Article

Rethinking Shortages in Special Education: Making Good on the Promise of an Equal Opportunity for Students With Disabilities

Teacher Education and Special Education
2020, Vol. 43(1) 45–62

DOI: 10.1177/0888406419880352
journals.sagepub.com/home/tes
SAGE

Loretta Mason-Williams[1], Elizabeth Bettini[2], David Peyton[3], Alexandria Harvey[4], Michael Rosenberg[5], and Paul T. Sindelar[4]

Abstract

In this article, the authors describe the complexity of special education teacher (SET) shortage, how shortage undermines equal educational opportunity, and strategies that school districts and state and federal governments have used to combat them. The authors consider the economic consequences of shortage and describe how school budgets are burdened by turnover and, in some cases, litigation. The authors consider specific aspects of SET shortages, including the problems of staffing high-poverty urban and rural schools, recruiting and retaining teachers of color, and staffing alternative educational placements. The authors then consider more general factors related to shortage, including the valence of teaching as a profession, attrition, working conditions, and compensation. The authors describe how broad policy-based interventions, such as federal spending on personnel preparation and alternative route entrées to teaching, have largely failed to remedy SET shortage. Finally, the authors posit that SET shortage cannot be addressed successfully without improving working conditions and differentiating compensation for shortage area teachers and teachers working with struggling students. Although special education cannot achieve such sweeping change alone, the time seems ripe for moving forward on this important agenda.

Keywords

teacher preparation practices and outcomes, special education teacher shortages, teacher preparation policy/service delivery

Special education has never enjoyed a fully qualified teaching workforce, and, in this sense, has never fully delivered on the promise of a free appropriate public education (FAPE) for all students with disabilities (SWDs). The purpose of this article was to explore how special education teacher (SET) shortages compromise our ability to meet the goal of equal educational opportunity for all students, including SWDs. To that end, we describe the complexity of the problem and consider its economic impact on schools. We then focus on specific aspects of the problem and the strategies that stakeholders, including the federal government, have used to address

[1]Binghamton University, NY, USA
[2]Boston University, MA, USA
[3]Appalachian State University, Boone, NC, USA
[4]University of Florida, Gainesville, USA
[5]SUNY New Paltz, USA

Corresponding Author:
Paul T. Sindelar, University of Florida, 1423D Norman Hall, Gainesville, FL 32611-7050, USA.
Email: pts@coe.ufl.edu

them. We close by offering more disruptive—and, we believe, more powerful—ideas for dealing with shortage writ large and by urging all stakeholders to advocate for long-term solutions to the problem. First, however, we return to the issue of equal educational opportunity.

Providing an Equal Educational Opportunity

Federal involvement in ensuring that all students experience equal educational opportunity, including access to teachers prepared to meet the needs of students who require specialized instruction, began with enactment of the Elementary and Secondary Education Act of 1965 (ESEA). The ESEA made available categorical aid for improving educational programs "meeting the special educational needs of educationally deprived children" (P.L. 89-10, §201). Although physical or intellectual disabilities were not specifically defined within the ESEA, funding allocated to states through basic grants led to the establishment of Title I classrooms for supplementary educational services (§303). Later reauthorizations of the act led to additional categorical aid programs for migrant children, children for whom English was a second language, delinquent and neglected children, and children with mental and physical handicaps (McLaughlin, 2010). The policy emphasized the role that fully prepared teachers played in providing an equal educational opportunity to all students.

Despite ESEA's clear emphasis on providing equal educational opportunity, many school officials believed that educating children and adolescents with disabilities was not the responsibility of public schools. Consequently, only one in five SWDs was educated in public schools, and approximately one million children were kept out of public education (Abeson, Bolick, & Hass, 1976). A decade later, the Education of All Handicapped Children Act (EAHCA; 1975), the precursor to IDEA 2004, emphasized the inclusion of those with disabilities. EAHCA stipulated that SWDs were entitled access to FAPE, aimed at meeting their unique needs as defined by Individual Education Programs and funded through the provision of federal categorical aid.

