

CALDER Polymakers Council

Research Brief

TEACHER QUALITY AND OUTCOMES FOR STUDENTS WITH DISABILITIES

Curran A. Prettyman

Georgia State University

Tim R. Sass

Georgia State University/CALDER

Suggested citation:

Prettyman, C. A., & Sass, T. R. (2018). *Teacher quality and outcomes for students with disabilities* (CALDER Policy Brief No. 11-0918-1). Washington, DC: National Center for Analysis of Longitudinal Data in Education Research.

The crafting and dissemination of this research brief was also supported by the National Center for the Analysis of Longitudinal Data in Education Research (CALDER), which is funded by a consortium of foundations. For more information about CALDER funders, see www.caldercenter.org/about-calder. Note that the views expressed are those of the authors and do not necessarily reflect those of funders or the institutions to which the authors are affiliated.

Teacher Quality and Outcomes for Students With Disabilities

C. Alexa Prettyman

Georgia State University

Tim R. Sass,

Georgia State University/CALDER

CALDER Policy Brief No. 11-0918-1

Highlights

- There are chronic shortages of special education teachers, and the educational outcomes for students with disabilities are generally much worse than those of their typical peers.
- There is a large body of research on the impact of teacher quality on student outcomes and the determinants of teacher quality in general, but relatively little evidence on special education teachers and their students.
- It does not appear that students with disabilities are assigned to lower quality teachers than are typical students, but the effectiveness of teachers instructing students with disabilities does vary with certification status, early-career experience, and attainment of advanced degrees.
- There are many challenges to studying the impact of teachers on the performance of students with disabilities, including unmeasured variation in student ability, unknown supplementary services, and the fact that students with disabilities frequently have multiple teachers for a given subject. Despite these challenges, more research focusing on the determinants of special education teacher quality could inform important policy issues regarding the training of special education teachers, recruitment incentives, and differential teacher compensation.

Executive Summary

More than one out of eight students have an identified disability, and students with disabilities tend to lag behind their typical peers on a variety of outcomes. It has been well established that teacher quality is an important determinant of student success, and there are persistent shortages of special education teachers. The available evidence suggests that, on average, students with disabilities are not being assigned to teachers of different quality in comparison to students without disabilities. However, there are many challenges to studying the quality of the teachers who instruct special education students. As a result, we know relatively little about the quality of special education teachers and what factors determine special education teacher quality. One existing study suggests that the determinants of teacher effectiveness for students with disabilities may be rather different than for teachers of nondisabled students; certification status and advanced degree attainment are positively correlated with a teacher's ability to increase achievement for students with disabilities, but not so for the general student population. Given the difficulty that districts face in hiring and retaining special education teachers, more research on special education teacher quality would be valuable when assessing potential policies such as recruiting bonuses, loan forgiveness, or differential pay.

What Is the Issue?

Research on the determinants of achievement for students in general clearly indicates teacher quality is the most important school-based factor affecting student achievement (Rockoff, 2004; Rivkin, Hanushek, & Kain, 2005; Aaronson, Barrow, & Sander, 2007). Further, exposure to high-quality teachers increases the likelihood of going to college, increases lifetime earnings and reducing the probability of having children as teenagers (Chetty, Friedman, & Rockoff, 2014).

Unfortunately, there is little quantitative evidence on the relationship between teacher quality and outcomes for the 13% of public school students with an identified disability (U.S. Department of Education, 2018). Even more important, little is known about the determinants of special education teacher effectiveness and how they may differ from the factors that influence the quality of general education teachers.

Understanding the impact of teacher quality on student outcomes and the factors determining teacher quality are particularly important in special education for three reasons. First, students with disabilities perform worse on standardized exams and graduate at lower rates than their typical peers (Hanushek, Kain, & Rivkin, 2002; Morgan, Farkas, & Wu, 2011; Wagner, Newman, Cameto, & Levine, 2006; Elbaum, Myers, Rodriguez, & Sharpe, 2014). Some of these disparities are undoubtedly related to the nature of the students' disabilities, as students with cognitive impairments score 1.5 standard deviations lower on statewide achievement tests in Florida than do students with physical disabilities.¹ However, given the importance of teachers in improving student outcomes, it seems likely that improving the quality of teachers who instruct special education students could reduce gaps in achievement and attainment between students with disabilities and their typical peers.

