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Accounting for children's orthographic learning while reading text: Do children self-teach?

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Abstract

Share's "self-teaching" model proposes that readers acquire most knowledge about the orthographic structure of words incidentally while reading independently. In the current study, the self-teaching hypothesis was tested by simulating everyday reading through the use of real words, analyzing the effects of context, and considering the independent contributions of general cognitive ability, including rapid naming ability and prior orthographic knowledge. A total of 35 first graders read short story passages in English embedded with target words representative of words likely to be known orally but not orthographically. Words were manipulated for target word spelling and contextual support. According to the self-teaching model, words correctly decoded during reading should be correlated with subsequent orthographic learning. The results of this study confirmed this prediction. Self-teaching was evidenced through significantly higher proportions of correctly identified target words across context conditions. Regression analyses showed that individual differences were related to prior orthographic knowledge and predicted students' degree and quality of orthographic learning after controlling for general decoding ability.
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Introduction

The ability to identify words quickly and efficiently is a central milestone in reading development (Adams, 1990; Gough, 1984), robustly determining a significant proportion of individual differences in reading performance (Juel, Griffith, & Gough, 1986; Stanovich, 2000). Although there is general agreement that rapid word recognition is an essential skill, researchers have yet to reach a consensus regarding the process by which word recognition develops (Rayner, Foorman, Perfetti, Pesetsky, & Seidenberg, 2001; Stanovich, 2000). For example, most current models suggest that word identification relies on the processing of information about the word's phonological structure (Shankweiler et al., 1999) as well as the word's orthographic structure (Foorman, Francis, Fletcher, & Lynn, 1996). Although phonological awareness is essential for word identification, the type of fluency necessary for skilled reading also requires knowledge of word-specific orthographic representations that are linked to phonological, semantic, morphological, and syntactic information. As Share (1995) stated,

> Decoding skill, however, is no guarantee of self-teaching; it only provides opportunities for self-teaching. Other factors such as the quantity and quality of exposure to print together with the ability and/or inclination to attend to and remember orthographic detail will determine the extent to which these opportunities are exploited (pp. 168–169).

To identify unfamiliar words accurately, a reader must rely on his or her knowledge of the mappings between letters and the spoken sounds they represent. But familiar words that are processed automatically, based on their orthographic representations, are retrieved more rapidly than words that require letter-by-letter phonological decoding (LaBerge & Samuels, 1974; Perfetti, 1991). The development of orthographic processing skill must be somewhat dependent on phonological processing abilities, yet the "critical question for research is whether the development of the orthographic lexicon is entirely parasitic on the operation of phonological processes" (Share & Stanovich, 1995, p. 12).

Reitsma (1983a, 1983b) found that disabled Grade 3 readers who were matched on reading level with nondisabled Grade 1 readers did not do better on recognizing standard spellings from a matched set of homophonic spellings. The nondisabled Grade 1 readers required only four trials of practice to improve their performance on the standard spellings, whereas the disabled Grade 3 readers did not perform better on the standard spellings even after six trials of practice. Reitsma (1983a) concluded that "facility in decoding does not automatically predict the capability of learning to recognize the unique letter sequence of words" (p. 335). Such learning requires recognition of words' orthographic representations.

The self-teaching hypothesis

It has been argued that the vast majority of knowledge about the orthographic structure of words occurs incidentally while reading (for a review of this literature, see Share, 1995). In other words, information about letter string patterns and the specific orthography of words is largely self-taught. According to the self-teaching hypothesis (Share, 1995), the translation of a printed letter string into its spoken form (i.e., phonological recoding) is a