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Best teachers push up pupils' scores

Jewel Topsfield, Canberra
May 21, 2007

THE best teachers are twice as effective at improving students' scores as the worst teachers, says research casting doubt on claims that it is impossible to measure teacher performance.

The research, by economist Andrew Leigh, looked at how effective Australian primary school teachers were at raising students' test scores from one exam to the next.

"In terms of raising literacy and numeracy scores, the top 10 per cent of teachers achieve in half a year what the bottom 10 per cent achieve in a full year," said Dr Leigh, an economist at the Australian National University.

He said the pay structure, which rewards teachers solely on the basis of qualifications and experience, did not take the productivity of teachers into account.

"Assuming test score gains are an important measure of educational output, these results suggest it may be worth considering alternative salary structures as a means of attracting and retaining the best teachers," his report said.

The research is a fillip for Federal Education Minister Julie Bishop who is battling with hostile state governments to introduce teachers' bonuses based on a combination of measures including improvements in students' test results and feedback from principals, parents and students.

"The report shows it is possible to identify the most effective teachers, which also makes it possible to reward the best teachers for their performance," Ms Bishop said.

"This makes a mockery of Education Union and Labor Party claims that teacher performance cannot be measured."

Opponents of merit-based pay claim that unlike professionals such as lawyers, who are paid on billable hours, it is difficult to measure teachers' performance because the socio-economic and cultural differences between students and schools mean that assessments based simply on academic results do not work.

But Dr Leigh said that by looking at how students' performance changed over time, it was possible to focus on what teachers value-added.

"More experienced teachers are more effective, with the biggest increase in the early years of a teacher's career," he said. "Female teachers are also slightly better at teaching literacy."

He said teachers with a masters degree or other form of further qualification did not appear to achieve larger test score gains.

Dr Leigh said that, outside the United States, relatively little research had been carried out on how to measure the effectiveness of teachers.

His paper analysed 10,000 Australian primary school teachers and 90,000 students from Queensland, where standardised tests are conducted every two years, and gauged how effective teachers were in raising students' scores from one exam to the next.

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TEACHER EFFECTIVENESS MATTERS

The top 10% of teachers are twice as effective as the bottom 10%, according to new research from The Australian National University.

The research, by ANU economist Dr Andrew Leigh, differs from previous Australian studies in that it uses a measure of teacher effectiveness based on test score gains, not levels.

"The problem with looking at a single test is that you cannot separate factors such as family background from teacher effectiveness", said Dr Leigh.

"But by looking at how students' performance changes over time, it is possible to focus on teachers' value-added."

The study found that teachers who are effective at teaching literacy tend to also be better at teaching numeracy. It also concluded that there is a large degree of dispersion between the best and worst teachers.

"In terms of raising literacy and numeracy scores, the top 25% of teachers achieve in three-quarters of a year what the bottom 25% of teachers achieve in a full year.", Dr Leigh said

"And the top 10% of teachers achieve in half a year what the bottom 10% achieve in a full year."

The wide dispersion in teacher effectiveness across Australian teachers is similar to what has been observed in studies carried out in the United States.

The report also looked at whether observable teacher characteristics could explain the differences between teachers.

"More experienced teachers are more effective, with the biggest increase in the early years of a teacher's career. Female teachers are also slightly better at teaching literacy.

"Teachers with a masters degree or some other form of further qualification do not appear to achieve larger test score gains."

Despite these systematic differences, the report concluded that teacher characteristics found in the education department's payroll database can explain only a small share of the variance in teacher performance.

A copy of the paper, *Estimating Teacher Effectiveness From Two-Year Changes in Students' Test Scores*, is available at: <http://econrsss.anu.edu.au/~aleigh/>

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Study confirms poor teaching drags down kids

By Justine Ferrari
May 21, 2007 12:00am

Article from... THE AUSTRALIAN

AN Australian-first study has successfully linked teacher performance with student results, bolstering the Federal Government's efforts to introduce performance-based pay.

The study examined the literacy and numeracy test results of more than 90,000 students with more than 10,000 teachers in Years 3, 5 and 7 between 2001 and 2004, tracking the same group as it advanced through the school system.

It found that classes taught by the best teachers scored twice as high as those taught by substandard teachers. The top 10 per cent of teachers were able to achieve in six months what the bottom 10 per cent of teachers took more than a year to do.

The study, to be released today by the Australian National University, debunks claims by teacher unions that teacher performance cannot be confidently measured by looking at the results their students achieve in universal tests.

It also finds that additional qualifications, such as a masters degree, which are increasingly being suggested as the basis for performance-based pay, have little effect on results.

Female teachers were slightly better than their male peers at teaching literacy, and the students of experienced teachers achieved higher test scores.

Education Minister Julie Bishop said the results made a mockery of claims by the Australian Education Union and Labor that a teacher's performance could not be measured.

The study, by economist Andrew Leigh, also finds that demographic differences between teachers account for less than one-hundredth of the variation in their student scores, suggesting other factors such as a teacher's IQ or classroom skills are much more important.

The study examines the results for the same group of students every two years, with the same parents. The only variable was the teacher, disputing the idea that a student's socio-economic background determined their academic performance.

Dr Leigh compared the literacy and numeracy test results of individual children under different teachers as they moved through school - and benchmarked them against other students in the same year - to show which teachers "value added" by improving the individual's test scores.

The study found students' results could be improved by swapping teachers from the bottom 25 per cent of performance with those in the top 25 per cent.