Second, there are chronic shortages of special education teachers. Ingersoll and Perda (2009) find that three to four times as many secondary schools report significant difficulty in filling positions in special education relative to English or social studies. The difficulty in attracting and retaining special education teachers suggests school districts may have to lower the acceptable quality level in order to staff classrooms. Indeed, schools frequently are forced to hire teachers who are not fully certified in special education (Boe & Cook, 2006; Billingsley, Fall, & Williams, 2006; Florida Department of Education, 2008). Given these persistent shortages, policy makers are faced with difficult decisions about how best to recruit and retain special education teachers. Some districts and states have utilized one-time bonuses or loan forgiveness programs to improve recruitment and retention of special education teachers (Feng & Sass, 2018). Understanding the determinants of special education teacher quality and the effect that teacher quality has on student performance would provide valuable evidence to inform the crafting of these policies and determine their likely benefits.

Third, given the needs of students with disabilities, promoting teacher quality may be even more important than in the general student population. Some classroom observational studies find that inadequate special education teachers use ineffective teaching methods as frequently as they use research-based approaches (Burns & Ysseldyke, 2008) and teach a generic, and not individualized, lesson to all students (Harry & Klingner, 2006). Special educators have to be able to identify and adapt to each student's individualized learning needs (Johnson & Semmelroth, 2014). Beyond teaching content

¹ This finding is based on computations conducted by coauthor Tim Sass from individual-level data supplied by the Florida Department of Education.

effectively, they must be able to provide behavior management and support to their students (Watts, 2016).

What Is Known?

Quality Differences Between Special Education and General Education Teachers

One possible explanation for the observed achievement gap between students with disabilities and their typical peers is that students with disabilities may have lower quality teachers (Gilmour & Henry, 2018). However, Gilmour and Henry (2018) provide evidence against this hypothesis and in favor of some compensatory sorting. They focus on the difference in the quality of teachers who taught students with disabilities in elementary and middle school using 3 years of administrative records in North Carolina. Teacher quality is measured by academic achievement (i.e., state licensure exam scores and SAT or GRE scores), teaching experience, certification, prior observational evaluation scores, and prior value-added scores. Overall, they find that students with disabilities and students without disabilities are equally likely to be assigned to teachers of similar quality. For example, both groups of students are equally likely to be assigned to teachers rated “above proficient” on facilitating learning from the observational evaluation and equally likely to be assigned to teachers with similar prior value-added scores. In comparison to students without disabilities, students with disabilities are slightly less likely (<1%) to be assigned to rookie teachers and 3.8% to 10.3% more likely to be assigned to teachers with special education certification. The only potential evidence of negative sorting is that, on average, students with disabilities had teachers who scored lower on standardized tests by 0.01 standard deviations. However, the evidence that the impact of a teacher on student performance is correlated with their own academic performance is mixed (Boyd, Lankford, Loeb, Rockoff, & Wyckoff, 2008; Harris & Sass, 2011).

The Determinants of Quality for Teachers Instructing Special Education Students

There is little research about the relationship between special education teachers’ characteristics and the teachers’ ability to promote growth in student achievement. The lone published study, by Feng and Sass (2013), utilizes statewide data from Florida to estimate the impact of both preservice and inservice training on the ability of teachers to raise student test scores, or teacher “value added.” Like more general studies of the determinants of teacher value added, they find that inservice professional development has no significant effect on teacher effectiveness, but early-career experience does enhance the ability of teachers to promote student achievement among students with disabilities. Interestingly, in math the gains from early-career experience appear to be significantly less for teachers of special education courses compared to the gains for teachers of regular education courses. However, unlike studies of the population of teachers as a whole, Feng and Sass (2013) find a positive correlation between formal education and the value added of teachers of special education courses. In particular, teachers of special education courses who are certified in special education (implying they have substantial preservice coursework in education) are most effective in promoting achievement for students with disabilities than teachers lacking such certification. The difference is equivalent to the differential in effectiveness between a rookie teacher and one with 1–2 years of experience. Likewise, although the general literature on teacher productivity finds little or no relationship between teacher effectiveness and educational attainment (Harris & Sass, 2011), students with disabilities have modestly higher achievement in math when taught by an instructor with an advanced degree.

