

TEACHER RETENTION: LINKING RESEARCH AND POLICY

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Sometimes research seems distant from the everyday lives of those who teach--and often it is. I know this from my own experience with two daughters--one of whom is a teacher and the other, a school psychologist. When I try to impart my "wisdom" from research to them, they soon set me straight about how little research can help them in their jobs. In fact, they have enriched my research through our conversations far more than I have contributed to making them more productive in their jobs.

I remember once that my younger daughter and I were talking about what difference it would make to her--a fourth grade teacher--if, instead of 24 students, she only had 22. She shrugged and said not much. But what if she could *choose* the two students to be removed from her class? I got an immediate positive reaction--and an important research lesson. Researchers have had a great deal of trouble trying to measure the effect that smaller class sizes have on educational achievement (Hanushek, 1989; Hedges, et al, 1994). I suspect the reason is contained in my daughter's answers. From a teacher's perspective, there are far more important factors than simple student/teacher ratio when trying to assess how productive a teacher can be in a classroom. The motivation of students, their ability to stay on task, their behavior, the parental support and the mix of students--these are the factors that make a difference and these are but poorly proxied by the simple teacher/pupil ratios so favored by researchers.

There are two areas of research ongoing at RAND that directly bear on the topic of teacher retention. The first concerns the trends in teacher retention and the second is the trends in test scores over the last 25 years.

Our study examined the retention of teachers for the past twenty five years, using data from the state of Indiana (Grissmer and Kirby, 1992). When we initiated the study, there was concern that a teacher shortage was looming. Teachers were leaving the profession at high rates; school enrollments were

rising; and, the number of college students choosing education as a major was at historically low levels. However, we found that teacher attrition rates were at their *lowest* level in 25 years, and likely to remain so over the next ten to fifteen years. Thus, the low number of students choosing education may simply have been a reflection of a very tough job market for teachers.

The very low attrition rates can be explained by a combination of factors. First, teachers have the highest rates of attrition in their first five years of teaching, but the teaching force of the 1990s was mainly a middle-aged group with very few new, young teachers. The reason for the skewed age distribution is that many teachers were hired during the 1960s and early 1970s to teach the boomers--but once the boomers had passed through school, fewer new teachers were needed and few were hired.

An important second factor is that women teachers have changed their labor force behavior. Whereas once they did not start teaching or dropped out of teaching after starting a family, they now tend to drop out less often, and stay out for shorter periods. We find that the overall reduction in attrition rates from 1968 to 1988 was much stronger among women than men teachers.

A third reason is that many beginning teachers are now in their thirties rather than their twenties when they start teaching. This delayed entrance means that many women are returning to get diplomas later, or are turning to teaching after other jobs. We find that women who start teaching later have much lower attrition rates than those who start at a younger age.

A fourth reason is that teaching salaries also increased in the late 1980s and early 1990s and this led to lower teacher attrition.

Teacher attrition rates should stay low in the next ten years until the largely middle-aged teaching force begins to retire. Whether teachers retire early or wait until age 65 is an important policy question. Most state pension

systems offer retirement as early as age 55 with twenty or twenty five years of teaching. However, some states are offering early retirement incentives in order to reduce budgets. Educational budgets can be reduced by replacing older teachers who have high salaries with younger teachers who are generally paid at a lower scale. If these early retirement offers become widespread, then the demand for new teachers will rise much faster and much sooner than current projections indicate.

Low teacher attrition can be a mixed blessing. Whether it contributes to a higher quality teaching force depends critically on who is leaving and who is not. The ideal situation would be if higher quality teachers stay in the profession, while lower quality teachers leave. There is some indication that higher ability students entering teaching have higher attrition rates than lower ability students. The teaching profession still has trouble attracting and retaining the very high ability students. However, perhaps a more important problem is that teachers of lower ability do not leave the profession. There are many teachers in the system who have lost motivation to teach, and feel trapped by the pension system and are simply serving out their time. This is a problem of too high retention and it is important to realize that the quality of the teaching profession can be improved by higher retention for higher quality teachers or lower retention of lower quality teachers.

Our earlier research experience with the all volunteer force provided an invaluable lesson that seems relevant to teacher retention. In the late 1970s, the quality of youth entering the all volunteer force was very low; almost one-half of those entering the Army had not completed high school. There were serious problems of performance and discipline, and very high turnover, and a return to the draft was being given serious consideration. Within six years, the Army was enlisting 90 percent high school graduates, turnover was at an all time low

and very few problems of discipline and performance existed. What were the key components of this shift in quality and performance?

First, pay and educational benefits were increased significantly. Second, higher ability youth were offered higher levels of pay and benefits than those of lower ability. This differential pay enabled the military to pay for higher quality only where needed and avoid the high costs of across-the-board pay increases that would mean equally high pay for all enlistees. Third, standards of performance were tightened, so that attrition rates among lower quality groups who were not performing up to par increased. Fourth, recruiting was intensified among higher ability youth and specific incentives were offered to attract them, such as educational benefits. This set of policies significantly changed the quality of accessions, the quality of performance and led to lower overall turnover. These measures were critical to making the all volunteer force viable without inordinately high personnel costs.

Spending education funds efficiently is increasingly important since budgets are likely to remain tight in the foreseeable future. Personnel salaries consume about two-thirds of education budgets and the constrained fiscal environment makes it unlikely that teacher salary levels will rise (in real terms) in the near future. Thus, unless some way can be found to differentially pay higher quality teachers, we are unlikely to reverse the trends that indicate high attrition rates for higher ability teachers in their initial years of teaching. There is some evidence that science teachers--and to a lesser extent, mathematics teachers--have significantly higher permanent attrition rates than other types of teachers in their initial years of teaching. The higher science attrition rates are probably attributable to a combination of higher wage opportunities outside teaching and specific working conditions in laboratory based science in high schools.



