



What makes special-education teachers special? Teacher training and achievement of students with disabilities[☆]



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ABSTRACT

Using statewide data from Florida, we analyze the impact of both pre-service and in-service training on the ability of teachers to promote academic achievement among students with disabilities. We find students with disabilities whose teacher is certified in special education have greater achievement in both math and reading than similar students whose teacher is not special-education certified. However, students without disabilities experience slightly lower achievement when taught by a special-education certified teacher. In-service professional development has no effect on the value-added of teachers in special education courses, but non-disabled students whose regular education teachers received special education training exhibit modestly higher achievement. Similarly, the gain in effectiveness associated with teacher experience is greater for teachers of regular education courses than for teachers of special education courses. Teachers with advanced degrees are more effective in boosting the math achievement of students with disabilities than are those with only a baccalaureate degree.

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1. Introduction

Nearly 14 percent of public school students have disabilities and receive services under the Individuals with Disabilities Education Act (IDEA) (U.S. Department of Education, 2006). Achievement levels for these students

are substantially below their typical peers. Nationwide, more than three-quarters of students with disabilities score below the overall mean achievement level, compared to half of students in the general population (Wagner, Newman, Cameto, & Levine, 2006). Similarly, in Texas the mean achievement level for fourth graders with disabilities is two-thirds of a standard deviation below that of their typical peers. The gap widens to over one-standard deviation by seventh grade (Hanushek, Kain, & Rivkin, 2002).

Concern over the academic performance of students with disabilities has been heightened by the No Child Left Behind Act's (NCLB's) "adequate yearly progress" (AYP) standards. These standards must not only be achieved for the student population as a whole, but also by identifiable sub-groups of students, including those with disabilities. The result has been that over 13 percent of schools that do not meet AYP standards fail solely because they have not achieved the standards established for their students with disabilities (Soifer, 2006).

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Research on the performance of the general student population has produced a general consensus that the most important school-based determinant of student achievement is teacher quality.¹ Thus the logical starting point for any policy to address the achievement of students with disabilities is the quality of teachers instructing special education students. However, precious little is known about the effect of teacher quality on the ability of teachers to promote achievement and enhance educational outcomes for students with disabilities. We seek to fill this void by focusing on the relationship between achievement of students with disabilities and various aspects of teacher training, including formal pre-service university education, in-service professional development, and informal training acquired through on-the-job experience.

Determining the relationship between teacher training and student outcomes is particularly important given the difficulty schools face in adequately staffing special education programs. Over 12 percent of teachers employed to provide special education services to children ages 6–21 are not fully certified compared to 10.5 percent of teachers in general education (Boe & Cook, 2006; U.S. Department of Education, n.d.). High percentages of uncertified educators staffing special education programs enter teaching each year (Billingsley, Fall, & Williams, 2006). Evidence suggests that these uncertified teachers are less likely to stay in their positions (Miller, Brownell, & Smith, 1999) and attrition rates among beginning teachers with minimal preparation is twice as high compared to those with more extensive preparation (Boe, Cook, & Sunderland, 2006). Thus our work has potentially important implications for a variety of policy issues including the composition of both general education and special education teacher training programs, “alternative” certification programs for special education teachers, and recruitment and retention policies for special education teachers.

2. Previous literature

In recent years a growing body of literature has emerged that relates both direct and indirect measures of teacher human capital to the impact teachers have on student achievement, also known as teacher “value-added.” While these studies have begun to shed light on the relationship between teacher training and teacher quality in the general student population, there are few quantitative studies focusing on special education teachers. Indeed there exist only a handful of studies that investigate even the general effects of special education programs on achievement of students with disabilities. However, a number of previous studies have investigated the training of special education teachers and how that training influences their classroom practices. We discuss each of these three strands of literature in turn.

2.1. Teacher training and student achievement in the general student population

Numerous studies in recent years have investigated the relationship between various teacher characteristics and the performance of students they teach (see Harris and Sass, 2011 and Chingos and Peterson for reviews). Most include general measures of teacher experience and attainment of advanced degrees, but relatively few contain specific measures of pre-service preparation or in-service professional development.

Three studies consider the impact of college coursework on subsequent teacher performance. Betts, Zau, and Rice (2003), using data from San Diego, find that elementary school teachers with degrees in education outperform teachers who majored in science, but have lower value-added than teachers with other majors. In middle and high school, teachers with majors in the social sciences have higher value-added than their colleagues who graduated from colleges of education. Surprisingly, Betts, Zau and Rice find that math majors are no different in affecting student math scores compared with education majors. Aaronson, Barrow, and Sander (2007) finds little or no difference in teacher effectiveness among Chicago Public School teachers with different college majors. Harris and Sass (2011) find that, after controlling for entrance exam scores, math majors are *less* effective at teaching high school math in Florida than are students with other majors. However, college major is unrelated to teacher performance in reading instruction or in math instruction in elementary and middle school. Similarly, the results for specific coursework are quite mixed, with no significant differences when pre-college ability is taken into account.

Another group of studies takes a broader view of teacher preparation, comparing teachers who completed a traditional university based teacher preparation program with teachers who entered the profession from various “alternative routes,” generally encompassing people whose college major was something other than education. Three recent studies focus on the Teach for America (TFA) program, which recruits graduates of elite colleges and universities to teach in high-poverty schools. Two of the three studies, Boyd, Grossman, Lankford, Loeb, and Wyckoff (2006) and by Kane, Rockoff, and Staiger (2008) analyze elementary and middle school TFA teachers in New York City while Xu, Hannaway, and Taylor (2011) consider the relative effectiveness of TFA teachers at the high school level in North Carolina. Boyd et al. find TFA teachers are just as effective as traditionally prepared teachers in math but less effective than teacher preparation program completers in English Language Arts (ELA) instruction. The effectiveness differential in ELA is driven primarily by results for rookie teachers; after the first year, TFA teachers and traditionally prepared teachers are equally effective in teaching ELA. Kane, Rockoff and Staiger perform a similar analysis, but possess an additional year of data and can thus produce more precise estimates of the effectiveness of alternatively certified teachers. In their study, TFA teachers are found to be more effective than traditionally prepared teachers in math, but no different in ELA instruction. Xu, Hannaway and Taylor find that TFA teachers are more

¹ For recent studies quantifying the contribution of teacher quality to student achievement see Rockoff (2004), Rivkin, Hanushek, and Kain (2005), Aaronson, Barrow, and Sander (2007) and Harris and Sass (2011).

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