Unfortunately, much of the hope inspired by ESEA and EAHCA was quickly moderated by the immense challenge of instructional capacity: Who would deliver on this policy mandate? To serve students with special needs who had not previously been part of their responsibilities, states and local school districts needed to find educators and related service personnel quickly. The inadequate supply of individuals willing and prepared to serve and the limited infrastructure for developing an adequate number of teachers within a reasonable timeframe complicated matters (Kleinhammer-Tramill, Mickelson, & Barton, 2014). This challenge has gone unresolved for the last 40 years, despite continued investments in personnel preparation grants through EAHCA and later IDEA, as well as other federal investments in recruiting individuals into special education (e.g., TEACH grants and Teacher Quality Partnerships).

The Complexity of SET Shortages: Measuring Supply and Demand

For decades, following Boe (2006) and Boe and Cook (2006), researchers defined SET shortage with reference to Office of Special Education Programs (OSEP) counts of SET employment. Before 2006, shortage was defined as the proportion of SETs who were *less than fully certified*. In 2006, the metric changed, and beginning that year and continuing to the present, shortage has been defined as the proportion of SETs who were *not highly qualified*. Because OSEP is obliged to report annually to Congress, we have decades of information on SET shortage. We know it hovered at roughly 10% for over a decade (Boe, 2006) and began to worsen at the end of the century, reaching 12% by 2002 to 2003 (Boe, 2006). The following year, shortage declined for the first time (Dewey et al., 2017), and it

has continued to decline for over a decade. Fueled by the great recession and decline in teacher employment, SET shortage fell below 5% in 2011 and 2012 before increasing again. OSEP's most current data point, 2016 to 2017, has SET shortage at 8%.

Beyond investigations of overall supply and demand, researchers also have illustrated the substantial shortage of SETs of color. Scholars have argued that the pluralistic nature of U.S. society is poorly served when public school students experience a predominantly White teaching workforce (Grissom, Kern, & Rodriguez, 2015). Indeed, a robust body of research (primarily focused on general educators, not special educators) indicates that teachers of color do promote stronger outcomes for students of color (Grissom et al., 2015; Villegas & Irvine, 2010). Special education is not immune to this problem. According to Kozleski, Artiles, McCray, and Lacy (2014), SPeNSE researchers reported that 80% of the SETs they surveyed were White—a marked contrast to the population of school-aged students, of whom only 50% were White. More recently, in an analysis of 2011-2012 Schools and Staffing Survey (SASS) data, Billingsley, Bettini, and Williams (2019) found that 82% of the SETs but only 53% of the SWDs were White. There is some evidence that the proportion of teachers of color is increasing, however; the overall number of teachers of color almost doubled between 1987 and 2007 (Villegas, Strom, & Lucas, 2012), fueled by rapid growth of Latinx teachers. Yet, the growth in number of teachers of color has been dwarfed by the growth in the number of students of color (Villegas et al., 2012). Furthermore, increases in the number of teachers of color, overall, may not be evident in the SET workforce. Billingsley et al. found that the proportion of early career SETs of color is the same (18%) as the overall proportion of SETs of color, indicating that the racial/ethnic composition of the SET workforce may not be changing; by contrast, the proportion of early career GETs of color (23%) is greater than the overall proportion of general education teachers (GETs) of color (18%), suggesting the GET workforce may be becoming more racially/ethnically representative of the student population. Furthermore, although efforts to recruit teachers of color have proven fruitful, schools have experienced less success in retaining them (Achinstein, Ogawa, Sexton, & Freitas, 2010; Carver-Thomas, 2018).

Thus, shortage is a complex, multi-faceted problem with various aspects that require unique solutions. One such aspect is low enrollments in teacher preparation programs, which recently have diminished the supply of newly minted and fully credentialed SETs. Even in states with increasing enrollments (and hence supply) and no overall SET shortage, schools cannot attract fully prepared and credentialed teachers to certain regions or certain schools within states. For example, schools in remote rural areas are unlikely to benefit from oversupply in suburban districts (Sindelar et al., 2018), and the difficulties that high poverty, highly diverse, and low achieving schools experience in recruiting and retaining fully qualified SETs also are well-known (Goldhaber, Quince, & Theobald, 2018). These problems are distributional in nature, and the distribution problem may not reside only within-states: Peyton et al. (2019) recently demonstrated that SET shortage is clearly worse in some states than others.