However, this trend is also unlikely to be reversed, unless some form of differential pay for certain teaching specialties in short supply is implemented. With the apparent failure of forms of merit pay--partly due to teacher union opposition--the outlook for widespread adoption of any form of differential pay looks bleak. As a consequence, we will probably continue to have higher attrition among certain teaching specialties and higher ability teachers.

While discussing the question of differential pay for teachers based on specialty or "teaching quality" with a group of teachers in Indiana, we found that teachers had an instinctual negative reaction to the idea of paying some teachers more than others based on merit or specialty. There appears to be a strong sense of egalitarianism among teachers. The reason seemed to be that "we all do the same job;" in addition, there was general distrust of any evaluation method that would provide the basis for merit pay. However, we rephrased the question to ask how it felt to be in a profession that no matter how outstanding their performance, they could never earn more than much lower performing teachers with similar education and experience. Their reaction indicated the dilemma that face higher quality teachers. We believe that many good teachers find it very discouraging to have their pay not depend on performance, and many of these find other jobs where their individual effort and performance is rewarded. It is precisely those teachers that believe that they can outperform peers that are more likely to pursue other occupations where pay and performance are more closely linked.

Critical to rewarding better teachers is the development of fair evaluation systems. No job evaluation system used in the private sector is perfect. Some employees receive unfair evaluations, and not all employees who perform well are identified. However, an evaluation system, that on average is able to distinguish better performing employees will perform a valuable service by

reducing attrition among those better performing employees. We need to continue to address the question of teacher evaluation and differential pay if we are interested in retaining higher ability teachers in their initial years of teaching.

I want to turn to a second area of ongoing RAND research that may change the way that teachers view their performance and their profession. It has been a common theme particularly over the last ten years that "test scores are declining" despite the massive real increases in educational spending, and this has led to a refrain that our "schools are failing" and that a fundamental restructuring of public education is needed. Needless to say, this refrain does not help the morale of the 2.5 million teachers in the nation. The question is how accurate are these perceptions?

One part of the refrain--that test scores are falling--is certainly inaccurate (Koretz, 1986, 1992; Linn and Dunbar, 1990). Tests that are representative of the nation's youth show that scores have *increased*, not decreased in the last twenty years. While the widely reported and highly publicized SAT scores have declined, they are not representative of any identifiable group over time. The decline is primarily due to the self-selected sample of students taking the test--a sample which has grown and changed in composition over time--and due to the fact that this sample does not include the groups whose test scores have increased most rapidly over the last 20 years--namely lower scoring or non-college-bound students. Thus the SAT scores provide a misleading picture of the performance of U. S. youth over the last twenty years.

We began a study at RAND to determine what effect the changes that have occurred in the family over the last twenty years may have had on test scores. We originally hypothesized that a "deteriorating" family environment may have lowered test scores, and that the additional school spending may have prevented even further declines. Our research quantified the effects of changing

family characteristics on test scores using models relating student achievement to family and demographic characteristics; we then compared these predicted estimates to actual changes in test scores to see how much of the actual change could be accounted for by changing family and demographic trends.

Our results (Grissmer et al., 1994) run counter to much of the conventional wisdom and generally paint a much more positive picture of student performance, school performance and families over the last twenty years. We found that changes in the family would be expected to raise--not lower--test scores. The main reasons were that children in 1990 were living in smaller families with higher income per child and with much better educated parents than their counterparts in 1970. We also found that the increases in single parent families and working mothers by themselves would be expected to have little impact on children's test scores. Moreover, we found that changes in black family characteristics would predict even larger gains in scores than in non-black families. The gains in parental education and reductions in family size have been even more dramatic in black families. Hispanic families showed the smallest predicted gains partly due to continuing immigration of families with lower education and income.

How do predicted gains in test scores due to family changes compare to actual test score changes? Since we used a nationally representative sample of students and families to estimate family effects, we compared our results to the National Assessment of Educational Progress (NAEP) which is a nationally representative sample of 9, 13 and 17 year old students. Unlike the SAT scores, the NAEP scores show *gains* in mathematics and reading scores between 1970 and 1990 for all students, and even larger gains for minority students.

When we compared our estimated family effects to actual NAEP gains, we found that actual gains for non-Hispanic whites were approximately equal to

family effects. However, we found that family effects could only account for about one-third of the very large minority gains. This indicates that factors outside the family probably played a large role in determining these large gains in minority test scores. We are continuing our research to determine what role schools and/or social programs may have played in accounting for these additional gains.

However, it is clear that much of the conventional wisdom regarding schools and families is inaccurate. National test scores have increased, not declined over the last 20 years and minorities have made very large gains. Children in families in 1990 would be predicted to score higher than children in families in 1970, but these family effects cannot account for much of the gains in minority test scores. This leaves the schools and social programs as the main factors which might account for minority gains. It is possible that much of the additional spending on education affected lower scoring students, which was precisely where a significant portion of this money was targeted.

Being in a profession that receives criticism--much of it undeserved--can significantly affect the morale of teachers, and thus their desire to stay in the profession. We believe that researchers can contribute to teacher retention by "getting the message right" about what has happened in education over the last twenty years. If our results are accurate, teachers and schools may have made significant contributions to an important national goal--namely reducing the inequality in educational outcomes among our nation's poorer and lower-achieving youth, and they deserved to be praised for their efforts, not scorned.

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