A recent [CALDER working paper](#) (Theobald, Goldhaber, Gratz, & Holden, 2018) nicely complements the Feng and Sass (2013) analysis by investigating the relationship between the value added and various qualifications of high school English Language arts (ELA) teachers and high school and postsecondary outcomes of their students with and without disabilities. The value added of a student’s 10th-grade ELA teacher is positively predictive of his or her high school test scores, probability of on-time graduation, and

probability of 4-year college attendance and graduation, but many of these relationships vary for students with and without disabilities. Specifically, 10th-grade ELA teacher value added is more positively predictive of on-time graduation and 4-year college attendance for students *without* disabilities but more positively predictive of 2-year college attendance and employment for students *with* disabilities. In contrast to value added, other high school ELA teacher characteristics like experience, degree level, endorsement area, and licensure test scores do not consistently predict better outcomes for students with or without disabilities.

There is a much larger body of literature on the relationship between the training of special education teachers and their classroom practice (Algozzine, Morsink, & Algozzine, 1988; Nougaret, Scruggs, & Mastropieri, 2005; Sindelar, Daunic, & Rennells, 2004). Using observations of classroom performance and principal ratings, Sindelar et al. (2004) find that graduates of a traditional special education teacher program had superior classroom practices compared to teachers who entered the profession through nontraditional routes. Similarly, Nougaret et al. (2005) find that traditionally licensed teachers are better than emergency licensed teachers on several dimensions such as planning and preparation, classroom environment, and instruction.

What Is Not Known?

There are many challenges to estimating teacher quality and its determinants in general, but these problems are magnified in the case of teachers of students with disabilities. These difficulties undoubtedly contribute to the lack of research addressing teacher quality and its effect on outcomes for students with disabilities.

In general, the inability to properly account for unmeasured student heterogeneity can lead to bias in estimates of teacher quality when the assignment of students to teachers is nonrandom. The problem is even more acute among students with disabilities, where the severity of impairments can vary widely, even within a given disability designation, and the extent of nonrandom sorting to courses and teacher assignments can be even more pronounced than in the general student population. Another challenge that is unique to teachers of students with disabilities is that students may receive additional services, like instructional aides, which are not generally attributable to specific students or classrooms in administrative records. This can confound the effect of teachers with that of ancillary personnel. Similarly, students with disabilities frequently have multiple teachers for a given subject, which greatly complicates the process of attributing student learning gains to specific instructors. Finally, in inclusionary settings, the presence of students with disabilities may impact the achievement of their typical peers (Fletcher, 2010; Gottfried, 2014); these spillovers could be falsely attributed to the quality of the classroom teacher.

While the published work of Feng and Sass (2013) and the recent working paper by Theobald et al. (2018) provide important insights on the relationship between observable teacher characteristics and student outcomes, they are just two studies with somewhat mixed results. More research in a similar vein is needed in order to determine the robustness and external validity of their findings. In addition, the differences in the determinants of teacher quality between classroom settings and variation in teacher performance across students with and without disabilities uncovered by Feng and Sass (2013) merits further attention.

Also lacking is an understanding of the mechanisms by which various aspects of teacher training translate into achievement gains for students with disabilities. For example, it is unknown why special education certification significantly boosts achievement for students with disabilities and not for those without

disabilities. Some posit that special education certification programs focus more on pedagogy than content and teach future special educators how to identify students with specialized learning needs and individualize the curriculum appropriately (Gilmour & Henry, 2018). A deeper understanding of the mechanisms could help shape improvements to teacher preparation programs and matching of teachers to the needs of special education students.

