Components of phonological awareness

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ABSTRACT: The factorial structure underlying different types of tasks within the domain of phonological awareness was examined in two studies. Large sample sizes allowed for sensitive differentiation of constructs. In the first study, 128 preschool children without any experience of formal reading instruction were tested with a battery of tasks intended to tap various aspects of phonological awareness: rhyme recognition, syllable counting, initial-phoneme matching, initial-phoneme deletion, phoneme blending, and phoneme counting. Three basic components were extracted in a principal component analysis: a phoneme factor, a syllable factor and a rhyme factor. Cross-tabulations indicated considerable dissociation between performance on phoneme, syllable, and rhyme tasks. The structural relationships were replicated on a much larger sample (n = 1509) in the second study. Subjects in this study were one year older and were attending grade 1 thus providing an opportunity to test their reading achievement. Multiple regression analyses demonstrated that the phonemic factor was by far the most potent predictor. However, the rhyming factor made an independent (although small) contribution to explaining the reading variance. Among the phonemic tasks, phoneme identification proved to be the most powerful predictor.

KEY WORDS: Factorial structure, Phonological awareness, Reading acquisition

INTRODUCTION

Language analysis abilities are some of the most reliable indicators of success in early reading acquisition. For example, a growing body of research has indicated that a variety of sound analysis tasks – often referred to as phonological awareness or phonological sensitivity measures – are strongly related to early reading acquisition (Adams 1990; Bradley & Bryant 1983; Brady & Shankweiler 1991; Bruck & Treiman 1990; Bryant et al. 1990; Goswami & Bryant 1990; Juel 1988; Lundberg, Frost & Petersen 1988, Stanovich, Cunningham & Cramer 1984; Vellutino & Scanlon 1987; Wagner 1988; Wagner & Torgesen 1987; Wagner et al. 1993; Yopp 1988). In fact, phonological abilities are stronger predictors than such important correlates as intelligence, vocabulary, and listening comprehension, and remain significant predictors of reading achievement even after such factors as intelligence and verbal ability are partialled out (Stanovich 1992; Wagner & Torgesen 1987). Importantly, deficits in phonological awareness have been identified as the critical factor underlying the severe word decoding problems displayed by reading disabled individuals (Bruck 1990, 1992; Galaburda 1988; Høien...

The term phonological awareness is used to cover the range of phonological abilities presumed to underlie efficient reading acquisition. It refers generically to the ability to abstract and manipulate segments of spoken language (Bentin 1992; Liberman 1973; Liberman et al. 1974; Mattingly 1972; Morais, Alegria & Content 1987; Morais et al. 1979; Tunmer & Hoover 1992). Investigators have used various tasks in order to tap aspects of phonological awareness: rhyming tasks, syllable and phoneme counting tasks, segmentation tasks, blending tasks, substitution tasks, and deletion tasks. Although many of these tasks have been shown to relate to reading performance, little attention has been paid to the question of processing relationships among various phonological tasks.

The various tasks that have been used as indicators of phonological awareness may, in fact, reflect one or several underlying constructs. For example, it may be that the various phonological tasks are simply differentially sensitive or differentially age-appropriate indicators of a unitary construct of phonological sensitivity. Stanovich (1992) suggests this when arguing that phonological sensitivity might be viewed as a continuum or hierarchy ranging from 'shallow' to 'deep' sensitivity. Deeper levels of phonological sensitivity are thought to require more explicit analysis of smaller-sized phonological units and shallow sensitivity a shallower form of analysis involving larger units. Thus, rhyming skills could be regarded as representing the shallow end of the phonological sensitivity continuum, phoneme segmentation the deep end of the continuum, and the syllable segmentation perhaps an intermediate level but closer to rhyme.

Alternatively, it could be the case that various phonological tasks in fact reflect different basic constructs. For example, Bentin (1992) has suggested that there are two qualitatively different forms of phonological awareness: early phonological awareness characterized by sensitivity to rhyme and syllables, and phonemic awareness characterized by sensitivity to phonemes. Similar to Bentin, other investigators have argued for the necessity of differentiating rhyme awareness from phonemic awareness (Bryant et al. 1990; Goswami & Bryant 1990).

Although researchers have speculated on the nature of the relationships for some time (see Lundberg 1978), only recently have investigators attempted to empirically address the question of the underlying structure of the phonological awareness concept. Lundberg, Frost & Petersen (1988) demonstrated with a confirmatory factor analysis the separability of a phoneme factor and a syllable factor. Using a small sample, Bryant et al. (1990) found that rhyming ability explained unique variance in word recognition after phoneme analysis