

Certified teachers + modern instruction = better public school math scores

CHAMPAIGN, Ill. — In another "Freakonomics"-style study that turns conventional wisdom about public- versus private-school education on its head, a team of University of Illinois education professors has found that public-school students outperform their private-school classmates on standardized math tests, thanks to two key factors: certified math teachers, and a modern, reform-oriented math curriculum.

Sarah Lubienski, a professor of curriculum and instruction in the U. of I. College of Education, says teacher certification and reform-oriented teaching practices correlated positively with higher achievement on the National Assessment of Educational Progress (NAEP) exam for public-school students.

"According to our results, schools that hired more certified teachers and had a curriculum that de-emphasized learning by rote tended to do better on standardized math tests," Lubienski said. "And public schools had more of both."

To account for the difference in test scores, Lubienski and her co-authors, education professor Christopher Lubienski (her husband) and doctoral student Corinna Crane, looked at five critical factors: school size, class size, parental involvement, teacher certification and instructional practices.

In previous research, the Lubienskis discovered that after holding demographic factors constant, public school students performed just as well if not better than private schools students on standardized math tests.

"There are so many reasons why you would think that the results should be reversed – that private schools would outscore public schools in standardized math test scores," she said. "This study looks at the underlying reasons why that's not necessarily the case."

Of the five factors, school size and parental involvement "didn't seem to matter all that much," Lubienski said, citing a weak correlation between the two factors as "mixed or marginally significant predictors" of student achievement.

They also discovered that smaller class sizes, which are more prevalent in private schools than in public schools, significantly correlate with achievement.

"Smaller class size correlated with higher achievement and occurred more frequently in private schools," Lubienski said. "But that doesn't help explain why private schools were being outscored by public schools."

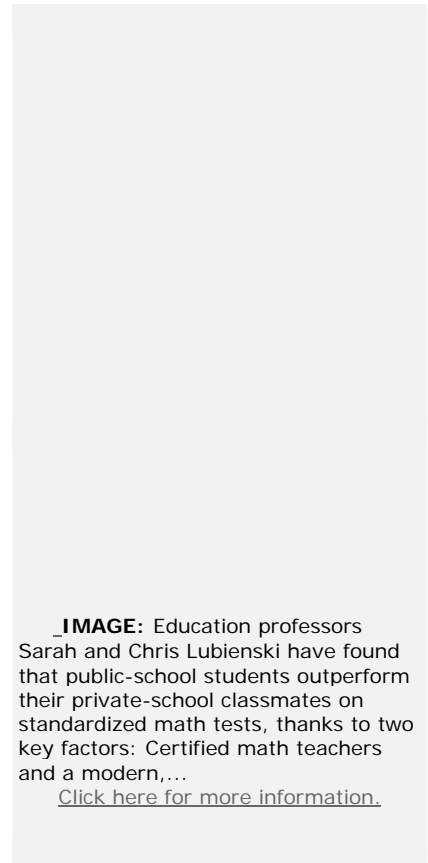
Lubienski said one reason private schools show poorly in this study could be their lack of accountability to a public body.

"There's been this assumption that private schools are more effective because they're autonomous and don't have all the bureaucracy that public schools have," Lubienski said. "But one thing this study suggests is that autonomy isn't necessarily a good thing for schools."

Another reason could be private schools' anachronistic approach to math.

"Private schools are increasingly ignoring curricular trends in education, and it shows," Lubienski said. "They're not using up-to-date methods, and they're not hiring teachers who employ up-to-date lesson plans in the classroom. When you do that, you aren't really taking advantage of the expertise in math education that's out there."

Lubienski thinks one of the reasons that private schools don't adopt a more reform-minded math curriculum is because some parents are more attracted to a "back-to-basics" approach to math instruction. The end result, however, is students who are "prepared for the tests of 40 years ago, and not the tests of today," she said.



_IMAGE: Education professors Sarah and Chris Lubienski have found that public-school students outperform their private-school classmates on standardized math tests, thanks to two key factors: Certified math teachers and a modern,...

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Tests like NAEP, Lubienski said, have realigned themselves with the National Council of Teachers of Mathematics standards for math instruction, which have moved away from the brute-force memorization of numbers to an emphasis on "geometry, measurement and algebra – things that private school teachers reported they spent less time teaching," Lubienski said.

"The results do seem to suggest that private schools are doing their own thing, and that they're less likely to have paid attention to curricular trends and the fact that math instruction and math tests have changed," she said.

Lubienski cautioned that the relationships found between the two factors and public-school performance might not be directly causal.

"The correlations might be a result, for example, of having the type of administrator who makes teacher credentials and academics the priority over other things, such as religious education," she said. "That's often not the case for private religious schools, where parents are obviously committed to things beside academic achievement."

The schools with the smallest percentage of certified teachers – conservative Christian schools, where less than half of teachers were certified – were, not coincidentally, the schools with the lowest aggregate math test scores.

"Those schools certainly have the prerogative to set different priorities when hiring, but it just doesn't help them on NAEP," Lubienski said.

Lubienski also noted that public schools tend to set aside money for teacher development and periodic curriculum improvements.

"Private schools don't invest as much in the professional development of their teachers and don't do enough to keep their curriculum current," she said. "That appears to be less of a priority for them, and they don't have money designated for that kind of thing in the way public schools do."

Lubienski hopes that politicians who favor more privatization would realize that the invisible hand of the market doesn't necessarily apply to education.

"You can give schools greater autonomy, but that doesn't mean they're going to use that autonomy to implement an innovative curriculum or improve the academics of the students," she said.

Instead, some private schools try to attract parents by offering a basic skills curriculum, or non-academic requirements, such as students wearing uniforms.

Privatization also assumes that parents can make judgments about what schools are the best for their children.

"With schools, it's tough to see how much kids are actually learning," Lubienski said. "Market theory in education rests on the assumption that parents can see what they're buying, and that they're able to make an informed decision about their child's education. Although parents might be able to compare schools' SAT scores, they aren't able to determine whether those gains are actually larger in higher scoring schools unless they know where students start when they enter school. People don't always pick the most effective schools."

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The results were published in a paper titled "Achievement Differences and School Type: The Role of School Climate, Teacher Certification, and Instruction" in the November 2008 issue of the *American Journal of Education*. The published findings were based on fourth- and eighth-grade test results from the 2003 NAEP test, including data from both student achievement and comprehensive background information drawn from a nationally representative sample of more than 270,000 students from more than 10,000 schools.

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Nobody can be a good reasoner unless by constant practice he has realized the importance of getting hold of the big ideas and of hanging onto them like grim death.
– A. N. Whitehead, 1929