The Importance of Math Anxiety to the Geometrical Performance of Students with High and Low Levels of Geometrical Thinking

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Extended Abstract

1. Introduction

Geometric is an important concept of mathematic (Dehaene, Izard, Pica, & Spelke, 2006).

2. Literature Review/Research Gap

Many studies have found that learning strategies (Yusuf, 2011; Soufi, Damirchi, Sedghi, & Sabayan, 2014; Muelas & Navarro, 2015) and prior knowledge (Byrnes & Wasik, 2009; Jordan, Hansen, Fuchs, Siegler, Gersten, & Micklos, 2013) are important factors that influence academic performance, particularly the learning achievement of math.

3. Research Method

This study examines the influence of different variables on the geometry learning achievement of students with different levels of geometrical thinking. 108 children (aged 10-11) completed the Van Hiele geometric thinking levels test, geometry prior knowledge test, geometry learning achievement test, and the assessments of math learning strategies, core concepts of geometry, and math anxiety. Based on results of the Van Hiele geometric thinking levels test, 78 children were identified as level 1 learners (n=40) or level 2 learners (n=38) learners.
4. Findings

The core concepts of geometry and math anxiety explained the significant variance in the geometry learning achievement of level 1 learners, whereas the geometry learning achievement of level 2 learners was explained by the variance in their math learning strategy and in the core concepts of geometry. The variables that influence the geometry learning achievement of level 1 learners is different from that of level 2 learners, in which the math learning strategy explained the significant variance in the growth in the geometry learning achievement of level 2 learners; however, math anxiety explained the significant variance in the growth in the geometry learning achievement of level 1 learners.

5. Theoretical and Practitioner Implications

Geometric concepts are important to determine factors that influence the geometry learning ability to improve students’ learning achievement in math. This process will enable high level learners to apply learning strategies, construct a complete geometric knowledge system, and further gain higher geometry learning achievement.

References