A teacher in the top 25 per cent achieved in three-quarters of a year what a teacher in the bottom 25 per cent did in a full year. A teacher in the top 10 per cent achieved in half a year what a teacher in the bottom 10 per cent did in one year.

Dr Leigh said it was reasonable to assume that indigenous students had poorer teachers and, if their classes were given teachers in the top 25 per cent, the gap between indigenous and non-indigenous students in literacy and numeracy would be closed in seven years.

"It's been something of a mantra that all teachers do about the same but this shows there are big differences between teachers," Dr Leigh said. He said the results highlighted that the current method of paying teachers was not based on any factors important to improving student results.

"Currently, the factors we take into account are just experience and extra qualifications such as masters degrees," he said. "This suggests that's not rewarding the big differences in the profession."

Ms Bishop said the report "shows it is possible to identify the most effective teachers, which also makes it possible to reward the best teachers for their performance".

"The report provides evidence of wide variation in teacher effectiveness. It shows that it is possible to measure the impact of teachers' performance on student performance," she said.

Ms Bishop also said the findings questioned Labor's policy on linking teachers' pay to gaining higher qualifications, given it found teachers with higher professional qualifications, including masters, were no more effective in raising their students' scores.

Pat Byrne, the federal president of the AEU, which rejects the idea of linking teachers' pay to their performance, said yesterday she did not always agree with Dr Leigh's methodology or conclusions and wanted to see the research before commenting.

Dr Leigh was confident that anyone in a school would know which teachers would score among the best in his study.

"The principal knows; other teachers know; the parents know; there's a huge degree of consensus about this," he said.

"Teacher quality matters. A poorer teacher makes a big difference to your kid; poorer teaching can drag kids down."

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Best teachers get top marks from study

John Garnaut
May 21, 2007

SCHOOL students who have good teachers take half as long to learn their course material as those with poor teachers, new research shows.

The report provides the first objective evidence of which teachers are adding value to the academic performance of their students - and which teachers are letting children down.

"The top 10 per cent of teachers achieve in half a year what the bottom 10 per cent achieve in a full year," says the author, economist Andrew Leigh, of the Australian National University.

Dr Leigh tracked three years of numeracy and literacy exam scores for 90,000 primary school students and matched them against 10,000 teachers.

Good teaching - measured by improvements in exam scores - has almost no relationship with teacher experience, qualifications or any of the criteria currently used by most schools to hire or reward teachers.

Instead, the best teachers appear to be good at their jobs because of innate factors like personal drive, curiosity and ability to relate to students.

"Most of the differences between teachers are due to factors not captured on the payroll database," said Dr Leigh.

The study shows female teachers are more likely to improve student literacy, while males are better at teaching maths.

Surprisingly, it shows students in large classes performed better than those in small ones - although it doesn't claim a causative link. It also finds no positive effects of teacher qualifications on test scores, a finding which challenges the Federal Opposition's policy of paying teachers more for better academic qualifications rather than for observed ability.

The study is likely to receive a frosty reception from teacher unions and state education bureaucracies which say exam scores cannot be used to measure teacher quality. But it has been seized upon by private schools and the Federal Government.

The executive director of the Association of Independent Schools of NSW, Geoff Newcombe, said Dr Leigh's "groundbreaking" findings paved the way for teachers to be partly rewarded by the exam score improvements of their students. "It's complex but we can't stick our head in the sand and say it's too hard," he said.

The Federal Education Minister, Julie Bishop, said the report supports her policy of introducing performance pay for teachers next year. "This makes a mockery of education union and Labor Party claims that teacher performance cannot be measured," she said.

The schools data for Dr Leigh's study, which includes year 3 and 5 numeracy and literacy exam scores and information about individual teachers, was provided by the Queensland Education

Department after NSW and Victoria had refused to make their information available.

As well as being used to identify, reward and retain the best teachers, Dr Leigh says his methodology could be used to send the best teachers where they could contribute most.

If indigenous students had teachers from the top quarter rather than the bottom, then the findings imply the two-year black-white test score gap could be closed within seven years.

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Study reveals teacher skill discrepancy

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The top 10 per cent of Australia's teachers are twice as effective as the bottom 10 per cent, a study of student test scores conducted by the Australian National University has found.

The research was conducted by ANU economist Andrew Leigh.

Dr Leigh says the study differed from others conducted in the field because it examines how student test scores improved over a period.

"The problem with looking at a single test is that you cannot separate factors such as family background from teacher effectiveness," he says in a statement. "But by looking at how students performance changes over time, it is possible to focus on teachers' value-added."

The study, *Estimating Teacher Effectiveness From Two-Year Changes in Students' Test Scores*, finds teachers who teach literacy effectively tend to be better at teaching numeracy.

There is also a large difference between the best and worst teachers in the system, the study finds.

"In terms of raising literacy and numeracy scores, the top 25 per cent of teachers achieve in three-quarters of a year what the bottom 25 per cent of teachers achieve in a full year," Dr Leigh says.

"And the top 10 per cent of teachers achieve in half a year what the bottom 10 per cent achieve in a full year."

Similar dispersions between the best and worst teachers have been observed in US studies, Dr Leigh says.

Predictably, more experienced teachers are also more effective, but the biggest increases in their effectiveness can be observed in the early years of a teacher's career.

Female teachers are also slightly better at teaching literacy, the study finds.

Teachers with a masters degree or some other further qualification do not appear to produce larger test-score gains.

AAP