

At what grades should we assess phonological awareness?

Hugh W. Catts Tiffany P. Hogan
University of Kansas



Background

Research has documented a strong relationship between phonological awareness and printed word recognition (Wagner et al., 1999). This work has had a significant impact on the early identification and intervention of language-based reading disabilities, especially for the field of speech-language pathology (Catts & Kamhi, 1999; Nelson et al., 2000). SLPs have begun to evaluate phonological awareness abilities in an attempt to identify and treat word-reading problems.

While assessment of phonological awareness is becoming commonplace, it is unclear at what grades such an assessment has the most clinical utility. Research suggests that measures of phonological awareness administered during preschool or kindergarten uniquely predict later word recognition abilities (Torgesen et al., 1994). However, this may not be the case when these measures are administered during the later grades.

Once formal reading instruction is underway, the relationship between phonological awareness and reading becomes more reciprocal (Morais, 1991). Learning to decode words highlights the sound structure of language, and thus, facilitates children's performance on tests of phonological awareness (Lundberg & Høien, 1991). As a result, children with better phonetic decoding skills (i.e., ability to sound out words – typically measured by nonword reading) have better phonological awareness and vice versa. Given this relationship, the measurement of phonological awareness in later grades may have less clinical utility.

Goal of Study

This study examined the contribution of phonological awareness and phonetic decoding to individual differences in word recognition abilities in the early school grades. We predicted that a measure of phonological awareness in kindergarten would account for a large and significant amount of variance in 2nd grade word recognition beyond that explained by a kindergarten estimate of phonetic decoding. Conversely, we hypothesized that phonological awareness in 2nd/4th grades would not account for significant variance in 2nd/4th grade word recognition abilities once 2nd/4th grade phonetic decoding skills were taken into consideration.

Method

Participants: 570 children participated in this study. These children were a subsample of those who took part in an epidemiologic study of language impairments in children (Tomblin, 1995). Although our sample was not completely representative of the larger epidemiologic sample, weighted scores were used in all analyses to assure that our results were representative.

Procedure: In kindergarten and in 2nd and 4th grades, we administered the measures shown below.

Grades	Measures
K, 2 nd , 4 th	Phonological Awareness
	<i>Deletion task</i> Deletion of the initial syllable or phoneme of a word. Adaptation of the Rosner Auditory Analysis Test (Rosner & Simon, 1971)
K	Phonetic Decoding
	<i>Letter Identification – (WRMT-R*)</i> Naming of letters printed in varying fonts; served as an early estimate of phonetic decoding
2 nd , 4 th	<i>Word Attack – (WRMT-R)</i> Oral reading of nonwords increasing in complexity
	Word Recognition
2 nd , 4 th	<i>Word Identification – (WRMT-R)</i> Oral reading of real words decreasing in frequency of occurrence

*Woodcock Reading Mastery Tests - Revised

Results

Kindergarten phonological awareness accounted for 10.7% unique variance in 2nd grade word recognition (Table 1, blue panel). However, phonological awareness in 2nd grade explained only a small amount of variance (1%) in 2nd grade word recognition beyond that accounted for by phonetic decoding. Likewise, 2nd/4th grade phonological awareness explained little unique variance in 4th grade word reading.

In all instances in which phonological awareness was entered as the first variable (Table 1, green panel), phonetic decoding explained a large amount of unique variance in word recognition. The same data are presented graphically in Figure 1.

