Effects of Teacher Credentials, Coursework, and Certification on Student Achievement in Math and Reading in Kindergarten: An ECLS-K Study

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Introduction

- Teachers have been shown to have significant effects on reading and math achievement early on in a child’s formal education (Rivkin, Hanushek, & Kain, 2005).
- However, research on the impact of specific educational background characteristics of teachers on student achievement is mixed and relatively unexplored on the Kindergarten level.
- Degree level, coursework, and certification are characteristics of teachers that signal to administrators that teachers are qualified, but do these characteristics affect student achievement in Kindergarten?

Research Questions

1) Does a teacher having a master’s degree or higher have a positive effect on student achievement gains in reading and math in kindergarten?
2) Are there effects of teacher coursework in reading, math, and child development on student achievement gains in kindergarten?
3) Are there effects of different certification types and levels on student achievement gains in Kindergarten?

Method

Dataset: The Early Childhood Longitudinal Study Kindergarten cohort (ECLS-K) which is a nationally representative sample of students starting at Kindergarten in the 1998-1999 school year.

Sample: 16,138 Kindergarten students who had full data on the teacher educational background characteristics of interest variables such as race, gender, SES, test scores for fall and spring of Kindergarten

Analysis: This study uses OLS regression and school fixed effects models to estimate the effects of teacher educational teacher credentials, coursework, and certification on student achievement in Kindergarten.

Outcomes: IRT Scale Scores of Reading and Math from Spring of Kindergarten

Covariates:
- teacher educational background (degree level, coursework, certification)
- child demographics (age, race, gender, SES, behavior ratings, prior achievement scores from Fall of K)
- teacher characteristics (yrs of experience, race, age)
- school characteristics (public vs private, school size, % minority, % free lunch)

Findings

Degree Level/Credentials
- Most teacher credentials, or degrees, appear to have little impact on student achievement in reading or math in Kindergarten.

Teacher Coursework
- Teacher coursework in reading had no significant effects on student test scores in reading.
- Teacher coursework in child development appears to have positive effects on reading test scores in Kindergarten.
- Teacher coursework in math and child development appeared to have no significant effects on math test scores.

Certification
- Highest and temporary levels of certification appear to have a negative effect on reading and math test scores, but not in the fixed effects models.
- Elementary certification has a significant positive effect on student math scores.

Interactions: There were no significant interactions between teacher characteristics and students who started in the bottom 25th percentile of achievers in Kindergarten

Discussion

This study finds mixed results on the effects of teacher degree levels, coursework and certification on student achievement in Kindergarten. Higher level qualifications do not always appear to have significant, positive effects on student achievement in reading and math in Kindergarten. While more research must be done in this area, these findings present a good starting place for research on this topic at the Kindergarten level.

Acknowledgement

I would like to thank the NCES and ECLS-K research team for allowing the public use of their data for this and many other reports Dr. George Farkas whose insight and guidance helped to make this paper possible, and my colleagues at UC Irvine.

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