning, pronunciation, and grammatical role. This information is made available through the explicit analysis of the prefixes, suffixes, and lexical roots of words (Berninger et al., 2010; Carlisle & Fleming, 2003; Henry, 2010).

**COMMON CORE STATE STANDARDS FOR ENGLISH LANGUAGE ARTS (CCSS/ELA)**

**K–12 GRADE-SPECIFIC STANDARDS FOR MORPHOLOGICAL KNOWLEDGE AND AWARENESS**

For the purposes of this article, we examined each of the four strands of the CCSS/ELA for grade-specific K–12 standards that expressed expectation of MK and MA, including standards that required the recognition, decomposition, or productivity (oral or written) of inflectional or derivational morphemes, or the identification of a root or stem. Three of the four strands (Reading, Writing, and Language) mention morphological requirements explicitly as a basic or foundational skill (though not in all sub-strand categories), but the Speaking and Listening strand does not mention morphology at all.

Explicit MK standards are found in the section of standards termed “Reading Foundational Skills,” specifically in the areas of Phonics and Word Recognition in Reading. Similarly, grade-specific morphological standards were identified within the Writing strand, and the Language strand, specifically within sections termed “Language Knowledge” and “Vocabulary Acquisition and Use.” The absence of specified morphological standards within the strands of Speaking and Listening is in keeping with the anchor standards for these two areas, which are to promote collaboration and sensitivity to cultural diversity in communication.

Table 1 contains the grade-specific morphological standards identified within the strands of Reading, Writing, Language Knowledge, and Vocabulary Acquisition and Use. It is important to remember that all grade standards are cumulative. Learning outcomes are carried forward to the next grade, even if there are no overt morphological standards listed within a strand for the succeeding grade. The identified morphological standards across the grades specify the learning outcomes children are expected to demonstrate for each morphology type.

Throughout early and late elementary school and into middle and high school, children are expected to learn to analyze words and apply meaning by incorporating linguistic information about lexical roots and morphological affixes, both grammatical and derivational. With succeeding grades, and building on previously acquired knowledge and skill, children confirm, expand, and consolidate their awareness and knowledge of the morphological structure of words, allowing them to construct meaning through the analysis and synthesis of word parts.

**Grade-level morphological standards: Morphology type and aspect**

Using the framework identified by Tyler and Nagy (1989) and Nagy et al. (1991), grade-specific content standards in morphology were examined for the teaching and learning of Morphological Type (i.e., grammatical, derivational, lexical) and Morphological Aspect (i.e., relational, syntactic, and distributional). Although an objective focusing on morphology was identified for children in kindergarten, the emphasis was more on tacit knowledge of morphology, including the use of frequently occurring prefixes and suffixes as clues to the meaning of words. Explicit metalinguistic knowledge emphasis for kindergarten students occurs in the areas of phonological awareness and letter-sound correspondences for reading, not morphology. Grade-specific morphological
<table>
<thead>
<tr>
<th>Grade</th>
<th>Reading Foundational Skills Phonic and WR</th>
<th>Writing</th>
<th>Language Knowledge</th>
<th>Vocabulary Acquisition and Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kindergarten</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>Uses the most frequently occurring inflections and affixes (-ed, -s, -re, -un, -ful, -less) as a clue to meaning of an unknown word.</td>
</tr>
<tr>
<td>1st grade</td>
<td>Read words with inflectional endings, such as girls, looking, jumped</td>
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<td></td>
<td>Determine or clarify meaning of unknown and multiple-meaning word. Identify frequently occurring root words with inflections: look; looks; looking</td>
</tr>
<tr>
<td>2nd grade</td>
<td>Decode words with common prefixes and suffixes</td>
<td>Determine the meaning of the new word formed when a known prefix is added to a known word (e.g., happy/unhappy, tell/re-tell). Uses root word as a clue to the meaning of an unknown word with the same root (e.g., addition/additional). Uses knowledge of meaning of individual words to predict the meaning of compound words, (e.g., birdhouse, housefly, bookshef, notebook, bookmark).</td>
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Table 1. CCSS/ELA: Explicit grade-specific morphological knowledge standards, K–12 (Continued)

