

What and When Should Children Be Taught about the Links Between Morphemes and Spelling?

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Recent research has demonstrated that children's knowledge of the structural rules of English has become essential in learning to read and write. More specifically, it has been argued that children's knowledge of morphemes contributes to their spelling development. However, there are still several unanswered questions, for example, whether children understand the connections between morphemes and spelling at a specific point in their development or whether classroom teachers should choose a particular strategy to help their students understand the role of morphemes in spelling development. Concerning the pedagogical benefits of teaching children morphemes, we argue that it is critical to answer the following question, 'when should children be taught and what should they be taught about the links between morphemes and spelling?' After a brief review of the role of morphemes in spelling development, we will explore research on children's awareness of morphemes and attempt to answer the question addressed.

I . INTRODUCTION

In a morphophonemic writing system like English, the spelling of words is determined by phonology and morphology. That is, "the English writing system represents both phonemic and morphological information" (Treiman, Cassar, & Zukowski, 1994, p. 1318). "Morphemes are the smallest units of meaning in a language... and they are divided into two categories" (Bryant & Nunes, 2006, pp. 4–7). Free morphemes can stand alone including the root which is the basic part of the word after removing all derivational and

inflectional affixes (e.g., 'sing' from 'singer') and the stem which is the part of the word after removing all inflectional affixes (e.g., 'singer' from 'singers'). Bound morphemes cannot stand alone including prefixes (e.g., 'un-' in 'unkind') and suffixes which are divided into 'inflection' which conveys the grammatical function of the word (e.g., '-s' in 'ducks') and 'derivation' which changes the category of word class (e.g., '-ive' in 'active'). Morphemes provide rich information as regards understanding particular letter sequences in spelling.

Despite the commonly held view that the English spelling system is capricious and often illogical, it can become predictable when children are made aware of the spelling of the morphemes being constant. In other words, when children become familiar with the meaningful units (morphemes), it will be much easier for them to expand their grasp of word structure. For instance, the root morpheme, 'music' conserves its spelling in the following words, 'musical' and 'musician'. Although the two derived words are pronounced differently, the same spelling in those words provides important information about the meaning of the derived words and the clue to spelling them. It may be true, however, that all the spellings of words cannot be predicted from phonology. For example, the morphological structure of the following words, 'fifth' (five) and 'length' (long) is not phonologically transparent compared to the words, 'sixth' (six) and 'quickly' (quick). Nevertheless, children's awareness of morphemes seems to become a predictor of spelling development as a result of their ability to understand morphemes and the process of word formation. This paper discusses the educational benefits of teaching morphemes to promote spelling development.

II. MORPHOLOGICAL KNOWLEDGE OF SPELLING RULES

Although there has been a wealth of research on the important role of phonological awareness in learning to spell and read, there is a growing body of research providing evidence to support the idea that knowledge of morphemes can help children learn to spell (Nunes & Bryant, 2009), because "The use of morphological knowledge could be useful, perhaps indispensable, in achieving correct spelling of a host of words" (Pacton & Deacon, 2008, p.

340). In other words, children can take advantage of learning new words when they understand morphemic spelling rules beyond grapheme–phoneme correspondences. For example, if children know the word, 'instruct' and understand how the derivational suffix, '-or' changes a verb into an agentive noun, they can guess the meaning of the derived word, 'instructor' even though they are unfamiliar with the novel word. In addition, children can benefit from morphological awareness in terms of improving their spelling ability. This is possible when they encounter entirely new words and learn them by analyzing the words into their separate morphemes as well as by guessing the meaning. According to Carlisle (1988, p. 252), there are four types of morphological or phonological changes: 1) no change (e.g., 'enjoy' to 'enjoyment'); 2) orthographic change (e.g., 'sun' to 'sunny'); 3) phonological change (e.g., 'magic' to 'magician'); and 4) both orthographic and phonological change (e.g., 'deep' to 'depth'). Bryant and Nunes (2004) also address four situations in which children need to have knowledge of morphological spelling rules:

- 1) the ending sounds of words are the same but their spellings differ for morphological reasons ('-ion' in 'education' and '-ian' in 'magician')
- 2) the pronunciation of words is changed, but the spelling of the base form remains ('heal' in 'health')
- 3) the fixed spelling of an affix flouts letter–sound correspondences ('bird' and '-ed' in 'signed', 'muse' and '-s' in 'dogs')
- 4) the importance of word identification ('uni' in 'universal' and 'un-' in 'unbelievable'). (p. 91)

In this sense, children's knowledge of the morphological spelling rules seems important to spell accurately and understand the meaning of words. Hence, there seems to be a practical need for teachers to give their students explicit instruction about the rules (Nunes & Bryant, 2006; Nunes, Bryant, & Olsson, 2003).

