Math is Changing. Are Middle School Teachers Prepared?

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Objective:

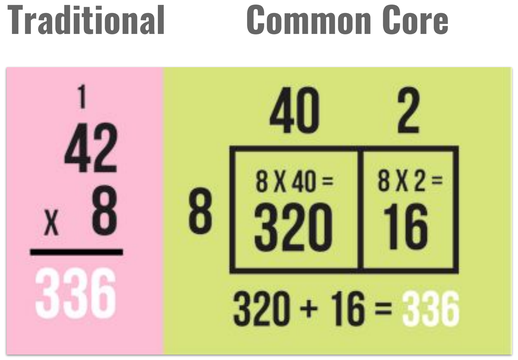
This study aims to examine whether teachers' perceived preparedness for the Common Core State Standards, specifically in regards to math, is associated with test results of middle school students.

Introduction:

- The Common Core State Standards (CCSS) is a set of guidlines for K-12th grade math and English curriculum describing what needs to be learned before transitioning to the follwoing grade.

- CCSS in math varies from the previous standards in three main ways:
  1. CCSS focuses on understanding concepts rather than memmorizing steps.
  2. CCSS includes fewer math topics but each unit is covered more rigorously.
  3. Rather than learning a new category of math each year (ie. geomtry, pre-algebra, etc.), CCSS has curriculum that expands on the previous years.

- Previous studies have analyzed how teacher preparedness along with school resources related to student test scores. However, they were limited by studying only a singular district.



Dataset:

- Data for this paper comes from a 2014-2016 evaluation of the success of Common Core State Standards by the MRDC, a non-profit research organization.
- 4 States, 5 School Districts, 58 Schools
- 2 Datasets: 372 Teachers, 94,790 Students

Methodology:

1. Aggregated Binary Variables:

Learning community | Job-embedded training | Collaborative time aligning curriculum | Collaborative time decomposing CCSS | Content-focused trainings | Perceived Preparedness

2. Averaged total teacher preparedness by school

3. Combined the average teacher preparedness by school with student test scores

4. Ran a Linear Regression to see if any correlation between the variables exists

Results:

A regression of teacher preparedness on school level mean student test scores found no correlation between the two variables.

A regression of mean, school-wide teacher preeparerdness on indvidual student test scores yieldeed indicated that an adidtional "Yes" response to the questionare was assocated with a 2 hundredths of a standard deviation increase in test scores.

Discussion:

The finding that measures of school-wide average teacher performance are associated with minimal differences in student achievement may have numerous interpretations.

One hypothesis is that tachers who participate in nominally fewer Common-Core related trainings do so because of higher ability to teach math. If the actual effect of trainings were positive, we would eexpect this to bias the result towards zero.

Alternatively, participating in Common Core trainings may have no effect on math teaching ability. Teachers own ability to master subject matter may matter very little to their ability impart it onto children.

Math performance may otherwise be minimally influenced by differences in teacher preparedness, and may be better explained by student background characteristics and resources.

Conclusion:

Despite statistically significant information, there is very little correlation between the preparation of teachers and achieved test scores for students.

References

Pope, Allison Murphy "Teachers Reported Preparedness: A Study Of One Midwest Metropolitan School District." 2003.

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