The Woodcock-Muñoz Foundation

Research Brief
Doctoral Dissertation Abstract

CONFIRMATORY MODELS OF SENSORY / MOTOR AND COGNITIVE CONSTRUCTS

Scott L. Decker
Ball State University

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.

Decker, S. L. (2002). *Confirmatory models of sensory/motor and cognitive constructs.* Retrieved from ProQuest UMI Dissertation Publishing (UMI Microform 3042273).

Abstract

The study examined the relationship between neuropsychological constructs of sensory-motor functioning and cognitive ability constructs in the Cattell-Horn-Carroll (CHC) (Carroll, 1993) theory. Two studies were conducted. For the first study, the Dean-Woodcock Sensory Motor Battery (SMB) (Dean & Woodcock, 1999) was administered to 800 individuals. A factor analysis and a confirmatory factor analysis were used to investigate and develop a factor structure of the SMB. Results from this study suggest sensory and motor tests significantly share common variance and a hierarchical, multifactorial model that included a higher-order factor of both sensory and motor tests best fit the data. The second study examined the SMB model, developed in the first study, in relation to the CHC (Cattell-Horn-Carroll) model of cognitive abilities, as measured by the Woodcock-Johnson Revised Tests of Cognitive Abilities (McGrew, Werder, & Woodcock, 1991). For this study, the SMB and the WJ-R was administered to 411 individuals. A confirmatory model was tested that included the higher-order factor of the SMB as a broad ability within the CHC model. Results from this analysis suggest that higher order factor of the SMB does have a significant relationship with overall measures of cognitive ability of a similar level to other broad abilities in the CHC model, and significantly improves the fit of the CHC model. These results support Roberts, Pallier, and Goff's (1999) argument for the inclusion of an additional broad ability in the CHC taxonomy that represents sensory and motor functioning. Additionally, this study provides empirical support for the utility of including neuropsychological tests of sensory and motor functioning in a comprehensive assessment of cognitive abilities (Dean & Woodcock, 1999). The implications for neuropsychological and psychometric assessment are discussed.