<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>3rd grade</td>
<td>Identify meaning of most common prefixes and derivational suffixes</td>
<td>Use conventional spelling for high-frequency and other studied words to base words (e.g., sitting, smiled, cries, happiness)</td>
<td>Determine the meaning of the new word formed when a known affix is added to a known word (e.g., agree/agreeable; care/careless)</td>
<td>Use a know root word as a clue to the meaning of an unknown word with the same root (e.g., company/companion)</td>
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<td></td>
<td></td>
<td>Use spelling patterns and generalizations (e.g., word families, position-based spellings, syllable patterns, ending rules, meaningful word parts) in writing words,</td>
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<tr>
<td>4th grade</td>
<td>Use knowledge of morphology to read unfamiliar multisyllabic words, using roots/affixes</td>
<td>Same as Grade 3</td>
<td>Use common grade-appropriate Greek and Latin affixes and roots as clues to the meaning of a word (e.g., telegraph, photograph, autograph)</td>
<td>Use common grade-appropriate Greek and Latin affixes and roots as clues to the meaning of a word (e.g., photograph, photosynthesis)</td>
</tr>
<tr>
<td>5th grade</td>
<td>Use combined knowledge of all letter-sound correspondences, syllabication patterns, and morphology (e.g., roots and affixes) to read accurately unfamiliar multisyllabic words in context and out of context</td>
<td>Same as Grade 3</td>
<td></td>
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(continues)
**Table 1.** CCSS/ELA: Explicit grade-specific morphological knowledge standards, K–12 (*Continued*)

<table>
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</tr>
</thead>
<tbody>
<tr>
<td>6th grade</td>
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<td>Use common grade-appropriate Greek or Latin affixes and roots as clues to the meaning of a word (e.g., <em>audience</em>, <em>auditory</em>, <em>audible</em>)</td>
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<tr>
<td>7th grade</td>
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<td></td>
<td>Use common grade-appropriate Greek or Latin affixes and roots as clues to the meaning of a word (e.g., <em>belligerent</em>, <em>bellicose</em>, <em>rebel</em>)</td>
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<tr>
<td>8th grade</td>
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<td></td>
<td>Use common grade-appropriate Greek or Latin affixes and roots as clues to the meaning of a word (e.g., <em>precede</em>, <em>recede</em>, <em>secede</em>)</td>
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<tr>
<td>9–10th grade</td>
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<td></td>
<td>Identify and correctly use patterns of word changes that indicate different meanings or parts of speech (e.g., <em>analyze</em>, <em>analysis</em>, <em>analytical</em>)</td>
</tr>
<tr>
<td>11–12th grade</td>
<td></td>
<td></td>
<td></td>
<td>Identify and correctly use patterns of word changes that indicate different meanings or parts of speech (e.g., <em>conceive</em>, <em>conception</em>, <em>conceivable</em>)</td>
</tr>
</tbody>
</table>
awareness standards begin to appear in Grade one, within the strands of Reading and Language, specifically in the areas of Reading Phonics/Word Recognition, and Language Knowledge and Vocabulary. Specific morpheme standards within the Writing strand are absent for Grades one and two.

**Grade one**

Beginning with Grade one, children are expected to acquire a beginning knowledge of the relational aspect between and among common words varying in grammatical inflectional endings, such as *look/looks/looking* by identifying the root word base common within each word. By the end of Grade one, children are expected to read words containing grammatical inflections marking tense and number, a beginning recognition of the grammatical morpheme type and the syntactic function. Relational knowledge also extends to multiple-meaning words, where children can express the understanding of meaning differences between homophones, words that sound the same but mean different things, and multiple meaning words such as *bat, bark,* or *rock.* Words encountered are usually Anglo-Saxon in origin, one-syllable, and everyday vocabulary (Henry, 2010).

**Grade two**

By Grade two, children are expected to acquire a beginning knowledge of another morphological type, derivational morphemes, with the introduction of common prefixes and suffixes appropriate for grade. By the end of Grade two, children are expected to read words containing common prefixes and suffixes and engage in the decomposition of complex words, both compound words and words containing early developing derivational morphemes, in order to determine the meaning of the word. Although not explicitly stated in the grade-specific morphological standards as seen in Table 1, and as mentioned above, the words are Anglo-Saxon in origin, either one-syllable or compound words containing two familiar words such as *cupcake* (Henry, 2010). Thus, emerging knowledge of morpheme categorical type, as well as the syntactic and relational aspects of words, is made explicit in the Grade two ELA standards, as children engage in word analysis activities, decomposing compound words and words with prefixes and suffixes to gain meaning of unknown words. The processes of combining, prefixation, and suffixation are practiced through word analysis and active word decomposition, an active strategy children need to learn in order to be able to engage in the conscious, explicit analysis of the internalized structure of words.