Currently, there is research underway to evaluate the efficacy of RESET, a special educator evaluation tool.² The findings of this study may shed more light on which characteristics and teaching strategies most effectively increase achievement among students with disabilities. Understanding the effective characteristics and strategies will help clarify expectations for special education teachers, which should improve teacher quality and, therefore, improve student outcomes (Holdheide, 2012).

Finally, recent research indicates that teachers can impact a variety of student outcomes, beyond just test scores. Jackson (2018) shows that teachers have effects on absences, suspensions, course grades, and on-time grade progression. Teacher effects on these non-test score outcomes help predict important long-run outcomes, such as high-school completion and college attendance. Conducting similar work for teachers of students with disabilities could paint a richer portrait of the importance of teacher quality for students with disabilities and how teacher characteristics translate into gains for students with disabilities in a variety of dimensions.

Policy Levers and Policy-Making Challenges

While more research is needed, the existing evidence on the determinants of teacher quality for students with disabilities does shed light on a number of important policy issues, including special educator teacher preparation, certification and alternative pathways for becoming a special education teacher, recruitment incentives, and differential teacher compensation. The finding that special education certification is positively correlated with teachers' abilities to promote achievement of students with disabilities suggests that devoting more resources toward traditional preparation programs for special education teachers may be warranted. Better programmatic funding may not be enough, however. Increasing the supply of certified special education teachers may also require inducements to major in special education, such as scholarships or loan forgiveness programs. The finding that experience matters for special education teachers, just as it does for educators as a whole, means that policies designed to increase retention of special education teachers could have meaningful impacts on achievement and other outcomes for students with disabilities. In addition to loan forgiveness, policy makers may want to consider salary differentials for special education teachers. While teachers in general tend to oppose unequal pay, some states have successfully initiated programs that pay more to teachers who work in schools serving disadvantaged students and/or teach in high-demand areas like math and science (Clotfelter, Glennie, Ladd, & Vigdor, 2008; Bueno & Sass, 2018).

² <https://ies.ed.gov/funding/grantsearch/details.asp?ID=1629>

References

- Aaronson, D., Barrow, L., & Sander, W. (2007). Teachers and student achievement in the Chicago public high schools. *Journal of Labor Economics*, 25, 95–135.
- Algozzine, B., Morsink, C., & Algozzine, K. (1988). What's happening in self-contained special education classrooms? *Exceptional Children*, 55, 259–265.
- Billingsley, B., Fall, A., & Williams, T. (2006). Who is teaching students with emotional disorders? A profile and comparison to other special educators. *Behavioral Disorders*, 31(1), 252–264.
- Boe, E., & Cook, L. (2006). The chronic and increasing shortage of fully certified teachers in special and general education. *Exceptional Children*, 72(4), 443–460.
- Boyd, D., Lankford, H., Loeb, S., Rockoff, J., & Wyckoff, J. (2008). The narrowing gap in New York City teacher qualifications and its implications for student achievement in high-poverty schools. *Journal of Policy Analysis and Management*, 27, 793–818.
- Bueno, C., & Sass, T. (2018). *The effects on differential pay on teacher recruitment and retention*. Manuscript submitted for publication.
- Burns, M., & Ysseldyke, J. (2008). Reported prevalence of evidence-based instructional practices in special education. *The Journal of Special Education*, 43, 3–11.
- Chetty, R., Friedman, J., & Rockoff, J. (2014). Measuring the impacts of teachers II: Teacher value-added and student outcomes in adulthood. *American Economic Review*, 104, 2633–2679.
- Clotfelter, C., Glennie, E., Ladd, H., & Vigdor, J. (2008). Would higher salaries keep teachers in high-poverty schools? Evidence from a policy intervention in North Carolina. *Journal of Public Economics*, 92, 1352–1370.
- Elbaum, B., Myers, N., Rodriguez, R., & Sharpe, S. (2014). Graduation rates of students with disabilities: Issues and implications for district accountability. *Journal of Special Education Leadership*, 27(1), 3–12.
- Feng, L., & Sass, T. (2013). What makes special education teachers special? Teacher training and achievement of students with disabilities. *Economics of Education Review*, 36, 122–134.
- Feng, L., & Sass, T. (2018). The impact of incentives to recruit and retain teachers in “hard-to-staff” subjects. *Journal of Policy Analysis and Management*, 37(1), 112–135.
- Fletcher, J. (2010). Spillover effects of inclusion of classmates with emotional problems on test scores in early elementary school. *Journal of Policy Analysis and Management*, 29, 69–83.
- Florida Department of Education, Office of Research and Evaluation. (2008). *New hires in Florida public schools: Fall 1998 through fall 2007*. Tallahassee, FL.
- Gilmour, A., & Henry, G. (2018). A comparison of teacher quality in math for late elementary and middle school students with and without disabilities. *The Elementary School Journal*, 118(3), 426–451.
- Gottfried, M. (2014). Classmates with disabilities and students' noncognitive outcomes. *Educational Evaluation and Policy Analysis*, 36(1), 20–43.
- Hanushek, E., Kain, J., & Rivkin, S. (2002). Inferring program effects for specialized populations: Does special education raise achievement for students with disabilities? *Review of Economics and Statistics*, 84(4), 584–599.