Economic Consequences of SET Shortages

SET shortages have severe economic consequences. The amount of money spent annually by school districts and governmental agencies addressing emergency staffing concerns, as well as compensating for unmet mandated services for SWDs, is enormous. Arguably, these funds could be reallocated to address shortage. In this section, we focus on two areas of cost: teacher turnover and litigation related to FAPE (i.e., the failure to deliver of mandated educational services).

Teacher Turnover

Annually, 17% to 29% of SET teaching positions are vacated (Sullivan et al., 2017), due largely to attrition. Attrition has several components, including SETs leaving the profession

and teaching area transfers (defined as SETs migrating to general education; Billingsley & Bettini, 2019). Hiring personnel is a labor-intensive process and, unfortunately, many school leaders find themselves in the unenviable position of settling for individuals who lack adequate professional preparation and credentials. These SETs, many of whom entered the field through streamlined alternative routes (ARs) and conditional/provisional waivers, leave the profession in greater proportion than teachers who complete traditional preparation (Carver-Thomas & Darling-Hammond, 2017). Although some teacher turnover is beneficial (e.g., poorly performing teachers should leave the profession), the *ad nauseam* cycle of hiring, losing, and once again rebuilding a faculty may have lasting negative consequences on teacher quality (Sorensen & Ladd, 2018) and student outcomes. In terms of dollars spent, attrition is extremely costly, and these costs are disproportionately borne by schools serving large number of low income and minority students and SWDs. In fact, teacher turnover is 50% greater in high poverty schools (Alliance for Excellent Education, 2014; Barnes, Crowe, & Schaefer, 2007).

Nationally, the cost of teacher turnover approaches $2.2 billion annually (Alliance for Excellent Education, 2014). Studies calculating the turnover costs to districts (e.g., Barnes et al., 2007; Milanowski & Odden, 2007) have reported per-teacher costs ranging from roughly $4,500 in small rural districts to $17,000 in large suburban and urban districts. Moreover, districts that invest heavily in new teacher induction and professional development have even higher turnover costs (Watlington, Shockley, Guglielmino, & Felsher, 2010). With Barnes et al.'s (2007) data, we estimate that annual replacement costs in a large district (i.e., Milwaukee) may be as high as $14.1 million, for SETs alone.

Litigation

Special education litigation typically begins with a local due process hearing which, if unresolved, can progress to a federal district court, the Office of Civil Rights (OCR), and even the U.S. Supreme Court (Yell & Katsiyannis, 2019). Although most disputes do not involve judicial review, those that do tend to be protracted and costly, in terms of legal fees, personnel, and resources (Sack-Min, 2007). For example, in 2015, there were 384 judicial rulings involving SWDs (Katsiyannis, Counts, Popham, Ryan, & Butzer, 2016), many centering on failure to provide FAPE and its consequence, reimbursement for private school tuition.

At the same time, legislation precludes bringing suit simply because students are being taught by underqualified teachers (Jameson & Huefner, 2006), unless teacher qualifications can be linked directly to the denial of FAPE. For example, *Vaughn G., et al. v. Baltimore, et al.* (known as *Vaughn G*) was filed by the Maryland Disability Law Center (MDLC) in 1984 and not settled until 2012. The plaintiffs alleged that the Baltimore City Public School System (BCPSS) did not conduct assessments for thousands of students referred for evaluation and did not implement Individualized Education Programs (IEPs) within timelines prescribed by IDEA (MDLC, 2008). The reliance in BCPSS on emergency-certified SETs likely contributed to the failure to comply with numerous elements of FAPE. Between 2000 and 2004, the percentage of all new teachers hired by BCPSS with conditional certifications and enrolled in ARs ranged from 76.4% to 91.9%, and 8.5% to 12% of new teachers—a sizable portion of whom were hired to fill chronic special education shortages—left before the end of the academic year (Mac Iver, Vaughn, & Katz, 2005). A first consent decree in 1988 and subsequent failure to meet those requirements opened a "Pandora's Box" (Ramanathan, 2004, p. 1) of BCPSS's failures to comply with numerous elements of FAPE.

