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RESEARCH BRIEF

The Relative Effectiveness of Traditional and Alternative Teacher Preparation Programs: A Review of Recent Research

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Educational researchers have frequently argued that teachers are the most influential school-related factor for student learning (Clotfelter, Ladd, & Vigdor, 2010; Goldhaber, 2002; Hanushek, 2007; Harris & Sass, 2011). Accordingly, policymakers have often sought ways to improve teacher preparation, in-service training, recruitment, and retention (e.g., Brighouse, 2008; Center for American Progress, 2012; National Council for Accreditation of Teacher Education, 2016). For example, the U.S. Department of Education (2015) proposed federal regulations for all 25,000 teacher preparation programs across the nation, including the development of data systems to evaluate program performance using four ratings (i.e., low-performing, at-risk, effective, and exceptional).

Teacher preparation refers to a "state-approved course of study, the completion of which signifies that an enrollee has met all the state's educational or training requirements for initial certification or licensure to teach in the state's elementary or secondary schools" (Department of Education, 2016, p. 6). The widespread concern for the quality of teacher preparation has extended to both traditional programs at four-year institutions and alternative programs created to address teacher shortages. From an econometric perspective, the expansion of expedited alternative preparation programs might be an efficient method for increasing the number of teachers, but many have questioned whether such a singular focus on efficiency sacrifices quality in terms of teacher skills and knowledge and, ultimately, student learning outcomes (e.g., Darling-Hammond, Chung, & Frelow, 2002; Goldhaber, Liddle, & Theobald, 2013; Kane, Rockoff, & Staiger, 2008). This brief seeks to inform policies on teacher preparation by reviewing research on the effects of teacher certification and preparation programs in relation to student performance and teacher outcomes.[1]

MAIN FINDINGS

- Traditional teacher preparation generally refers to a four- or five-year undergraduate program at a postsecondary institution. Alternative preparation programs, such as Teach for America (TFA), provide expedited pathways to licensure in order to rapidly increase the number of available teachers in a state.
- Traditional teacher preparation consistently yields better instructional knowledge, self-efficacy, and teacher retention than alternative preparation across all levels of schooling, except kindergarten.
- Studies comparing alternative and traditional teacher preparation programs have yielded mixed results in relation to student achievement. Some studies revealed that less selective alternative preparation programs were either substantially less effective or slightly less effective than traditional programs. However, other studies demonstrated that alternative and traditional preparation programs are equally effective in Texas and New York, and some studies indicated that TFA, a highly selective program, is more effective in improving math and science scores compared to traditional preparation.
- Taking into account the findings of both teacher and student outcomes research, a cautious approach to policy would minimize reliance on alternative preparation programs to meet teacher workforce demands..

[1] Studies were selected for this review if a rigorous statistical analysis was employed to minimize the influence of confounding factors, including fixed effects models and traditional regression with key covariates. Although these studies do not provide the same level of confidence in causal attribution as do experimental designs, they currently provide our best estimates of teacher effectiveness.

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DISTINGUISHING BETWEEN TRADITIONAL AND ALTERNATIVE PROGRAMS

Traditional teacher preparation generally refers to a four- or five-year undergraduate program at a postsecondary institution.[2] Although teacher licensure requirements and preparation programs vary across states, most traditional systems possess similar requirements. In general, teachers must (a) have at least a bachelor's degree; (b) complete an approved, accredited education program; (c) have a major in education (or a minor in elementary education); (d) have a major in the subject area in which they plan to teach (for middle- and high-school teaching); (e) have a strong foundation in the liberal arts; and (f) pass a teacher licensure exam (Roth & Swail, 2000; U.S. Department of Education, 2013). A traditional program generally includes courses on pedagogy, subject content, and courses on teaching particular populations, such as English language learners and special education students.

Alternative preparation programs provide expedited pathways to licensure in order to rapidly increase the number of available teachers in the state. Among nearly 730,000 teacher candidates during 2009-10, 12 percent were enrolled in alternative preparation programs, compared to 88 percent enrolled in traditional preparation programs (U.S. Department of Education, 2013). Alternative programs include Teach for America (TFA), The New Teacher Project (TNTP) Teaching Fellows,[3] and temporary or emergency certification (e.g., Temporary Authorization Certificate in Missouri, Project Teaching in Wisconsin).[4] Alternative programs vary in time, format, and locale, though most are closely supervised by state agencies and are subject to federal reporting requirements (e.g., teacher retention rates, student learning outcomes, employer feedback). Some programs have relatively few requirements for content knowledge related to the subject matter and grade level taught (Zeichner & Schulte, 2001). However, nearly all states require that graduates of alternative as well as traditional programs pass a licensure exam, such as the Praxis developed by the Educational Testing Service or assessments developed by such organizations as Language Testing International, Pearson, the College Board, or the American Board for Certification of Teacher Excellence (U.S. Department of Education, 2013).