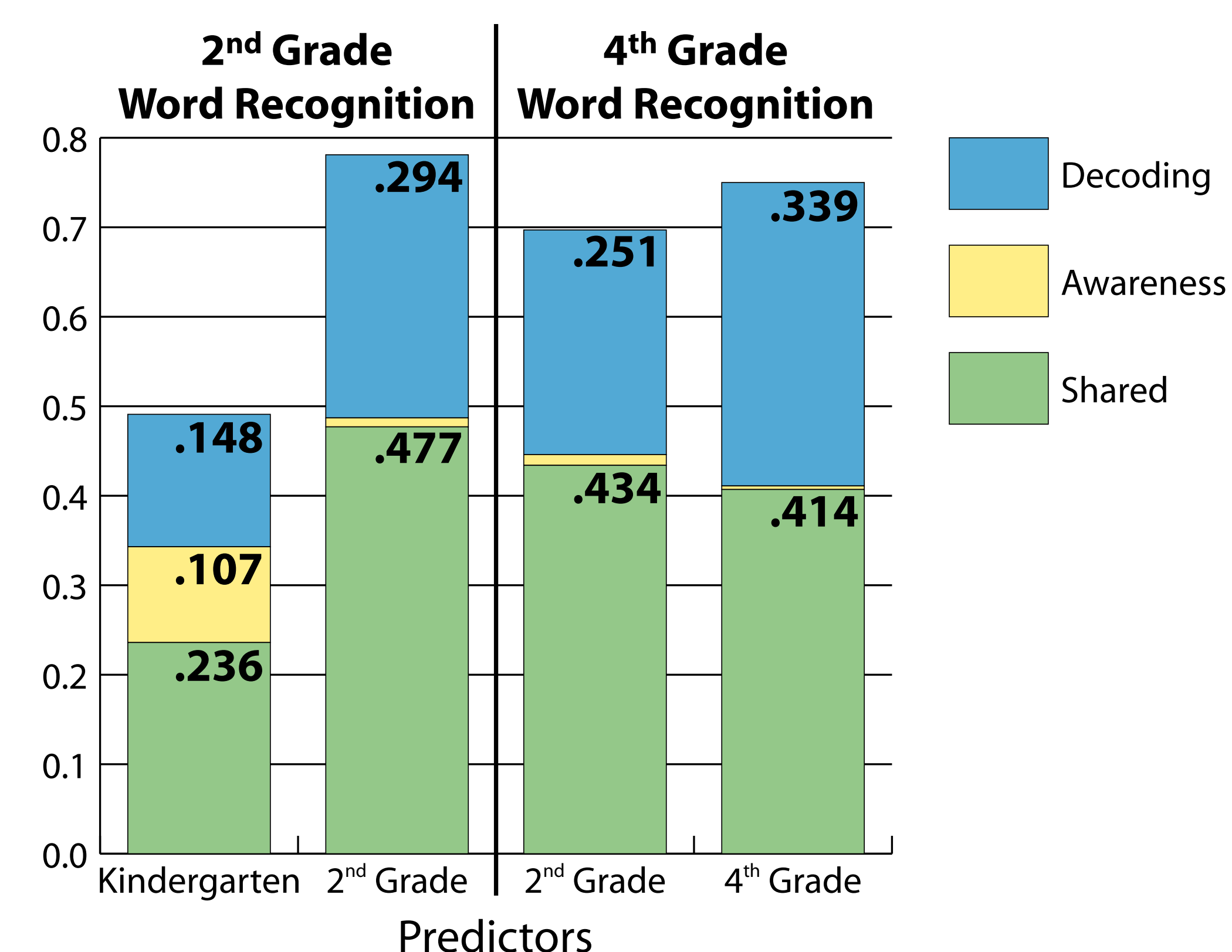
Results cont.

A comparable pattern of results was obtained when word recognition accuracy and/or speed were assessed by the Gray Oral Reading Test-3 or the Test of Word Reading Efficiency (data not shown here).

Table 1. Hierarchical multiple regression analyses of word recognition with phonological awareness entered last (blue panel) and phonetic decoding entered last (green panel).

Order of Entry	R ²	R ² change	Order of Entry	R ²	R ² change
<i>Second Grade Word Recognition</i>			<i>Second Grade Word Recognition</i>		
1. Decoding (K)	.383		1. Awareness (K)	.343	
2. Awareness (K)	.491	.107	2. Decoding (K)	.491	.148
1. Decoding (2 nd)	.770		1. Awareness (2 nd)	.487	
2. Awareness (2 nd)	.781	.010	2. Decoding (2 nd)	.781	.294
<i>Fourth Grade Word Recognition</i>			<i>Fourth Grade Word Recognition</i>		
1. Decoding (2 nd)	.685		1. Awareness (2 nd)	.446	
2. Awareness (2 nd)	.697	.012	2. Decoding (2 nd)	.697	.251
1. Decoding (4 th)	.753		1. Awareness (4 th)	.419	
2. Awareness (4 th)	.757	.004	2. Decoding (4 th)	.757	.339

Figure 1. Unique and shared variance accounted for by phonetic decoding and phonological awareness.



Conclusions

In kindergarten, measures of phonological awareness provide unique and clinically relevant information about subsequent word recognition. Thus, these measures can be useful for early identification and intervention planning.

In the primary grades, phonological awareness continues to be related to word recognition. However, by at least 2nd grade, phonological awareness becomes highly correlated with knowledge and use of sound-symbol correspondence and is difficult to measure independent of phonetic decoding. Regardless, its measurement offers little unique information, and thus, should not serve as a primary measure of word reading problems.

Conversely, a measure of phonetic decoding continues to account for a large amount of unique variance and should be the instrument of choice in word-reading assessments. Such a measure provides information about both decoding and phonological awareness abilities.

To be clear, our position is that, by 2nd grade, a formal measure of phonological awareness is not essential in the initial stages of identification/assessment of word reading problems. We acknowledge, however, that follow-up assessments of phonological awareness (most often with informal probes as opposed to a formal test) may in some cases highlight areas of particular weakness and guide intervention.

Acknowledgments

This study was supported by a grant from the National Institute of Deafness and Other Communication Disorders (1-P50-DC02726-04). The authors would like to thank Marc Fey, J. Bruce Tomblin, Xuyang Zhang, Paula Buckwalter, Marlea O'Brien, Connie Ferguson, Jodi Schwartz, Amy Kundel, and Suzanne Adlof for their valuable contributions to this investigation.

