Language Processing and Reading Ability in Children: A Study Based on Speech-Shadowing Techniques

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Language-processing facility in good and poor readers was examined using two speech-shadowing experiments. A total of 54 children from the second, fifth, and eighth grades were tested (9 good and 9 poor readers at each grade level). The first experiment manipulated rate of presentation to study speed of processing auditory-linguistic information. Good readers were superior to poor readers in their ability to maintain shadowing accuracy at increased rates of presentation, although the performance patterns of the two groups varied according to grade level. In the second experiment, good and poor readers shadowed sentences exhibiting different degrees of grammatical acceptability. Unstructured word strings, without syntactic coherence, penalized good readers more than poor readers, relative to their performance on syntactically appropriate constructions. Poor readers did not differ from good readers in their

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sensitivity to semantic cues. The results support the hypothesis that reading skill is a manifestation underlying linguistic abilities, and point to the importance of employing rate-based linguistic measures in the study of reading and language development.

In recent years, investigations have provided convincing evidence that reading skill is a manifestation of linguistic competence in general. Although visual processes also must be considered in a theoretical model of reading, a growing body of studies has demonstrated that reading abilities—and disabilities—are more often associated with linguistic factors than with visual factors (Perfetti, 1985; Siegel, 1985; Vellutino, 1979).

Within the language domain, an explosion of research has linked the awareness and use of phonetic structure to early reading ability. For example, skill in phonemic segmentation, sound blending, phonological coding, and rapid letter naming all differentiate good readers from poor readers (Doehring, 1981; Liberman, Shankweiler, Liberman, Fowler, & Fischer, 1977; Stanovich, 1986; Wolf, Bally, & Morris, 1986). Relatively few studies, however, have examined the use of syntactic and semantic structure in reading at different grade levels, although it has been suggested that good readers are more sensitive to grammar (Weber, 1970), can encode word meanings appropriate for the context more effectively (Merrill, Sperber, & McCauley, 1981), and can comprehend complex sentences better (Byrne, 1981; Stein, Cairns, & Zuriff, 1984; Vogel, 1974) than poor readers.

The present study employed experimental speech-shadowing techniques to compare good and poor readers’ unconscious use of syntactic and semantic structure during language processing. Speech shadowing requires listeners to repeat continuous spoken language, with their oral reproductions being as close to simultaneous as possible with the incoming speech signals. In contrast to psycholinguistic tasks that measure comprehension at the end of an utterance, this more dynamic procedure provides a measure of the ability to interpret and reproduce language as it is heard (Marslen-Wilson, 1975). Researchers have suggested that speech shadowing is the listening counterpart to oral reading (Danks & Hill, 1981), thus providing a logical method for examining commonalities between processing spoken and written language.

Speech shadowing has offered a revealing window through which to view the interactions involving phonetic-acoustic, syntactic, and semantic information during adults’ processing of spoken language. In a basic