**Grade three**

With substantive knowledge and skill in reading, analyzing, and assigning meaning to words based on word morphological structure acquired in the first two years of school, grade-specific morphological standards for students in Grade three now include: (a) identification of the meaning of the majority of common prefixes and suffixes; (b) consolidation of conventional spelling patterns for words with grammatical morpheme endings; and (c) accurate spelling of transparent derived words, which are complex words in which the root word is easily seen and heard in the derived form, such as *love/lovely, happy/happiness.*

By the end of Grade three, children are expected to engage in decomposition and analysis of the significance of prefixes and suffixes within a novel word in order to determine the meaning of the word. Children are asked to apply internalized knowledge about the relationship between a lexical root and grammatical or derivational affixes to the appropriate orthographic spelling pattern that represents word morphology. Standards identified for grades two and three codify a level of MK that is practiced and applied in learning contexts, with a focus on using morphology in reading and spelling more fluently and automatically, similar to the automaticity seen in fluent word reading during this period (Chall, 1983). By the end of third grade, students who meet these standards have a working knowledge of the three types of
Table 2. Grade-specific guidelines for the development of morphological knowledge and awareness

<table>
<thead>
<tr>
<th>Grade</th>
<th>Specific Knowledge</th>
<th>Activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>1, 2</td>
<td>Relational knowledge development:</td>
<td>Explicit instructions on the use of inflectional morphology in oral language use</td>
</tr>
<tr>
<td></td>
<td>• Grasps the relationship between and among words ending in common grammatical affixes (plural and 3rd person -s, -ed, -ing) and derivational suffixes (-er, -est)</td>
<td>Word analysis:</td>
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<td></td>
<td>• Understands differences in meaning between homophones in grade-level texts (e.g., bear/bare)</td>
<td>• Identification of words with inflectional morphology within grade-level text</td>
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<tr>
<td></td>
<td>• By Grade 2, ability to decompose derived words into component parts</td>
<td>• Beginning decomposition: Isolate the root word</td>
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<tr>
<td></td>
<td>• Syntactic function of common suffixes in transparent derived words</td>
<td>• Read/spell grade-level words containing inflectional and derivational morphemes</td>
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<tr>
<td></td>
<td></td>
<td>• Vocabulary expansion of free lexical morphemes that are homophones, appropriate for grade</td>
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<tr>
<td></td>
<td></td>
<td>• Processes of compounding, prefixation/suffixation practiced by adding/subtracting prefixes and suffixes in real and pseudowords</td>
</tr>
<tr>
<td>3</td>
<td>Relational and syntactic knowledge of common prefixes/suffixes for grade</td>
<td>Mastering inflectional and derivational morphology in oral and written modalities (part of speech change, i.e., teach-teacher; meaning, i.e., able-disable)</td>
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<td></td>
<td>• Ability to engage in decomposition and analysis of unknown/unique words containing morphemes</td>
<td>Word analysis:</td>
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<tr>
<td></td>
<td>• Syntactic function of common suffixes in transparent derived words</td>
<td>• Awareness of the words sharing the same root: Locate//circle/underline</td>
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<tr>
<td>4–6</td>
<td>Relational knowledge and syntactic properties of Greek and Latin morphemes, appropriate for grade.</td>
<td>• Combine free lexical words into novel compounds</td>
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<td></td>
<td></td>
<td>• Talk about the meaning of prefixes and suffixes common for grade</td>
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<td></td>
<td></td>
<td>• Reinforce the syntactic function of derivational suffixes, play “find the right word” using pseudowords containing the appropriate suffix ending</td>
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<tr>
<td></td>
<td></td>
<td>• Engage in decomposing unknown real and pseudowords</td>
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<tr>
<td></td>
<td></td>
<td>Word analysis:</td>
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<tr>
<td></td>
<td></td>
<td>• The meaning of Greek/Latin prefixes and suffixes</td>
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<tr>
<td></td>
<td></td>
<td>• Application of meta-linguistic skills in analyzing types and meaning of Greek and Latin derivational morphemes</td>
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<tr>
<td></td>
<td></td>
<td>• Relate morphological knowledge to reading and spelling</td>
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<tr>
<td></td>
<td></td>
<td>• Vocabulary expansion through understanding of morphological relationships</td>
</tr>
</tbody>
</table>

