What Research Says about the Effects of Teacher Certification

Alternative certification has been encouraged as a response to teacher shortages over the last decade. The alternative programs created in the field vary widely. Some of these programs are well-designed routes for mid-career entrants that provide a tailored pathway which wraps relevant coursework around a carefully supervised practicum over the course of a year under the wing of an expert teacher. Some of the highest quality alternative routes include urban teacher residency programs, launched in Chicago, Denver, and Boston, and programs like Elk Grove, California's internship model, which requires well-supervised student teaching and wraparound coursework before recruits are selected to take on classrooms while completing their coursework. These kinds of routes have created a useful pathway into teaching for those who already earned a bachelor's degree, and have allowed the schools to benefit from a more mature pool with useful work experience that can provide a strong foundation for teaching.

Other programs – generally targeted for high-turnover urban schools – offer only a few weeks of training before teachers step into the classroom on their own, with variable access to mentoring or support. These teachers complete additional courses while teaching, usually less than other teachers receive and without the benefit of student teaching that would allow them to learn under the wing of a successful veteran teacher. These efforts to address shortages in high-need schools by reducing training rather than increasing incentives to teach have, in many cases, actually exacerbated staffing problems and undermined efforts to raise student achievement.

Studies examining the effects of teacher education and certification on student achievement have consistently found that fully prepared and certified teachers are more effective in raising student achievement than uncertified teachers or alternatively certified teachers who have had little preparation before they enter the classroom. In addition, fully prepared teachers generally stay significantly longer in teaching than those who enter through short-term alternate pathways. Since teachers become more effective with experience, high turnover affects the overall effectiveness of the teaching force as well as its costs, since costs of teacher attrition average $15,000 to $20,000 for each teacher who leaves.

Recent studies include the following:

Using value-added methods, **a national study of 4400 early elementary children** drawn from the Early Childhood Longitudinal Study found that students with a certified teacher for most of their early school experience scored significantly higher in reading than students who had alternatively certified or uncertified teachers. Students with fully certified teachers for at least two of the three grade levels studied averaged 1.5 IRT units greater growth per year. Teacher certification accounted for 8% of the growth in reading achievement and was particularly influential in predicting growth for African American students. Having fully certified teachers helped to narrow the academic gap between African American and European American students across early elementary grades.[1]

[1] Easton-Brooks, D. & Davis, A. (2009). Teacher qualification and the achievement gap in early primary grades. *Education Policy Analysis Archives, 17* (15). http://epaa.asu.edu/epaa/v17n15/.

A large-scale study of **high school students' achievement in North Carolina** found that teachers were more significantly more effective if they were fully prepared when they entered teaching, were certified in the specific field they teach, had higher scores on a teacher licensing test, had taught for more than two years, and were National Board certified. The strongest negative effects on student achievement were produced by alternatively certified teachers who entered teaching through North Carolina's "lateral entry" route, teachers uncertified in their field, and those lacking experience. The effects on student achievement of having a teacher with very weak credentials as compared to having one with very strong credentials were greater than the effects of race and parent education combined or of lowering class sizes by five students.[2]

Uncertified and alternatively certified teachers were found to be significantly less effective than fully prepared and certified teachers in a six-year longitudinal study in **Houston, Texas.** Examining132,000 elementary students and 4,400 teachers, researchers found that certified teachers consistently produced stronger student achievement gains on six tests in reading and mathematics. Compared to fully certified teachers, uncertified teachers, including those from Teach for America, had significant negative effects on student achievement on five of six tests. (The sixth was also negative but not significant.) Other alternatively certified teachers showed negative effects on five of six tests, three of which were statistically significant. Teachers without standard certification were assigned primarily to teach African American and Latino students and had attrition rates nearly double those of fully certified teachers.[3]

Similar results were found in a study of 3,766 new teachers who entered teaching in grades 4-8 through different pathways in **New York City**. Students of beginning teachers prepared through alternative routes such as Teach for America and the New York Teaching Fellows scored significantly lower in reading / language arts in grades 4-8 and in mathematics in grades 4-5 than students of new teachers who graduated from college-based teacher education programs. Although TFA and Teaching Fellows teachers who stayed in teaching became more effective in later years as they gained experience and training, most left teaching much earlier than other teachers. By year four, more than 50% of these alternative program entrants and 85% of Teach for America candidates had left as compared to 37% of college prepared teachers.[4]

