

Exploring Student's Achievement Impacted Factors :Taiwan's Grade 8 Participate in TIMSS 2003 Study

Fang-Chuan Chang *

Abstract

Data from the Third International Mathematics and Science Survey of 2003 (TIMSS 2003) were used to investigate variables that predicted mathematics in grade 8 in Taiwan. There were 5,300 samples in this study. Our variables were discriminated to the family resources, school's factors, outside school's factors, and student's factors. It used these variables to predict the grade 8 (e.g. gender and different achievement groups) mathematics achievement. It also tested the differences of mathematics, cultural capital, school's factors, outside school's factors, and student's factors in gender and different groups in respectively. The results are as follow: First, female students' score were higher than male in mathematic achievement, numbers of books, homework times, education aspiration, but female students' score were lower than male in self-confidence in learning math, the perception importance of math. Secondly, student in high performance group that their academic achievement was higher than low's group in four factors. Thirdly, it found that some significant factors predicted male and female achievement, such as using computers at home more times, writing equations and functions to represent relationships much more in learning math, fewer working together in small group, reviewing more homework, more extra lessons, more self-confidence in learning math, and better science performance. And it also found different significantly predicted factors the achievement among groups. In first group (the lowest achievement), there were not any significant factors to predict the achievement. In second group found that learning in math with daily life much more, more extra lessons, and better science performance, their achievement were better. In third group showed that most students no computer at home, students using computers at home more times, extra lessons, and better science performance were significant variables to predict achievement. In fourth and fifth group found that writing more equations and functions to represent relationships to learning math, more self-confidence in learning math, and better science performance, their math achievement were better, however, the family resources and outside school's factors were not significant in the model. From these findings, some suggesting were given.

Keywords: Third International Mathematics and Science Study, mathematics achievement

Assistant Professor, Department of Elementary Education, National Taipei University of Education