THE EFFECT OF PROGRAM TYPE ON TEACHER OUTCOMES

Educational researchers have examined the effect of program type on several teacher outcomes, including job satisfaction, self-efficacy, and the use of evidence-based instructional practices (Avalos & Barrett, 2013), which have been positively associated with student achievement (Goldhaber, 2002; Guarino et al., 2006). Most studies have indicated that traditional teacher preparation yields better instructional knowledge (e.g., Darling-Hammond et al., 2002), self-efficacy (e.g., Zientek, 2007), and teacher retention (e.g., MacIver & Vaughn, 2007;[5] Papay et al., 2012, in grades 4-8), relative to alternative preparation programs. For instance, Darling-Hammond et al. (2002) found that of 2,956 beginning teachers in New York City, teachers from traditional preparation programs showed significantly higher instructional knowledge of curriculum and teaching strategies, sense of efficacy, and confidence in teaching than those from alternative programs or those without preparation. In a similar vein, Zientek (2007) found that, comparing 415 traditionally-prepared to 782 non-traditionally prepared novice teachers in Texas, traditionally-prepared teachers showed a higher sense of self-efficacy and preparedness in communication, planning, and instructional strategies. Using data from the national Schools and Staffing Survey (SASS), Ronfeldt, Schwartz, and Jacob (2014) found that almost half of teachers from alternative preparation programs did not complete practice teaching (i.e., pre-service student teaching), compared to only 8% of teachers from traditional programs. In addition, Ronfeldt et al. found that almost 70% of teachers from traditional programs completed the highest level of practice teaching,[6] compared to less than 30% of teachers from alternative preparation. These differences were particularly consequential for teacher outcomes as

[2] Traditional programs are also commonly termed standard certification programs.
[3] TNTP Teaching Fellows recruits recent college graduates to become teachers in high-need schools across the country through an intensive summer training program. TNTP Teaching Fellows programs are present in Maryland, Washington DC, Indiana, Michigan, Tennessee, Nevada, New York, and Louisiana (TNTP Teaching Fellows, 2016).
[4] A temporary, emergency, or provisional certification refers to a short-term certificate. Most temporary and emergency credentials are "valid for one or, at most, two years and are nonrenewable. Furthermore, these credentials are frequently developed to authorize individuals to teach when they have entered with credentials from other states or are in the process of completing minor coursework and test requirements" (Darling-Hammond et al., 2001, p. 61).
[5] The studies by Darling-Hammond et al. (2002), Zientek (2007), and MacIver and Vaughn (2007) did not specify the level of schooling for the findings because they included all teachers in certain areas (i.e., New York City, Texas, and Baltimore City, respectively).
[6] The authors categorized the level of practice teaching based on the period (weeks) of time needed to complete practice teaching: 0, 1-4 weeks, 5-7 weeks, 8-11 weeks, and 12 or more weeks. The highest level includes those teachers who completed 12 or more weeks of practice teaching.

Ronfeldt et al. also observed that teachers who had completed more practice teaching and coursework on pedagogy felt more prepared for teaching and indicated a higher likelihood to stay in teaching.

Only one study obtained results that deviated from the above findings (Guarino et al., 2006), which might be attributed to the level of schooling. Specifically, Guarino et al.'s (2006) analysis of national longitudinal data failed to detect any relationship between traditional kindergarten teacher preparation or alternative preparation and self-reported instructional practices in mathematics (i.e., numbers and geometry; advanced numbers and operations; traditional practices and computation; student-centered mathematics instruction; and mixed-achievement grouping).

THE EFFECT OF PROGRAM TYPE ON STUDENT ACHIEVEMENT

Teacher effectiveness is commonly assessed by the extent to which teachers promote student learning gains (Henry et al., 2014). Researchers have used state-level data for this purpose in New York (Darling-Hammond et al., 2002; Kane et al., 2008), North Carolina (Clotfelter et al., 2010; Darling-Hammond, Holtzman, Gatlin, & Heilig, 2005; Henry, Bastian, Fortner, Kershaw, Purtell, Thompson, & Zulli, 2014), and Texas (Hanushek, Kain, O'Brien, & Rivkin, 2005; Lincove, Osborne, Mills, & Bellows, 2015; Raymond et al., 2001; Zientek, 2007) as well as national data (Guarino, Hamilton, Lockwood, & Rathburn, 2006).