A study of **elementary student achievement in Arizona,** examining 110 matched pairs of certified and under-certified teachers (alternatively certified or uncertified) from five low-income school districts, found that students of certified teachers significantly out-performed students of teachers who were under-certified on all three subtests of the SAT 9 in reading,

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[2] Clotfelter, C., Ladd, H.F., & Vigdor, J.L. (2007). *Teacher credentials and student achievement in high school*: *A cross-subject analysis with student fixed effects.* Cambridge: National Bureau of Economic Research. http://www.nber.org/papers/w13617.

[3] Darling-Hammond, L., Holtzman, D., Gatlin, S.J., & Heilig, J.V. (2005). Does teacher preparation matter? Evidence about teacher certification, Teach for America, and teacher effectiveness. *Education Policy Analysis Archives, 13* (42). http://epaa.asu.edu/epa//v13n42/.

[4] Boyd, D., Grossman, P., Lankford, H., Loeb, S., & Wyckoff, J. (2006). How changes in entry requirements alter the teacher workforce and affect student achievement. *Education Finance and Policy, 1* (2): 176-216.

mathematics and language arts. Students of Teach for America teachers did not perform significantly differently from students of other under-certified teachers. In reading, students of certified teachers outperformed students of under-certified teachers by about 4 months on a grade equivalent scale. Students of certified teachers also outperformed students of under-certified teachers by about 3 months in mathematics and about 3 months in language arts.[5]

Mathematica's recent **national study of alternative certification** found that, compared to matched teachers in their hard-to-staff, high-minority schools (who were themselves less well trained than most teachers nationally), alternatively certified teachers who were still taking coursework while teaching produced significantly lower achievement gains for their students. Controlling for experience, alternatively certified teachers did noticeably less well than their counterparts in mathematics across the entire sample and these differentials were significant in California, with an effect size of -0.13, which represents more than 1 month per year of mathematics achievement.[6] Furthermore, when looked at in terms of achievement gains from fall to spring, the study's data showed that teachers from the "low-coursework" alternative routes actually ***lowered*** their students' achievement scores between fall and spring. Those from "high-coursework" alternative programs did somewhat better, and their traditionally-prepared counterparts achieved the largest gains for students – an increase of about 2 NCEs (normal curve equivalent points) – over the course of the year in reading and mathematics.[7]

Both alternative and traditional pre-service programs vary in their effectiveness. A study of the features of teacher education programs that influenced their graduates' effectiveness in supporting reading and mathematics gains for students found that the most effective programs:

- Had well-supervised student teaching experiences that were also well-matched to the subjects, grade levels, and students they would later teach
- Had more coursework in reading and mathematics content and teaching methods
- Focused in their courses on helping candidates acquire specific practices and tools that they then applied in their student teaching or practicum experiences
- Enabled candidates to study the specific curriculum materials they would teach
- Required a capstone project that was usually a performance assessment or portfolio of their work done in classrooms with students.[8]

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[5] Laczko-Kerr, I., & Berliner, D. (2002). The effectiveness of Teach for America and other under-certified teachers on student academic achievement: A case of harmful public policy. *Education Policy Analysis Archives, 10* (37). http://epaa.asu.edu/epaa/v10n37

[6] Constantine, J., Player, D., Silva, T., Hallgren, K., Grider, M., & Deke, J. (2009). *An Evaluation of Teachers Trained Through Different Routes to Certification*. Washington, DC: Mathematica.

[7] Darling-Hammond, L. (2009). *Educational Opportunity and Alternative Certification: New Evidence and New Questions*. Stanford, CA: Stanford Center for Opportunity Policy in Education. http://edpolicy.stanford.edu/pages/pubs/pub_docs/mathematica_policy_brief.pdf

[8] Boyd, D., Grossman, P., Lankford, H., Loeb, S., & Wyckoff, J. (September 2008). Teacher preparation and student achievement. NBER Working Paper No. W14314. National Bureau of Economic Research. Available at SSRN: http://ssrn.com/abstract=1264576.