(continues)
Table 2. Grade-specific guidelines for the development of morphological knowledge and awareness (Continued)

<table>
<thead>
<tr>
<th>Grade and School</th>
<th>Specific Knowledge</th>
<th>Activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Middle and High School</td>
<td>Continuation of knowledge and use of grade-specific Greek and Latin derivational affixes</td>
<td>Word Analysis</td>
</tr>
<tr>
<td></td>
<td>Distributional knowledge of role of morphemes in creating unique word meaning</td>
<td>- Explicit instructions and scaffolding of discussions to promote the knowledge of syntactic and relational properties of morphemes</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Use of semantic network for words related through roots and shared derivational morphemes of Greek and Latin origins</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Activities to promote distributional knowledge: That is, creating novel words using known derivational morphemes from a variety of language roots and typical Anglo-Saxon and Greek/Latin morphemes</td>
</tr>
</tbody>
</table>

morphemes—grammatical, derivational, and lexical, as well as the relational and syntactic properties of each, and they are able to apply this knowledge to the decomposition and analysis of multisyllabic and unfamiliar words necessary for vocabulary acquisition, word reading, and spelling.

**Grades four through six**

Morphological standards for grades four through six are noted in the strands of Reading, Writing, and Vocabulary. These standards allow for the continued consolidation of MK for lexical, grammatical, and derivational morphology with their corresponding grammatical and semantic functions. Grade-specific morphological standards across these grades expect the explicit use of internalized knowledge of morphology types to learn new vocabulary and to comprehend complex words while reading. Students are expected to engage in word analysis and decomposition at the morphological level to read, pronounce, and assign meaning to unfamiliar multisyllabic words. Greek and Latin derivational morphology is introduced by fourth grade, and is part of vocabulary instruction and use through middle school. By the end of sixth grade, older school-age children will have explicit knowledge of and access to common grade-appropriate Greek and Latin affixes, a Greek and Latin roots, as well as all grammatical and common derivational affixes. Similar to Chall’s (1983) distinction of reading to learn from fourth grade on, children at Grade four and above are expected to use and apply knowledge of morphology to learn.

**Middle school and high school**

The morphological standards for middle and high school continue with the expansion of knowledge of Greek and Latin derivational morphology and word roots, which contribute to vocabulary expansion in academic content areas. During high school, student learning outcomes for morphological processing include the ability to analyze the relational and syntactic aspects of words, constructing and reconstructing differences in meaning and in the words’ grammatical roles (e.g., conceive, conception, conceivable). In addition, MK and MA extend to the
understanding of the distributional aspects of morphology and word structure, which are evident in the production of novel morphologically complex words to fill specific semantic and syntactic roles when needed.

The role of SLPs in serving students struggling with morphological knowledge and awareness

The grade-specific morphological standards identified in the CCSS/ELA are expected learning objectives for all students, including those with Individualized Education Programs (IEPs) and those at risk for school failure for other reasons. A recent review of the CCSS/ELA standards by the American Speech-Language-Hearing Association (ASHA) challenged speech-language practitioners to foster "... the linguistic and metalinguistic foundations of curriculum learning for students with disabilities, as well as other learners who are at risk for school failure..." (ASHA, 2010, p. 1). SLPs are increasingly involved in the prevention, identification, and development of literacy for children and adolescents with communication disorders, including students with severe or multiple disabilities (ASHA, 2010) and with linguistically diverse students with speech and language problems (Brook, 2012).

