# Exploring the Pathway Between Finger Gnosia and Mathematical Ability

Meghan C. Dale
Carleton University
April 2008

A THESIS PRESENTED TO THE DEPARTMENT OF PSYCHOLOGY IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE B.SC. WITH HONOURS DEGREE

## Abstract

The goal of the present research was to explore the relations between finger gnosia and mathematical skill. One hundred and forty-five children at the end of grade 1 were assessed with the neuropsychological tasks of finger gnosia and tapping along with mathematical tasks. Regression analysis revealed a pathway leading from counting to providing the next number in a sequence (number line development) to single-digit addition, to finally Woodcock-Johnson Calculation subtest scores. Finger gnosia predicted counting, next number, and single-digit addition. In contrast, finger tapping predicted only counting, suggesting it was a measure of processing speed and not of finger representation. Results are discussed in the context of mathematical development and how well finger gnosia might facilitate children's learning of math skills.