Nonword repetition abilities of children who stutter: an exploratory study

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Abstract

Past research has suggested that children who stutter (CWS) may have less well-developed language skills than fluent children, and that such relative linguistic deficiencies may play a role in precipitating their disfluencies. However, data to support this position are primarily derived from results of standardized diagnostic inventories, which are originally designed to identify frank language impairment. Nonword repetition has emerged as a more sensitive measure of children’s linguistic abilities. In this exploratory study, eight CWS (mean age 5:10, range 4:3–8:4) were compared to eight normally developing children (ND) (mean age 5:9, range 4:1–8:4) in their ability to repeat the nonwords of the Children’s Test of Nonword Repetition. CWS performed more poorly than NS on measures of Number of Words Correct and Number of Phoneme Errors at all nonword lengths, although statistical differences were observed only for 3-syllable nonwords. When lexical stress of the nonwords was varied to a non-English stress pattern, all participants repeated the stimuli with less accuracy, and the CWS again exhibited more errors than NS. Fluency for the CWS group did not change systematically with increasing nonword length. These preliminary findings are interpreted in light of a number of extant theories of the underlying deficit in childhood stuttering. We conclude that children who stutter may have diminished ability to remember and/or reproduce novel phonological sequences, and that further investigation into this possibility may shed light on the emergence and characteristics of childhood stuttering.

Educational objectives: After completing this activity, the learner will: (1) be able to evaluate the research support for a linguistic component to stuttering; (2) describe the use of nonword repetition as an experimental and assessment device with children with SLI and children who stutter; (3) suggest

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future directions for research to further refine the potential role that linguistic encoding plays in the etiology and persistence of stuttering.
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1. Stuttering and linguistic ability

Research correlating stuttering with linguistic demands falls broadly into two categories: one which contrasts the linguistic abilities of children who stutter (CWS) and those who do not, and one which correlates the existence of dysfluencies in individual children’s utterances to specific linguistic demands. Both have produced findings suggestive of a link among linguistic capacities, demands and fluency of speech-language production. Results of standardized language tests have shown that CWS score lower than their nonstuttering peers (Byrd & Cooper, 1989; Murray & Reed, 1977; Ryan, 1992). Further, language skills appear to predict which children will recover spontaneously from stuttering and which children will stutter chronically; children with stronger language skills appear to have a higher likelihood of recovery (Yairi, Ambrose, Paden, & Throneburg, 1996). In addition, relative but subclinical depression in lexical and syntactic skills have been found in children (Bernstein Ratner, & Silverman, 2000; Wall, 1980) and adults who stutter (Homzie, Lindsay, Simpson, & Hasenstab, 1988; Prins, Main, & Wampler, 1997; Watson et al., 1994) when compared to fluent peer groups.

However, not all studies that compared stuttering and fluent populations find differences in their language or phonological abilities (Nippold, 1990, 2002), and interpretation of differences has been controversial (Watkins & Johnson, 2004). Aside from the real question of whether such differences truly exist, one potential reason for this may be the typical methodology of studies that contrast groups of stuttering and nonstuttering children (Watkins & Johnson, 2004). For example, among other concerns, they tend to employ standardized language tests or spontaneous speech sampling. As has been noted (Bernstein Ratner, 1997), standardized language tests are primarily designed to identify frank language disability for diagnostic and therapeutic purposes, and so are unlikely to provide the more precise discrimination between groups that may be required when either subtle depression of skills or weakness in a very specific domain of language exists. Trends reported in studies that have not found significant differences between groups on a variety of measures suggest that this may be the case (Miles & Bernstein Ratner, 2001). Spontaneous language sampling, while a sensitive descriptive measure of children’s expressive abilities, is not necessarily a valid way of distinguishing groups of children’s language abilities: “… standardized tests are designed to tell whether a child is different from other children. Speech-sample analysis, on the other hand, is not constructed psychometrically for this purpose” (Paul, 2001, p. 319). Many of the measures that flow from language sampling (e.g., MLU, TTR), have been criticized as having large ranges of normal performance at an array of ages that impede their ability to discriminate between or among groups of children (Eisenberg, Fersko, & Lundgren, 2001; Watkins & Kelly, 1995).
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