Collaboration and leadership

In addition to requirements for SLPs to align annual IEP goals of students with disabilities with the objectives codified in CCSS/ELA, there are broader implications for the role of SLPs in a school setting. As previously noted, morphological development is closely related to academic achievements across the oral and written language domains. Therefore, SLPs’ knowledge of language development and the instructional practices for children with disabilities can and should be applied to create effective instructional practices in collaboration with general educators for all learners and in direct intervention with students with language disabilities with IEPs.

Direct instruction with struggling students

Two types of students within the educational setting are particularly in need of direct instruction in aspects of MK and MA in order to support academic achievement in reading and writing. They are students with language-learning disabilities (LLDs) and English language learners (ELLs). LLDs can affect varying aspects of language knowledge and skill including the development of linguistic awareness and deficits in the phonological, semantic, morphosyntactic, and pragmatic aspects of language. ELLs face different challenges, but they may benefit from explicit instruction in morphological awareness as well.

Students with language disabilities

Children with specific language impairment (SLI) are a population at risk for language learning problems in the academic setting (Bishop, 2009). One of the prominent characteristics of children with SLI is their difficulty with the morphological and syntactic aspects of language (Rice, 2003, 2007). Empirical evidence shows that children with SLI perform at the lower levels of accuracy in marking grammatical tenses (Rice, Wexler, Marquis, & Hershberger, 2000), as well as marking plurality (-s), third person singular -s, and possessives (Joanisse & Seidenberg, 1998; Leonard, Eyer, Bedore, & Grela, 1997). Difficulty with the morphological aspect of language also has been shown to extend to understanding and using derivational morphology. Children with SLI show significant difficulty in producing a derived word when asked to apply suffixes such as -er, -est, and -y, even though the target-derived word would have a transparent relationship to the base word, such as hot/hotter/hottest, sun/sunny (Marshall & van der Lely, 2007).

English Language Learners

The growing numbers of ELLs in large school districts across North America present challenges for educators and SLPs alike. The National Center for Educational Statistics reported that more than 5.3 million ELLs were
enrolled in public schools (pre-K through Grade 12), based on state-reported data, for the 2009–2010 school year. This number constitutes approximately 10.8% of total public school student enrollment. California enrolls the largest number of students who have limited English proficiency (LEP), with 1,512,122 students, followed by Texas (713,218 of LEP students), Florida (257,776), New York (229,260), and Illinois (208,839).

Acquiring knowledge and awareness of English morphology and how morphology functions in English word structure may pose significant challenges to ELLs in the classroom (August & Shanahan, 2006; Ramirez, Chen, Geva, & Kieffer, 2010). Children and adolescents within the school setting vary significantly in their knowledge and use of English. The CCSS application for ELLs acknowledges the range of ethnic backgrounds and English language proficiency that students may bring to the classroom setting.

SLPs in school settings possess the necessary background knowledge and skill to teach morphology to children who are struggling with this aspect of language. ELLs frequently encounter difficulty acquiring the nuanced knowledge and awareness of English word structure, similar to children with SLI (Paradis, 2005).

The CCSS/ELA application for ELLs acknowledges that classroom teachers need access to a number of factors to help ELLs to become proficient and literate in English. Five key components are: (a) well-prepared teachers and support personnel qualified to support ELLs in the classroom; (b) literacy-rich environments in which ELL students can be immersed in a variety of language experiences; (c) instruction in foundational skills in English, so that ELLs can participate in grade-level coursework; (d) opportunities for classroom discourse and interaction designed to help ELLs to develop communicative strengths in English language arts; and (e) ongoing assessment and feedback to guide learning.

These five components relate directly to the role of SLPs as collaborators with classroom teachers to offer their knowledge and expertise in language assessment, language development, language processing, and the meta-analysis of word structure. This collaboration might assist ELLs in achieving CCSS/ELA standards and in acquiring English language proficiency across the domains of speaking, listening, reading, and writing (Blosser et al., 2012; Siegal, 2008; Townsend & Collins, 2009).

Guidelines for SLPs in promoting morphological awareness to meet CCSS/ELA morphology standards

SLPs are increasingly involved in the prevention, identification, and development of literacy for children and adolescents with communication disorders, including students with severe or multiple disabilities (ASHA, 2001). Indeed, the Scope of Practice in Speech-Language Pathology includes literacy assessment and intervention for children and adolescents as part of the practice of the profession of speech-language pathology (ASHA, 2007).

