The Woodcock-Muñoz Foundation

Research Brief
Doctoral Dissertation Abstract

PROCESSING SPEED AS A PREDICTOR OF POOR READING

Annmarie Urso
University of Arizona

The Woodcock-Muñoz Foundation (WMF) is a private non-profit operating foundation that supports the advancement of contemporary cognitive assessment practices. The Doctoral Dissertation Abstract Project is part of the Foundation's efforts to disseminate research findings that bridge the theory-to-practice gap in cognitive assessment.

Urso, A. (2008). *Processing speed as a predictor of poor reading*. Unpublished Dissertation, University of Arizona, Tucson.

ABSTRACT

This study had three main purposes. First, the relationship between Processing Speed (*Gs*) and poor word recognition skills was examined. Second, various formats of processing speed tests that measure different types of processing speed (i.e. naming facility, perceptual speed, semantic speed, attention and concentration) were administered to determine what aspects of *Gs* were more strongly correlated with word reading performance. Pearson correlations and coefficients of determination were used to evaluate the strength of the relationships and the shared variance. Third, the study sample was evaluated to determine what percentage of the poor readers participating in the study had slow processing speed.

Forty-four students in grades 1-3, ages six- to ten-years old were administered the Woodcock-Johnson III Achievement reading tests of Letter-Word Identification, Reading Fluency, and Word Attack. The subjects were additionally administered the Woodcock-Johnson III Cognitive Abilities tests of Verbal Comprehension, Visual-Auditory Learning, Sound Blending, Visual Matching, Numbers Reversed, Decision Speed, Rapid Picture Naming, Pair Cancellation, and Cross Out.

The results of the study indicated processing speed, as measured by the *Gs* Cluster score, was strongly correlated with word reading, r = .749, $r2$=.56. The *Gs* tests of Visual Matching, (r =.663, $r2$ = .44) and Decision Speed (r = .811, $r2$ = .66) were most strongly correlated with poor word reading skill. The Basic Reading Skills Cluster and the Test of Letter-Word Identification were both moderately correlated at various strengths with different formats of *Gs* tests. Tests of Visual Matching, Rapid Picture Naming, Pair Cancellation and Cross Out all had a moderate, significant correlation.

Lastly, 37.5% of the poor readers (SS<85 on any of the measures of reading) also had low *Gs* scores (SS<85).

The results from the study demonstrate the need for further exploration of the impact of poor *Gs* on the development of reading skills, as well as determination of the most effective interventions for poor readers with slow processing speed.