



The Woodcock-Muñoz Foundation

RESEARCH BRIEF

DOCTORAL DISSERTATION ABSTRACT

THE ROLE OF GENDER, COGNITION, ANXIETY, AND COMPETENCE BELIEFS IN PREDICTING MATHEMATICS ACHIEVEMENT

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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.

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Abstract

The purpose of this study was to determine important variables related to mathematics achievement in fourth-grade children. The independent variables examined in this study were categorized into three groups: gender, socio-emotional variables, and cognitive variables. Socio-emotional variables included mathematics anxiety and beliefs about math competence. Cognitive variables included working memory, long-term retrieval, processing speed, crystallized intelligence, and fluid reasoning. The dependent variables were Broad Mathematics, Mathematics Calculations, and Mathematics Reasoning as measured by the Woodcock-Johnson Tests of Achievement-Third Edition. Participants were 131 fourth-grade students from a northeastern public school. All participants completed a demographics form and the two socio-emotional measures. Cognitive and achievement subtests were administered individually with standardized instruments. Correlations and multiple regression analyses were conducted on the data. According to this study, gender differences are no longer the focus of mathematics achievement. Cognitive factors as well as socio-emotional factors were found to predict achievement in mathematics for fourth-grade children. In this study, mathematics competence played an important role within the socio-emotional factors. Within the cognitive variables, processing speed appeared to play an important role in predicting mathematics. This study also indicated that gender, beliefs of mathematics competence, fluid reasoning, processing speed, working memory, and crystallized intelligence were all found to contribute to mathematics problem solving.