Although the lawsuit costs the district $14 million annually (Hettleman, 2002), we can only speculate about the contribution of SET shortages to the cost of BCPSS's repeated failures to deliver FAPE. Furthermore, litigation costs are distinct from the human costs of teacher turnover—the investment necessary to train and then replace underprepared teach-

ers. Because special education had been a persistent critical shortage area for BCPSS, the district had hired large percentages of conditionally and alternatively certified teachers annually during the *Vaughn G* era (e.g., Mac Iver et al., 2005; Maryland State Department of Education, 2010). At the same time, a large number of SWDs were found to have received inadequate instruction on IEP goals (MDLC, 2008), and, for them, no fiscal metric can assess the costs of lost instructional opportunities.

Specific Aspects of the SET Shortage Problem

In this section, we review research related to five facets of the shortage problem: staffing high poverty schools, staffing schools in remote and rural areas, recruiting and retaining teachers of color, staffing alternative educational placements, and combating attrition.

Staffing High Poverty Schools

High poverty schools commonly serve socioeconomically, racially, and ethnically diverse populations of students. Compared with wealthier schools, high poverty schools tend to employ fewer SETs and have fewer certified SETs (Fall & Billingsley, 2011). In addition, high poverty schools often rely more heavily on SETs who are emergency certified (Fall & Billingsley). SETs in high poverty schools enter via a variety of routes and most lack advanced preparation (Mason-Williams, 2015). They are less likely to have completed pre-service teacher preparation programs than teachers in low poverty schools (Mason-Williams), decreasing their chances of receiving training specific to their work. Instead, they are more likely to complete ARs than SETs in low poverty schools. SETs in high poverty schools also are more likely to have certification in fields other than special education (Mason-Williams). Given their limited preparation to teach SWDs, it seems plausible that SETs in high poverty settings who are not well-prepared for their work are serious attrition risks. Nevertheless, it is noteworthy that high-poverty schools are staffed by larger proportions of SETs of color (Billingsley, Bettini, Mathews, & McLeskey, in press) and teachers of color may have higher retention rates in these schools than White teachers in high-poverty schools, and higher retention rates than teachers of color in low-poverty schools (Carver-Thomas, 2018).

Staffing Remote and Rural Schools

Other school characteristics, such as geographic location and enrollment factors, may also contribute to SET shortage. The majority of youth attend schools in either rural settings (53%) or in urban settings (6%; U.S. Department of Education, National Center for Education Statistics, Common Core of Data, 2013). Although rural and urban settings vary geographically, both have racially and ethnically diverse students, students living in poverty, and struggling learners. In both settings, administrators more often are forced to rely on SETs who lack certification or a degree in special education than administrators in suburban schools (Mason-Williams, Sindelar, & Fisher, 2017). Yet, the factors shaping shortages in these settings are quite different, and it is important to differentiate them.

With the passage of No Child Left Behind (NCLB) in 2001 and its definition of highly qualified, staffing of rural schools became increasingly challenging (Sindelar et al., 2018). Rural settings continue to face critical shortages due to geographic isolation (Johnson, Humphrey, & Allred, 2009), low enrollment in and lack of access to teacher preparation programs, teacher attrition, retirement, and a general lack of interest in the teaching profession (Rude & Miller, 2018). Limited access to teacher preparation programs in rural settings likely contributes to SETs being less likely to hold a Master's degree than their colleagues in urban and suburban schools. In comparison, SETs in urban schools complete ARs more often than SETs in rural and suburban schools. This variation may relate to the availability of local options; however, distance and online education, satellite campuses, and partnerships may eventually

moderate those differences by making program completion more accessible, regardless of location (Sindelar et al., 2018).