Prevention

It is too late to wait until grades 11 to 12, however, to begin to focus on conscious, strategic approaches to discipline-specific vocabulary. With the end goal of this standard in mind, SLPs should be working with teachers to monitor the development of MK and MA, beginning in grade one and progressing systematically across the grades. This includes direct attention to morphological and vocabulary learning for children on SLPs’ caseloads, as well as consultation for children with language-learning risks, such as those receiving response-to-intervention services and English language learning services. SLPs also should be alert to monitoring these children’s reading, spelling, and pronunciation and use of morphologically complex words, especially words with grammatical affixes in the early grades and words with derivational morphemes from
grade three on. The roles and responsibilities of SLPs also include preventative services involving consulting with teachers in instructional practices (ASHA, 2001), so all students can become more aware of word structure components.

Identification: Informal and formal methods

The identification of children struggling with MK and MA can be achieved through informal measures in the classroom, including observing students as they read and speak, collecting samples of students’ written work, and dynamic assessment. Dynamic assessment is a type of evaluation that links assessment and intervention (Lidz & Pena, 1996). In a classroom setting, dynamic assessment may take the form of a pretest-teach-posttest format in which a group of students are screened on their knowledge and use of morphology, taught a specific lesson and application, and then posttested to evaluate learning (Lidz & Pena, 1996). Intervention-as-assessment in dynamic assessment provides immediate information to the classroom teacher and SLP about students who may be struggling in understanding and using morphology in word structure for either grammatical or derivational forms. Students who struggle to learn such elements when taught directly may be referred for upper tiers of response-to-intervention activities or to the SLP as needing more intensive assessment.

If students continue to struggle, or if they are suspected of having language impairment, it may be appropriate to conduct comprehensive formal assessment. Such assessment should include assessment of MK through norm-referenced standardized language measures. A review of four norm-referenced language measures, typically used by SLPs in school settings that tap MK is available as Supplemental Digital Content at http://links.lww.com/TLD/A13. They are the Test of Language Development-Primary, 4th Edition (TOLD-P:4) (Newcomer & Hammill, 2008); the Test of Language Development-Intermediate, 4th Edition (TOLD-I:4) (Hammill & Newcomer, 2008); the Clinical Evaluation of Language Fundamentals, 4th Edition (CELF-4) (Semel, Wiig, & Secord, 2003); and the Process Assessment of the Learner: Diagnostic Assessment for Reading and Writing (PAL-II) (Berninger, 2007).

Intervention: Grade-specific suggestions for morphological knowledge and awareness

Grades one through three

Table 2 summarizes suggestions for promoting MK and MA from Grade one through Grade 12. Grammatical affix endings are the focus of standards in the early grades. In grades one and two, children should be made aware of the explicit use of grammatical endings in both spoken and written language. Grammatical endings are expected to be consistently used in the oral language of children at this age, but should also be marked while reading and writing. SLPs should help teachers understand dialectal influences on inflectional morphology, and work with them to guide students to become aware of the demands of acquiring dialect shifting capabilities if children’s home languages allow dialectal variants that are different from Standard English. This includes expectations that, by Grade two, children should be including grammatical affixes in their writing and word spelling, as they acquire awareness of early orthographic spelling pattern changes when adding a grammatical ending, such as changing the -y to -i in cry/cries. The grade-specific goal is for all grammatical morphemes marking tense and number to be understood and used in reading and spelling by the end of second grade. This objective can be difficult to meet by students with language impairment and language differences. SLPs can build these targets into other IEP goals. Children in Grade two are also acquiring relational knowledge about word structure by identifying the similarities in the orthographic spelling of a root word and affixed word (e.g., looks/looking) and discussing the shared meaning between the meaningful word parts. If SLPs are
supporting classroom-based writing approaches, they can work with students with special needs framing cues about how to spell words containing early appearing and transparent suffixes, such as adding -ness to spell happiness.

