

For the Independent

Why Brilliant Teachers Matter

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Teachers are the most important members of a society. We could manage without economists, accountants, lawyers, dentists and even doctors. Most problems in life eventually fix themselves. Having fewer advertising executives, financial-market pundits and television employees would result in considerable improvement in human welfare. At a pinch, even police and fire-fighters are not indispensable, and ditto for soldiers (look at Costa Rica). But without teachers we would revert to the dark ages: the foundations of human knowledge would disintegrate and our society would go back to reliance on superstition.

So the quality of teaching matters more than almost anything else. Remarkably, little is known by social scientists about how to improve it, although there is evidence that teacher quality has positive effects on student test-scores. Even the standard woman-in-the-street view that what is required is smaller class sizes is only mildly supported by evidence. What is required, therefore, is quantitative research by statistically-trained educational researchers, doing experiments, with properly designed treatment and control groups, slowly but surely working out for us that policy Y is likely to be a failure and policy Z a success. Painstaking. Disinterested.

For reasons I do not understand, little of this careful scientific work goes on in education schools in the world's universities, and it is necessary to look elsewhere for it. Counter-intuitively, much is being done by economists and statisticians.

One of the most interesting education studies I have seen was released this week by two young economists, Kirabo Jackson at Cornell University and Elias Bruegmann at Harvard. They show the

importance of peer effects. No, not the effects upon my child of having clever and hard-working children in the desks around him or her. Instead, intriguingly and importantly, they document the beneficial spill-over consequences that one brilliant teacher has on other teachers in a school. I probably would not have believed it before I saw their evidence, but in retrospect, like a lot of powerful ideas, it looks clear and natural when in one's rear view mirror.

Bruegmann and Jackson go to North Carolina. They collect information on about 1.5 million students and thousands and thousands of teachers. An advantage of the authors' setting is that in that state of the US the elementary school teachers are assigned to one group of students for the whole school term. Each teacher's class performance can be measured. Moreover, the two researchers are able to collect information, year after year, as each teacher has a variety of different teaching colleagues through the years. The researchers are careful not to mix up their results with effects from factors like differently rich schools. They study how changes in the performance of a teacher's students are correlated with alterations in the composition of that teacher's peers.

If that sounds complicated, actually it is not. It boils down to the idea that to figure out how good a teacher (or football manager or journalist) is, what you should do is move them around, into different places of work with different colleagues, and then measure how they prosper in each place after averaging out the other influences. In such a way, a person's ability can be assessed objectively, because you see them in different circumstances. This is just saying that the way to discover whether Alex Ferguson is a great football manager is to send him off for a few years to Greenock Morton and Doncaster Duffers; then we can work out whether his winning streak at Manchester United is luck or due to the brilliance of the players.

The two young researchers examine how teachers' peers influence student achievement on mathematics and reading test scores. Great teachers turn out to produce great 'externalities'. Shorn of technicalities, what Bruegmann and Jackson prove is that brilliance rubs off on other teachers within a school. Although their article will be hard work for those with no statistical training, it carries a message of lasting significance. If a greater share of a teacher's colleagues

have little teaching experience and are of low quality, his or her own students perform worse (and not because of school resources). The direct effect, from one teacher alone, is estimated to be small. But the multiplied consequences -- think of a long corridor of classrooms and the quality improvement rippling down that line of doors -- really matter. Interestingly, the authors show that younger, less experienced teachers are more responsive to changes in peers' quality than are the older ones.

It is not possible to know how this new research on teacher spillovers will be used or how it will change schools in modern society. But the findings tell us that small numbers of outstanding teachers matter disproportionately. Such people do not merely inspire their pupils. They inspire their colleagues.