III. TEACHING MORPHOLOGICAL SPELLING RULES

As regards the significance of understanding the structural rules of words, one important question emerges which is when is it appropriate for children to learn the rules, because English-speaking children are not usually taught conventional spellings for morphemes until late primary school when they have already gone beyond one-to-one mapping between graphemes and phonemes (Kemp, 2006; Nunes, Bryant, & Bindman, 1997a, 1997b). This results from different views on the issue between researchers who have argued that children are able to use morphological knowledge at the final phase of spelling development and researchers who have indicated that children can use morphological knowledge from a young age.

In a study testing 9-, 11-, and 13-year-old children's spelling of roots and their derived forms with or without phonological changes, for example, Carlisle (1988) found that the children were more likely to spell the transparent derived words correctly (e.g., 'warmth' - 'warm') than the opaque derived words (e.g., 'health' - 'heal'). According to the findings, the use of morphological similarities is regarded as the clue to correct spelling and the consistency in spelling roots as evidence to reveal the children's awareness of morphological spelling rules. However, Carlisle (1988) also pointed out that it was much more difficult for the youngest children to understand the connections between morphemes and the spelling of phonologically complex derived words than the older children. In contrast, Treiman, Cassar and Zukowski (1994) confirmed that even young children can use their morphological knowledge when spelling derived words which have been phonologically changed slightly. When 5- to 8-year-old children in America were asked to spell one- and two-morpheme words with a medial 't' and 'd' to flap /r/, the children at all age groups were more likely to spell the medial flap of the two-morpheme words (e.g., 'dirty' from 'dirt') than of the one-morpheme words (e.g., 'duty'). This study provides an example to show that young children can appreciate the links between root morphemes and spelling. Deacon and Bryant (2005) also provide evidence to show early spelling development as a result of the appreciation of the connection between morphemes and spelling. In the study, 7- to 9-year-old

children understood the transparent and opaque derived words in relation to the morphemic basis of the roots (e.g., 'objection' - 'object'). The children seemed to know that morphemes affected spelling regardless of phonological changes in the sound of root morphemes.

In particular, the past tense morpheme in English has been extensively investigated as an example of rule-based learning. In a three-year longitudinal study of 7- to 9-year-old children, for example, Nunes et al. (1997a) tested the spelling of regular verbs using the past tense suffix '-ed', irregular verbs and non-verbs with phonetically similar endings, /d/ or /t/. Based on the spelling development of the regular past tense inflection, Nunes et al. (1997a, pp. 641-642) proposed a five-stage model. In the first stage, the children used the '-ed' ending in an unsystematic way and this is followed by phonetic spellings without understanding the grammatical functions of the /d/ and /t/ verb suffixes in the second stage (e.g., 'kist', 'slept', 'soft'). In the third stage, children extended the use of the '-ed' ending to irregular verbs and non-verbs (e.g., 'sleped', 'softed'). In the fourth stage, the '-ed' ending was used in either regular or irregular verbs (e.g., 'kissed', 'sleped'). In the final stage, children finally applied the '-ed' ending to only regular past tense verbs with understanding of its exceptional use (e.g., 'kissed', 'slept', 'soft'). Although the youngest children were confused when they had to add the conventional '-ed' ending to regular verbs, Nunes et al. (1997a) confirmed that children can learn this kind of specific morphological spelling rule when they are given the opportunity to try out new spelling. In another series of experiments, Nunes et al. (1997b) examined whether 8- to 11-year-old children acquired the knowledge of morphological inflection, '-ed' regarding the distinctions between regular and irregular past tense verbs. The results showed that the children learned when to spell the regular past tense inflection. Even when the children were given pseudo-words, for example, they applied the same processes to spelling regular pseudo-verbs as used in the spelling of regular real verbs (e.g., 'crell' - 'crelled' analogy to 'yell' - 'yelled'). These findings add to the growing body of evidence that children can learn and use this specific methodological spelling rule and therefore, that there is an educational need for teaching a set of morphological rules to improve children's spelling ability.

Based on the above research evidence, there seems no reasonable doubt as to the educational benefits of teaching morphological principles with a view to enhancing children's spelling ability from a young age. Although young school children may use sophisticated strategies in spelling when they come to understand the grammatical functions of morphemes, it has been addressed that they need to develop word specific knowledge by becoming familiar with the spelling of specific words, because very young children may rely more on word frequency rather than morphological spelling rules.

IV. USING FREQUENCY-BASED KNOWLEDGE

As shown in intervention studies (Nunes & Bryant, 2006; Nunes et al., 2003), there has been a growing interest in implicit or explicit instruction about the links between morphemes and spelling at school. However, much attention has also been paid to the idea that children learn how to spell words correctly from familiarity with the patterns by themselves (Chliounaki & Bryant, 2007). To some extent, it can be more important to develop children's spelling skills, regardless of whether children use morphologically-based spelling rules or frequency-based knowledge in learning to spell specific words. Nevertheless, it seems useful to review research on the latter perspective so as to provide information about when and what children should be taught about the connections between morphemes and spelling.