- Harris, D., & Sass, T. (2011). Teacher training, teacher quality and student achievement. *Journal of Public Economics*, 95, 798–812.
- Harry, B., & Klingner, J. (2006). *Why are so many minority students in special education?: Understanding race & disability in schools*. New York, NY: Teachers College Press.
- Holdheide, L. (2012). State considerations in designing and implementing evaluation systems that include teachers of students with disabilities. Office of Special Education Programs Project Director's Conference, Washington, DC.
- Ingersoll, R., & Perda, D. (2009). *The mathematics and science teacher shortage: Fact and myth* (CPRE Research Report #RR-62). Philadelphia, PA: Consortium for Policy Research in Education.
- Jackson, C. (2018). What do test scores miss? The importance of teacher effects on non-test score outcomes. *Journal of Political Economy*, 126(5), 2072–2107.
- Johnson, E., & Semmelroth, C. (2014). Special education teacher evaluation: Why it matters, what makes it challenging, and how to address these challenges. *Assessment for Effective Intervention*, 39(2), 71–82.
- Morgan, P., Farkas, G., & Wu, Q. (2011). Kindergarten children's growth trajectories in reading and mathematics: Who falls increasingly behind? *Journal of Learning Disabilities*, 44, 472–488.
- Nougaret, A., Scruggs, T., & Mastropieri, M. (2005). Does teacher education produce better special education teachers? *Exceptional Children*, 71(3): 217–229.
- Rivkin, S., Hanushek, E., & Kain, J. (2005). Teachers, schools, and academic achievement. *Econometrica*, 73(2), 417–458.
- Rockoff, J. (2004). The impact of individual teachers on student achievement: Evidence from panel data. *American Economic Review*, 94(2), 247–252.
- Sindelar, P., Daunic, A., & Rennells, M. (2004). Comparisons of traditionally and alternatively trained teachers. *Exceptional Children*, 12(4), 209–223.
- Theobald, R., Goldhaber, D., Gratz, T., & Holden, K. (2018). *High school English language arts teachers and postsecondary outcomes for students with and without disabilities* (CALDER Working Paper 110718). Washington, DC: National Center for Analysis of Longitudinal Data in Education Research.
- U.S. Department of Education, National Center for Education Statistics. (April 2018). Children and youth with disabilities. *The Condition of Education*. Retrieved from https://nces.ed.gov/programs/coe/indicator_cgg.asp#info.
- Wagner, M., Newman, L., Cameto, R., & Levine, P. (2006). *The academic achievement and functional performance of youth with disabilities: A report from the National Longitudinal Transition Study-2*. Washington, DC: U.S. Department of Education.
- Watts, G. (2016). An overview of issues in evaluating special educators: current challenges and recent developments. *Texas Education Review*, 4(1), 46–53.