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Underlying skills of oral and silent reading



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ABSTRACT

Many studies have examined reading and reading development. The majority of these studies, however, focused on oral reading rather than on the more dominant silent reading mode. Similarly, it is common practice to assess oral reading abilities rather than silent reading abilities in schools and in diagnosis of reading impairments. More important, insights gained through examinations of oral reading tend to be generalized to silent reading. In the current study, we examined whether such generalizations are justified. We directly compared oral and silent reading fluency by examining whether these reading modes relate to the same underlying skills. In total, 132 fourth graders read words, sentences, and text orally, and 123 classmates read the same material silently. As underlying skills, we considered phonological awareness, rapid naming, and visual attention span. All skills correlated significantly with both reading modes. Phonological awareness contributed equally to oral and silent reading. Rapid naming, however, correlated more strongly with oral reading than with silent reading. Visual attention span correlated equally strongly with both reading modes but showed a significant unique contribution only to silent reading. In short, we showed that oral and silent reading indeed are fairly similar reading modes, based on the relations with reading-related cognitive skills. However, we also found differences that warrant caution in generalizing findings across reading modes.

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Introduction

Learning to read is an important but complex process. Therefore, it is not surprising that many studies have examined reading and reading development. It is surprising, however, that the majority of these studies focused on oral reading rather than on silent reading, which is actually the primary reading mode for proficient readers. In schools, the focus shifts rapidly from initial instruction in oral decoding toward independent silent reading. That same shift, however, is not seen in the assessment of reading abilities—not in research, where there has been a focus on oral reading at the expense of silent reading (see [Share, 2008](#)) in, for example, models of the reading process, studies of reading development, and studies of skills underlying reading, nor in practice, for example, in diagnosing dyslexia, a basic deficit in learning to decode print (e.g., [Vellutino, Fletcher, Snowling, & Scanlon, 2004](#)). Although definitions of dyslexia do not specify in which reading mode the difficulties with accurate and/or fluent word recognition occur (e.g., [American Psychiatric Association, 1994](#); [Blomert, 2006](#); [British Dyslexia Association, 1998](#); [Lyon, Shaywitz, & Shaywitz, 2003](#)), it is common practice to assess oral reading rather than silent reading. More important, insights gained through research on, or assessment of, oral reading are tacitly generalized to silent reading. It is unclear, however, whether the production of overt oral responses in reading aloud is fully comparable to silent reading. In the current study, we compared oral and silent reading fluency through the relations of both reading modes with underlying cognitive skills.

Research on oral reading has shown that several cognitive skills are important in reading development. It is generally accepted that phonological awareness is one of the strongest predictors of oral reading performance, although there is no agreement yet on whether this relation is predominantly causal (e.g., [Vellutino et al., 2004](#)), or reciprocal (e.g., [Castles & Coltheart, 2004](#); [Elbro, 1996](#)). Phonological awareness reflects sensitivity to the phonological structure of words and the ability to identify and manipulate phonemes in spoken language. Various tasks have been used to assess this skill, but all tasks mainly tap the ability to shift attention from the meanings of words to the phonological forms of words.

Rapid naming is a second important predictor that has been shown to be related to oral reading fluency in many languages, both concurrent and longitudinally, independent from phonological awareness (e.g., [de Jong & van der Leij, 1999](#); [Georgiou, Parrila, & Papadopoulos, 2008](#); [Landerl & Wimmer, 2008](#); [Lervåg, Bråten, & Hulme, 2009](#); [Torgesen, Wagner, Rashotte, Burgess, & Hecht, 1997](#); [Vaessen et al., 2010](#); [Ziegler et al., 2010](#)). In more transparent orthographies, rapid naming has even emerged as the strongest predictor of reading fluency (e.g., [Landerl & Wimmer, 2008](#); [Vaessen & Blomert, 2010](#)). Rapid naming reflects the ability to quickly name a set of highly familiar stimuli, typically measured as the naming speed of objects, colors, letters, or digits. It has been shown that these four tasks typically load on two factors, alphanumeric (letters and digits) and non-alphanumeric (colors and pictures) symbol naming, of which alphanumeric naming is the stronger correlate of reading performance ([van den Bos, Zijlstra, & Van den Broeck, 2003](#)).

More recently, studies have examined the role of more visual skills rather than phonological skills in reading development. It has been shown that the visual attention span contributes to word reading speed and accuracy independent from phonological processing skills (e.g., [Bosse & Valdois, 2009](#); [Valdois, Bosse, & Tainturier, 2004](#); [van den Boer, de Jong, & Haentjens-van Meeteren, 2013](#)). Visual attention span, typically measured as the ability to report back briefly presented letter strings (e.g., R H S D M), reflects the number of orthographic units (e.g., letters, letter clusters, syllables) that can be processed in a glance. Simultaneous processing of orthographic units is assumed to foster reading speed because it allows a word to be processed as a whole or in parallel, whereas a word needs to be processed serially if only a limited number of orthographic units can be processed within a glance ([Valdois et al., 2004](#)).

Despite strong evidence of the relation of phonological awareness, rapid naming, and visual attention span with oral reading, very little is known about how these cognitive skills relate to silent reading. Only one study has focused specifically on predictors of silent reading fluency. [Bar-Kochva \(2013\)](#) studied reading development in Hebrew from kindergarten to Grade 2. Phonological awareness was a significant predictor. Other important predictors were rapid naming, phonological working memory,

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