High-poverty urban and rural schools send proportionately fewer high school graduates to college than wealthier districts (Roderick, Coca, & Nagaoka, 2011), thereby limiting the number of college graduates who return home to teach locally. The *draw of home* (Boyd, Lankford, Loeb, & Wyckoff, 2005b) is a well-established phenomenon in teacher education wherein teachers often return to the communities where they grew up, seeking teaching positions in those home communities. More recently, though, student teaching placement has been shown to predict where novice teachers begin teaching even more strongly than their hometowns (Krieg, Theobald, & Goldhaber, 2016). This finding suggests a recruitment strategy for high-poverty districts: to partner with preparation programs to provide student teaching placements (Krieg et al., 2016). Doing so holds potential to increase the number of student teachers in the district and increase the possibility that some would remain to work there.

Nonetheless, SET shortages are pervasive in both settings, driven by difficulties attracting and retaining individuals in such schools. Furthermore, urban SET teachers exit at almost twice the rate of those in rural SET positions (Prater, Harris, & Fisher, 2007). Although there is little research to explain this phenomenon, it seems plausible that working conditions such as lack of resources and administrative support (Johnson, Kraft, & Papay, 2012) contribute. Also, not only do urban SET teachers leave the field at higher rates than their suburban counterparts, but teachers of color also leave at higher rates than their White peers (Kohli, 2018; although this effect varies from school-to-school with the demographics of the students served). To understand this occurrence, a closer look at SET shortages for teachers of color is warranted.

Recruiting and Retaining Teachers of Color

Despite long-standing concerns about the disparity between a predominantly White teaching workforce and a student population that is increasingly racially/ethnically, culturally, and linguistically diverse (Billingsley et al., 2019), literature on shortages of SETs of color is scarce. Extant research suggests that many factors contribute, including (a) race-based barriers to college attendance, which contribute to low enrollments of people of color in teacher preparation programs (Scott, 2018), and (b) conditions in teacher preparation and in schools that disproportionately push teachers of color out of teaching (Achinstein et al., 2010; Irizarry, 2011).

Similarly, there is limited research examining the experiences of SETs of color, although there is some evidence that lack of diversity in teacher preparation contributes to the problem. For example, Scott (2018) reported that only about 10% of the candidates in SET preparation programs are Black. Furthermore, Black college students who major in education have lower graduation rates than White education majors (Scott), and they report experiencing a number of barriers (e.g., financial pressures) to pursuing licensure (Scott & Alexander, 2017).

In addition, extant research with general educators suggest that working conditions are especially problematic for teachers of color, leading to higher attrition rates (Achinstein et al., 2010). Those conditions include expectations that, to be perceived as professional, teacher candidates adhere to White cultural and linguistic norms (Gist, 2017); frequent racial microaggressions (Amos, 2016); and discrimination (Bednar & Gicheva, 2019). Bednar and Gicheva's analysis of SASS data found that teachers of color received less supplementary monetary compensation than their White colleagues (controlling for experience and qualifications) in schools led by a White principal, whereas such disparities did not occur in schools led by principals of color. Similarly, a number of studies have documented how teachers of color often feel isolated and marginalized within schools staffed primarily by White educators, often reporting that colleagues do not value the cultural assets they bring to teaching (e.g., Amos, 2016). Furthermore, some studies indicate that, when schools engage in racist practices or discourses (e.g., blaming students of color and their

families for disproportionate discipline), teachers of color are put into an especially untenable position, a "double bind" (Gist, 2017, p. 927), in which their personal commitments to serving students of color conflict with the professional norms to which they are expected to adhere (Achinstein & Ogawa, 2011; Gist, 2017). Collectively, these issues lead to high rates of attrition among teachers of color, though this is somewhat ameliorated in schools where more students, teachers, and administrators are also people of color (Achinstein et al., 2010). Note that most of this research has been conducted with general educators, and limited research has explored these issues with regard to SETs.

