

# **Relationships between academic performance, SES school type and perceptual-motor skills in first grade South African learners: NW-CHILD study**

**A. E. Pienaar, R. Barhorst and J. W. R. Twisk**

## **Abstract**

Background Perceptual-motor skills contribute to a variety of basic learning skills associated with normal academic success. This study aimed to determine the relationship between academic performance and perceptual-motor skills in first grade South African learners and whether low SES (socio-economic status) school type plays a role in such a relationship.

Methods This cross-sectional study of the baseline measurements of the NW-CHILD longitudinal study included a stratified random sample of first grade learners (n = 812; 418 boys and 394 girls), with a mean age of 6.78 years  $\pm$  0.49 living in the North West Province (NW) of South Africa. *The Beery-Buktenica Developmental Test of Visual-Motor Integration-4* (VMI) was used to assess visual-motor integration, visual perception and hand control while the *Bruininks Oseretsky Test of Motor Proficiency, short form* (BOT2-SF) assessed overall motor proficiency. Academic performance in math, reading and writing was assessed with the *Mastery of Basic Learning Areas Questionnaire*. Linear mixed models analysis was performed with SPSS to determine possible differences between the different VMI and BOT2-SF standard scores in different math, reading and writing mastery categories ranging from no mastery to outstanding mastery. A multinomial multilevel logistic regression analysis was performed to assess the relationship between a clustered score of academic performance and the different determinants.

Results A strong relationship was established between academic performance and VMI, visual perception, hand control and motor proficiency with a significant relationship between a clustered academic performance score, visual-motor integration and visual perception. A negative association was established between low SES school types on academic performance, with a common perceptual motor foundation shared by all basic learning areas.

Conclusion Visual-motor integration, visual perception, hand control and motor proficiency are closely related to basic academic skills required in the first formal school year, especially among learners in low SES type schools.

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