



## The Effects of Teachers Trained through Different Routes to Certification

Do students have different learning outcomes when teachers complete their certification requirements before they start teaching—rather than after? Apparently not. Nor do classroom practices vary for teachers who choose different routes.

Every year, thousands of new teachers pass through hundreds of different teacher preparation programs and are hired to teach in the nation's schools. Most new teachers complete all their certification requirements before beginning to teach (traditional route). But in recent years as many as a third of new hires have begun teaching before completing all their certification requirements (alternative route). Alternative route to certification programs have recently grown in number and size in response to teacher shortages and the No Child Left Behind (NCLB) Act of 2001, which requires that every core class be staffed with a teacher who is certified or enrolled and making adequate progress toward certification through an approved program.

The potential advantages and disadvantages of the two routes to certification have been debated. Some critics contend that the coursework required by traditional (and some alternative) programs is unnecessarily burdensome (Finn 2003; Hess 2001; U.S. Department of Education 2005), providing little benefit while discouraging talented people from entering the teaching profession (Ballou and Podgursky 1997). Alternative route to certification programs have been seen as a way to eliminate these barriers. But supporters of traditional route to certification programs argue

that easing requirements degrades quality by producing teachers who are inadequately prepared for the classroom and less effective (Darling-Hammond 1992). None of these claims, however, has been rigorously studied in the context of the programs that are most prevalent.

### The study

The NCLB Act provides support “to ensure that teachers have the necessary subject matter knowledge and teaching skills in the academic subjects that the teachers teach.” Title II of the act allows funds to be used for “carrying out programs that establish, expand, or improve alternative routes for state certification of teachers,” as well as for “reforming teacher certification (including recertification) or licensing requirements.”

This study informs that effort by rigorously examining the effect of alternative-route program teachers on student achievement and classroom practices. It also investigates whether certification training experiences are associated with teacher performance.

The study addresses two questions:

- What are the relative effects on student achievement of teachers who chose to be trained through different routes to certification? How do observed teacher practices vary by certification route?
- What aspects of certification programs (such as the amount of coursework, the timing of coursework relative to being the lead teacher in the classroom, the core coursework content) are associated with the effects of teachers on student achievement or classroom practices?

To ensure that estimates of teacher effect on student achievement were unbiased and not confounded by preexisting school or student characteristics, students were randomly assigned to teachers from alternative-route certification programs or traditional-route certification programs in the same school and grade. Each instance of random assignment to either a teacher from an alternative-route program or traditional-route program within a school and grade constituted a “mini-experiment.” Overall impacts were calculated by taking the average of the impacts from all mini-experiments, comparing all alternative-route program teachers with all traditional-route program teachers. To explore the potential importance of the amount of coursework required for certification, the mini-experiments were also divided into two approximately equal groups based on the amount of coursework required by the alternative-route certification program. Those whose program required 274 or fewer hours of instruction formed the low-coursework group, and those whose program required 308 or more hours formed the high-coursework group. The study also examined effects within several subgroups as defined by state, grade level, teaching experience, and whether teachers were taking coursework during the school year.

Because certification routes are not randomly assigned to teacher trainees, the estimates of the effects on student achievement and on classroom practices of teachers who were trained through different routes to certification pertain to those who chose to participate in these programs. Because of likely differences in the types of people who attend different certification programs, the results cannot be used to rigorously address how a graduate of one type of program would fare if he or she had attended another type.

The study sample included 87 alternative-route program and 87 traditional-route program teachers from 63 elementary schools in 20 districts and seven geographically diverse states

(California, Georgia, Illinois, Louisiana, New Jersey, Texas, and Wisconsin). The study targeted districts that hired participants from alternative-route certification programs that did not have highly selective admission requirements. These programs were the focus of this study because they constitute the majority of alternative-route certification programs and because most traditional-route certification programs also have less selective admission requirements. Schools could participate in the study if they had at least one eligible alternative-route program teacher and one traditional-route program teacher in the same grade, in kindergarten through grade 5. Teachers were eligible to participate if they had five or fewer years of teaching experience and taught both reading and math in a regular classroom setting. The study took place during the 2004/05 and 2005/06 school years, but student outcomes were gauged over just one school year.

Student achievement in reading and math was measured using the California Achievement Test, 5th Edition, published by CTB Macmillan/McGraw-Hill. The quality of teachers’ instruction in literacy and math was rated using the Vermont Classroom Observation Tool (VCOT), a proprietary instrument for classroom observation developed by the Vermont Institutes. Teacher characteristics were measured using a survey administered to all study teachers. Information on programs’ coursework and fieldwork requirements was collected through interviews with program officials.

