

EFFECTS OF LITERACY ENVIRONMENTAL FACTORS ON FOURTH GRADERS' MATHEMATICS-RELATED OUTCOMES IN FINLAND

Minsun Kim

Dr. Ze Wang, Thesis Supervisor

ABSTRACT

According to many researchers, literacy affects not only students' reading achievement, but also achievement in diverse subjects. To increase students' academic outcomes, as one of the ways to explain how to develop literacy education, many education researchers have focused on environmental factors supporting literacy education, primarily in the student's home.

This study examined the effects of literacy environmental factors at home on students' academic achievement, self-concept, and attitude toward mathematics. The data used in this study were from Finland at the fourth grade level in the Trends in International Mathematics and Science Study (TIMSS) 2011 and the Progress in International Reading Literacy Study (PIRLS) 2011.

Multiple regression analyses were performed for each dependent variable. The six independent variables which are parents' involvement in literacy learning, parents' highest level of education, early literacy education environment, the number of books, material sources, and students' gender together accounted for approximately 24% of variance in academic achievement in mathematics and affected mathematics academic achievement significantly based on the t statistics for regression coefficients. Early literacy education, parents' involvement in students' literacy learning, parents' highest level of education, the number of books, and students' gender accounted for approximately 8.7% of the variance in students' self-concept in

mathematics. In the last analysis, only early literacy education environment and students' gender were significant to predict students' attitude toward mathematics with 1% of the variance.

In this study, literacy education environmental factors had effects on explaining and developing all of the dependent variables. Especially, the early literacy education variable and students' gender were used as significant predictors on all dependent variables. In the future study, including the early literacy education, other environmental factors such as SES, parental attitude toward reading which could have a strong relationship with students' outcomes should be explored.