In Grade three, words with common prefixes and suffixes can be compared and contrasted to existing knowledge about words containing grammatical inflectional morphology. The relational and syntactic properties of each morpheme type can be explicitly addressed based on grade-appropriate reading material. Collaborating with teachers, SLPs can use curriculum materials to make students aware of words that share the same root base, reinforcing the relational knowledge between and among words, and helping students to consider how derived words influence meaning in larger curricular contexts. At the same time, while engaging in reading or writing activities, teachers and SLPs can make students aware that familiar word combinations can be applied to create new meaning via the compounding process. This could involve creating compounds and then discussing the meaning of the new words. Third grade activities also can focus on mastering inflectional morphology in oral and written form to help students understand the morphology type and its semantic/syntactic properties. An example would be explicitly teaching the use of affixes, such as -ed or -ing, to denote verb tenses, or -s to mark plurality, reinforcing the integrated semantic-syntactic aspects of inflectional morphology.

By Grade three, early developing derivational morphemes, both prefixes and suffixes, used in transparent-derived words should be identified in grade reading material. The root words can be used to teach new meaning using affixes, for example, able–disable, or change the part of speech, for example, teach–teacher. Students should be engaged in discussing the relational meaning between root words and derived forms, and the grammatical function (e.g., Is it a verb/action word? a noun/object or person? a feeling or description? a comparison?).

**Grades four through six**

Starting with Grade four, the standards target explicit instruction in the meaning of grade-specific Greek and Latin derivational affixes, based on the content of the grade-appropriate math and science textbooks and ELA reading materials. SLPs should reinforce the relational and syntactic aspects of derivational morphemes by asking students to apply metalinguistic skills to the analysis of derivational morphology type and meaning. Teachers and SLPs might ask students to provide a definition of the word and focus on a description of the derivational affix in order to make explicit the syntactic function and relational meaning of this morphology type, as well as reinforcing relational knowledge among words by identifying morphological patterns/rules (Katz & Carlisle, 2009). Students should be provided continuous opportunities to relate MK while reading and spelling.

For students with special needs, including children with speech-language impairment as well as ELLs and students developing dialect-shifting capabilities, the focus should be on increasing the depth and breadth of knowledge about words already in the students’ lexicon. Research has shown that this type of vocabulary expansion can promote the understanding of morphological relationships while increasing the size of vocabulary (Anderson & Freebody, 1981; Kieffer & Lesaux, 2008).

**Middle school through high school**

In the upper grades, the curriculum includes continued introduction of grade-specific Greek and Latin derivational affixes in discipline-specific academic reading materials and within academic classroom discourse (Ehrin, Murza, & Malani, 2012; Fang, 2012). With this in mind, SLPs should provide explicit instruction and scaffolding of discussions about the syntactic and relational meaning of the morphemes encountered, the semantic network of words related through
shared morphological roots and shared derivational morphemes of Greek and Latin origin.

Distributional knowledge about Greek and Latin word structure can be introduced with brainstorming activities for students to produce new words containing Greek or Latin forms being learned (Henry, 2010). Table 2 summarizes suggestion for promoting MK and MA during the later grades.

SUMMARY

The purpose of this paper was to identify specific standards that emphasized explicit MK and MA within the CCSS/ELA, and to discuss the importance of MK and MA as it applies to language learning and literacy. The CCSS/ELA place an emphasis on the important role of morphological awareness in word reading, reading comprehension, spelling, and vocabulary knowledge and language use, both oral and written. A primary objective of the CCSS/ELA is to prepare all students, including those with language impairment and ELLs, to be career and college ready when they graduate from high school.

The development of English language MK and MA by children and adolescents is a promising area of language development and instruction, designed for all students struggling with acquiring these specific standards. The potential benefits and long-term outcome of proficiency in understanding and applying knowledge about English morphology are many. Morphological awareness of the structure of words has been shown to promote reading ability (Carlisle, 1995, 2000; Carlisle & Stone, 2005; Singson et al., 2000), vocabulary development (Carlisle & Fleming, 2003; Nagy & Anderson, 1984; White et al., 1989), and reading comprehension (Keiffer & Lesaux, 2007, 2008, 2010). Promoting morphological awareness among students with language impairment and ELLs as part of the CCSS/ELA is a new and important area for school-based SLPs with opportunities for collaboration with classroom and ELL teachers to provide developmentally appropriate instruction in this area of language processing and a potential focus of direct instruction by SLPs for speech-language students with IEPs and for those struggling with achieving in the classroom (ASHA, 2001).

REFERENCES