### The study’s main findings

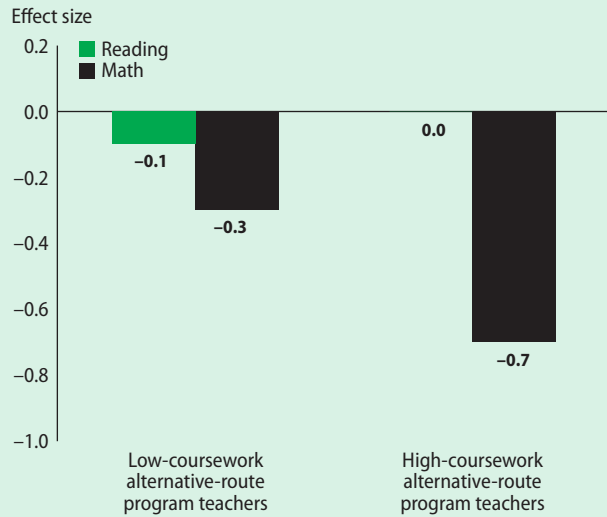
The study found no benefit, on average, to student achievement from placing an alternative-route program teacher in the classroom when the alternative was a teacher certified through a traditional route, but there was no evidence of harm either. In addition, the experimental and nonexperimental findings together indicate that while individual teachers appear to have an effect on student achievement, the study could not identify what about a teacher affects student achievement. Variation in student achievement was not strongly linked to the teachers’ chosen preparation route or to other measured teacher characteristics.

*Student achievement—no statistically significant differences overall*

There was no statistically significant difference in performance between students of alternative-route program

FIGURE 1

**Difference in effect sizes on reading and math scores between students of low- and high-coursework alternative-route program teachers and students of traditional-route program teachers**



Note: None of the effects was significantly different from zero at the 5 percent level.

teachers and students of traditional-route program teachers. The experimental results provided no evidence that students of low-coursework alternative-route program teachers scored statistically differently in reading and math from students of their traditional-route program counterparts, nor did students of high-coursework alternative-route program teachers compared with those of their traditional-route program counterparts (see figure). So, the route to certification selected by a prospective teacher is unlikely to provide information, on average, about the expected quality of that teacher as measured by student achievement.

All alternative-route program teachers in California were from high-coursework programs, and they accounted for half of all high-coursework alternative-route program teachers in the sample. Students of alternative-route program teachers in California scored lower on math than did students of traditional-route program teachers, and the effect size ( $-0.13$ ) was statistically significant. The effects of high-coursework alternative-route program teachers in other states was small ( $-0.01$ ) and not statistically significant.

Students of alternative-route program teachers who were taking courses during the study year, toward either teacher

certification or an advanced degree, had lower math scores than students of their traditional-route program counterparts, and the effect size ( $-0.09$ ) was statistically significant. The effect in reading was not statistically significant. For students of alternative-route program teachers not taking coursework during the study year, neither the effect on reading nor the effect on math scores was significant.

There was no evidence that the effect of alternative-route program teachers on student math or reading achievement differed by grade level. Also, there were no statistically significant differences between the lower elementary grades (K–1) and the upper ones (2–5) for either the high- or low-coursework alternative-route program teachers.

There was no evidence that the math or reading achievement of students of alternative-route program teachers with less experience (1 to 2 years) was statistically significantly different—relative to their traditional-route program counterparts—from that of students of alternative-route program teachers with more experience (3 or more years). The one statistically significant difference pertained to students of low-coursework alternative-route program teachers in their third or fourth year of teaching; their students scored lower in reading and math than students of traditional-route program teachers did. Inferences based on these findings should be made with caution because the subgroup sizes were small and the experience of the traditional-route program comparison teachers varied.

### *Classroom practices—no statistically significant differences on most outcomes*

Ratings of classroom practices measuring the content, culture, and implementation of instruction received by students of alternative-route program and traditional-route program teachers did not differ, with one exception. There were no statistically significant differences in scores on the VCOT between low-coursework alternative-route program teachers and their traditional-route program counterparts in the quality of their literacy and math instruction. High-coursework alternative-route program teachers also scored no differently than their traditional-route program counterparts on five of six VCOT measures, but they scored lower (by 0.40 standard deviation) on the classroom culture dimension in teaching literacy, and the difference was statistically significant.

## Other study findings

### Total amount of program coursework—wide and overlapping ranges

Both the alternative- and the traditional-route programs had diverse requirements for total instruction. Alternative-route programs required from 75 to 795 hours, and traditional-route programs from 240 to 1,380 hours. The overlap in coursework requirements between the two programs was dictated by variations in state policies on teacher certification programs. For example, in New Jersey teachers from alternative-route programs were required to complete fewer hours of coursework than teachers from traditional-route programs, while in California the range of required coursework hours was similar for all teachers.

### Formal instruction before teaching—differences between low- and high-coursework alternative-route program teachers

While teachers from traditional-route programs receive all their instruction (and participate in student teaching) before becoming regular full-time teachers, teachers from alternative-route programs sometimes begin teaching before having received formal instruction. Overall, low-coursework alternative-route program teachers were required to take an average of 115 hours of instruction—64 percent of their total instruction—before starting to teach. And high-coursework alternative-route program teachers were required to take an average of 150 hours—about 35 percent of their total instruction—before starting to teach. But nine alternative-route program teachers in the study, seven of them from New Jersey, were not required to complete any coursework before becoming regular full-time teachers.

### Content of coursework—no correlation with student test scores

After controlling for other observable characteristics that may be correlated with a teacher's effect, there was no statistically significant relationship between student test

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scores and the content of the teacher's training, including the number of required hours of math pedagogy, reading and language arts pedagogy, or fieldwork. Similarly, there was no evidence of a statistically significant positive relationship between majoring in education and having an effect on student achievement.

### For the full report please visit:

<http://ies.ed.gov/ncee/pubs/20094043/index.asp>

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