As mentioned earlier, Carlisle (1988) stated that it would be helpful for children to learn the word-specific patterns which may play an important role in the learning of morphological inflection, whereas it was also noted that children may have difficulties in recognizing the spelling of phonologically complex derived words (e.g., 'heal' - 'health'). Although it will be much easier for children to predict the structure of entirely new words while they are becoming aware of spelling patterns (Westwood, 2008), the problem is that it does take a considerable amount of time to appreciate the connections between morphemes and spelling, particularly, without explicit instruction (Nunes & Bryant, 2009). In a study of 6- to 9- year-old children involving spelling real words and pseudo-words, Kemp and Bryant (2003) examined

the regular plural suffix, '-s', regardless of whether this letter is pronounced /s/ as in 'cats' or /z/ as in 'dogs'. In the study, the children put /s/ at the end of the word, 'bees' but /z/ at the end of the word, 'jazz', because they knew that the /z/ ending is not placed at the end of a consonant. In addition, the children spelled inflectional endings correctly more often in real words than in pseudo-words even when they were given a clear context indicating that some pseudo-words were plural nouns. For example, the children knew how to spell the ending of the word, 'trees' better than the ending of the word, 'prees', although it was clear that the pseudo-word was a plural noun in the given sentence. The reason was assumed to be that the children had seen the word, 'trees' in print before, but not the word, 'prees' because the latter does not exist in the real world. The results of this study indicated that most children found it easier to spell inflectional endings in real words than in pseudo-words. In this sense, the study provides evidence to support that children at the early stages learn how to spell on the basis of their familiarity with unknown words rather than through morphological spelling rules. In other words, it might be much easier for children to spell on the basis of their familiarity with words, because "early sensitivity to orthographic frequency patterns could be an important part of learning about written language" (Kemp & Bryant, 2003, p. 273).

In a two-year longitudinal study of 6-year-old Greek children, Chliounaki and Bryant (2007) tested the hypothesis whether children's word-specific learning is essential to understand morphological rules for inflectional spelling, '-s'. The children were asked to spell the inflectional spellings of real words and pseudo-words. Although the children showed rapid progress in learning the morphemic spelling rules, they were always better at spelling inflection in real words than in pseudo-words. For example, the children spelled three vowels correctly more often in real words than in pseudo-words. In a similar stance to that Kemp and Bryant (2003), this study concluded that "Our claim, that word-specific learning comes first, and that it prompts the formation of morphological rules, could with some reasonable adjustments become part of existing theories of the development of reading and spelling" (Chliounaki & Bryant, 2007, p. 1370). In two studies working with children in the age range of 5 to 9 and 7 to 9 respectively,

Kemp (2006) reported that children have the ability to represent morphological information in spelling. In a recent study examining whether 5-year-old children could benefit from morphological spelling strategies, however, Larkin and Snowling (2008) provided little evidence that young children have the ability to deal with a morphemic process when they were asked to spell two-morpheme words using the past tense suffix, '-ed'. Without clear support for such a young age group at school, Larkin and Snowling (2008) argued that teachers should focus more on mappings between graphemes and phonemes rather than on wider language skills including morphology.

What is interesting to recognize in these studies is that morphological awareness may not be directly related to age, but rather to the ability to understand morphological spelling rules. As Chliounaki and Bryant (2007) noted, frequency-based knowledge may be prior to morphological knowledge regarding young children's learning difficulties in morphological spelling patterns, but it seems helpful for young school children to receive an appropriate level of instruction about morphemic spelling rules from an early stage at school.

V. CONCLUSION

We have discussed the educational benefits of teaching morphemes to promote spelling development. As shown in research evidence, children's knowledge of morphemes can play a crucial role in improving their spelling skills from relatively early years of school, although they may not use morphemes in spelling until quite late in school or be sensitive to the role of morphemes in spelling, but not rely on the rules. When considering the following question, "Should we give them explicit instruction about morphological spelling rules, or should we make sure that they are given the right kind of practice to build up a sufficient stock of implicit knowledge about these rules?" (Bryant & Nunes, 2006, p. 613), there seems to be a practical need for children to understand the links between morphemes and spelling from a young age, even though they may simply rely on word-specific knowledge by becoming familiar with the spelling of specific

words, due to the limitation of decoding words on the basis of grapheme–phoneme correspondence. Regarding the length of learning morphological spelling patterns, it seems clear that school children need to receive an appropriate level of instruction about morphemes at early school age. However, what is most important to remember is that children themselves need to explore a number of morphological spelling rules on their own to become competent spellers.

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Examples in: English

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