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Research in Developmental Disabilities 27 (2006) 121–137

Research
in
Developmental
Disabilities

Phonological reading skills acquisition by children with mental retardation[☆]

Frances A. Conners^{*}, Celia J. Rosenquist¹,
Allison C. Sligh, Julie A. Atwell, Tanya Kiser

Department of Psychology, The University of Alabama, Box 870348, Tuscaloosa, AL 35487-0348, USA

Received 6 August 2003; received in revised form 12 October 2004; accepted 18 November 2004

Abstract

Twenty children with mental retardation (MR), age 7–12, completed a phonological reading skills program over approximately 10 weeks. As a result of the instruction, they were better able to sound out learned and transfer words compared to a control group matched on age, IQ, nonword reading, language comprehension, and phonemic awareness. Final sounding out was predicted by beginning reading skill in both groups, by phonemic awareness and articulation speed in the control group only, and by general language ability in the instruction group only. Neither IQ nor verbal working memory correlated significantly with final sounding out ability in either group. It is suggested that the instruction succeeded in compensating for weaknesses in phonemic awareness and speech articulation, but favored those who had better language skills.

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Keywords: Phonological reading skill; Mental retardation; Language comprehension

Reading is one of the most important skills for children to learn in school. Yet it is a very difficult skill for children with mental retardation (MR). Past research suggests that children with MR can often master the earliest emerging reading skills commensurate with their developmental level; however, they show specific difficulty on later-emerging reading skills (Merrill, 1924; see Conners, 2003, for a review). For example, at a developmental level of

[☆] An earlier version of this paper was presented at the 2000 IASSID conference in Seattle.

^{*} Corresponding author. Tel.: +1 205 348 7913; fax: +1 205 348 8648.

E-mail address: fconners@bama.ua.edu (F.A. Conners).

¹ Present address: E. K. Shriver Center, University of Massachusetts Medical School, USA.

4–6 years, children with MR perform at or above their level on sight word identification, letter identification, and letter sound correspondence (Blake, Aaron, & Westbrook, 1969; Cawley & Parmar, 1995; Gickling, Hargis, & Alexander, 1981). At a developmental level of 6–8 years, children with MR perform at or below their level, with specific difficulty in phonological decoding and certain comprehension skills (Bos & Tierney, 1984; Cawley & Parmar, 1995; Jenkinson, 1992; Levitt, 1970, 1972). At a developmental level of 9 and above, children with MR perform below their level in general (Merrill, 1924; Nagle, 1993; Sheperd, 1967; Wood, Buckhalt, & Tomlin, 1988, see Conners, 2003).

Thus, one of the developmentally earliest problem areas in reading acquisition for children with MR is phonological decoding—applying grapheme–phoneme correspondences to sound out words. This difficulty may play an important role in the general reading lag that emerges later on. For example, it may result in delayed automatization of word identification and subsequent delays in development of higher level reading skills. Indeed, several decades of mainstream reading research have highlighted the importance of phonological decoding to reading development (see Snow, Burns, & Griffin, 1998). For these reasons, it is critically important to understand why children with MR have such difficulty with phonological decoding and to find ways of helping them acquire this reading skill. In the present study, we examined acquisition of phonological reading skills by children with MR in response to a brief experimental instructional program. We were interested in whether children could acquire phonological decoding skills in a short period of time, and what entry-level skills might predict individual differences in outcome.

Several behavior analytic and small sample studies have already shown that children and adolescents with MR can benefit from phonological reading instruction. Studies that emphasized sound blending, grapheme–phoneme correspondence, and sounding out showed improvements in reading trained words and/or nonwords (Bracey, Maggs, & Morath, 1975; Hoogeveen & Smeets, 1988), in reading untrained words (Hoogeveen, Smeets, & Lancioni, 1989), and in speed of reading two- to three-letter words (Nietupski, Williams, & York, 1979). Particularly important is the demonstration of improvement on untrained words, because this reflects learning the skill of phonological decoding rather than simply learning to recognize a set of words.

More recent studies that emphasized onset-rime structure in instruction produced somewhat mixed results. Cupples and Iacono (2002) found that three of four children with Down syndrome who received analytic instruction focusing on onset-rime structure improved significantly in reading trained words and/or untrained words, whereas those who received whole-word instruction were less apt to show improvement on untrained words. Saunders, O'Donnell, Vaidya, and Williams (2003) found that adults with mental retardation learned to recognize trained and untrained words using a match-to-sample procedure that emphasized onset-rime units. In contrast, Joseph and McCachran (2003) found little to no improvement on word reading or nonword reading after 2 months of practice on a word-sort phonics technique that emphasized using reading by analogy. In this last study, instruction may have been too narrow and assessments too different from the instruction.

Small sample studies have the advantage that they can focus on individuals and provide a detailed picture of their learning processes. Larger sample studies that focus on average group behavior, however, have the advantage of inferring from sample to population. In these studies, individual data are less important than general trends, yet individual differences can

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