Some of the studies reviewed found that less selective alternative preparation programs were either substantially less effective (Clotfelter et al., 2010; Darling-Hammond et al., 2005; Henry et al., 2014) or slightly less effective (Guarino et al., 2006) than traditional programs in promoting student achievement. For example, Clotfelter et al. (2010) examined the association between diverse types of teacher preparation and student achievement using End-Of-Course (EOC) scores[7] from four cohorts of tenth graders in North Carolina. Clotfelter et al. found that students taught by teachers with traditional preparation performed better than those taught by teachers with alternative entry, provisional, temporary, and emergency certification. In addition, using data from North Carolina's high schools, Henry et al. (2014) found that math and science scores of high school students as well as math scores of middle school students with teachers who had completed traditional preparation were higher than those of students with teachers who had completed alternative preparation, except TFA (as noted below).[8]

Nonetheless, other studies have revealed that alternative and traditional teacher preparation programs are equally effective in Texas (Hanushek et al., 2005; Lincove et al., 2015) and New York (Kane et al., 2008). Kane et al. (2008) examined the relationship between teacher certification status and student achievement using data from nearly 19,000 teachers and 624,000 fourth- through eighth-grade students in New York City. Kane et al. found little difference in the effects of traditionally certified, uncertified, and alternatively certified teachers on students' math and reading value-added achievement scores in both elementary and middle schools. In a more recent study, Lincove et al. (2015) examined the effectiveness of alternative and traditional teacher preparation programs in Texas and found no statistically significant difference in fourth- through tenth-grade students' math achievement scores, after controlling for student and school covariates.

Finally, research focusing on the highly selective *Teach for America* program has demonstrated positive effects of TFA teachers on students' math (e.g., Clark et al., 2013; Glazerman, Mayer, & Decker, 2006; Henry et al., 2014; Turner, Goodman, Adachi, Brite, & Decker, 2012) and science achievement (e.g., Henry et al., 2014; Xu, Hannaway, & Taylor, 2011). For example, Henry et al. found that math scores across all school levels (elementary, middle, and high school) and science scores in high schools were higher among students with TFA teachers than among students with traditionally-prepared teachers. In addition, based on a randomized control study, Clark et al. (2013) found that 6th to 12th graders taught by TFA teachers obtained significantly higher scores on state-required standardized math tests compared to students taught by non-TFA teachers. However, researchers found no discernable effect of TFA teachers on achievement in social studies (e.g., Henry et al., 2014) and English language arts (e.g., Clark et al., 2015; Glazerman et al., 2006; Turner et al., 2012; Ware et al., 2011).

[7] The authors used normalized student achievement scores for five subjects (algebra; economic, legal and political systems; English I; geometry; and biology) for four cohorts of students and employed a model including subject-by-grade fixed effects.
[8] In their models, Henry et al. used student, teacher, and school covariates to control for differences in the individual characteristics of students, teachers, and school environments.

SUMMARY

The nature of teacher preparation is thought to be critical for ensuring a high-quality education for students, and thus it will remain a central focus of policy for school districts, states, and the federal government. The purpose of this brief was to review research on the effects of traditional and alternative teacher preparation programs in relation to student performance and teacher outcomes. Research on teacher outcomes indicates quite clearly that traditional programs are more effective than alternative programs. Traditional teacher preparation consistently yields better instructional knowledge, self-efficacy, and teacher retention than alternative preparation across all levels of schooling, except kindergarten. In contrast, the findings of past studies on student achievement are mixed. Studies comparing alternative and traditional teacher preparation programs have yielded mixed results in relation to student achievement. Several studies revealed that less selective alternative preparation programs were either substantially less effective or slightly less effective than traditional programs. Other studies demonstrated that alternative and traditional preparation programs are equally effective in Texas and New York, and some studies indicated that TFA, a very selective alternative program, is more effective in improving math and science scores compared to traditional preparation. Taking into account the findings of both teacher and student outcomes research, a cautious approach to policy would minimize reliance on alternative preparation programs to meet teacher workforce demands.

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