Staffing in Alternative Education Settings

Difficulties with staffing special education positions extend beyond neighborhood schools and appear to impact differently schools with a mission to educate students with the most substantial learning and behavioral needs. In an investigation comparing teacher qualifications across school settings, Mason-Williams, Bettini, and Gagnon (2017) found that SETs in public and private alternative elementary schools for SWDs were less experienced, less likely to have special education degrees, and less likely to hold certification in elementary or special education than their colleagues in neighborhood schools. Other studies have obtained similar findings, indicating that personnel within alternative educational settings for students with significant learning and behavior needs are less likely to hold appropriate qualifications (Mason-Williams & Gagnon, 2016). Because students are placed in alternative educational settings due to substantial learning and/or behavioral needs that necessitate more intensive and effective services (Rozalski, Stewart, & Miller, 2010), the fact that they are less likely to be served by experienced, well-qualified staff is especially disconcerting.

In a related investigation, Mason-Williams et al. (2017) found that, across all school types, only 60% of the secondary SETs held both a degree and certification in special education. These authors also found that, across all school types, 25% to 35% of the secondary SETs lacked degrees in special education. Such findings suggest substantial difficulties with hiring fully qualified individuals to hold special education positions, regardless of setting. Although troubling in all settings, for students placed in exclusionary settings with the promise of teachers better prepared to meet their unique needs, these findings are especially problematic.

General Factors Contributing to Shortage

As a means of recruitment, the teaching profession has appealed to young people's altruistic motivations and sense of calling (Fish & Stephens, 2010). Declining enrollments in teacher preparation programs suggest that young people today may be looking to other professions to fulfill such altruistic aspirations (Dewey et al., 2017). When wages were competitive, intrinsic motivations might well have been enough for some; however, it has become increasingly clear that more is needed to stem SET shortage. Evidence continues to mount that current compensation levels are inadequate to attract the best and brightest (Park & Byun, 2015), less favorable working conditions drive competent individuals away from and out of the profession (Ganimian, Alfonso, & Santiago, 2013), and interested and academically gifted individuals do not view teaching as an intellectually stimulating occupation (Elfers, Plecki, John, & Wedel, 2008; Ganimian et al., 2013). Moreover, investigation at the international level has found that the degree to which teaching retains a high social status is linked to both young people's aspirations of becoming a teacher and a reduction in the gender gap in the teaching profession. In the following sections, we consider current research on each of these facets to underscore the urgent need for the kind of bold disruptive change we believe necessary to turn the tide on SET shortages.

Professional Attractiveness

As a profession, teaching has seen a decline in social standing (Han, Borgonovi, & Guerriero, 2018). Elfers et al. (2008) surveyed over 600 math, science, and engineering college majors about their view of K-12 teaching as a career. Although these undergraduates were supportive of the role teaching serves in society, respondents preferred jobs that provided intellectual challenge and high earnings, and ones that commanded respect. Most respondents did not believe teaching offered them such opportunities. In a randomized experiment of top college graduates enrolling in a highly selective alternative path to teaching, Ganimian et al. (2013) tested the impact of information on teachers' working condition on the likelihood of opting out of the program. Provided with information about pay and working conditions, students were more likely to express a desire to drop out, and those with the highest academic marks were most likely to follow through.

In two recent analyses of surveys conducted by the Organization for Economic Co-operation and Development (OECD), researchers examined the relationships between societal evaluations and professionalization of teaching, with intentions to enter into and stay in teaching. In 2018, Han et al., examined the degree to which salaries, working conditions, and societal evaluations of teaching influenced the career intentions of 15-year-old students of all ability levels across developing countries. Although salary was found to be an important factor for students' intention to enter into teaching, equally important was the finding that interest in teaching varied with societal respect for the profession (p. 32). Thus, the degree to which teaching as a profession is elevated in the eyes of society appears to be important for addressing the shortage of SETs.

In part, the shortage of qualified special education candidates is a function of the overall attractiveness of the profession. The teaching profession writ large is widely viewed as an undesirable profession by aspiring youth (Han et al., 2018). Moreover, persistent shortages and high rates of annual attrition suggest that the role of special education teaching is far less desirable than most other teaching posts, all else being equal. This view of teaching is informed by the conditions in which teachers work and compensation they receive. Labor market research has established that the attractiveness of a given job is either enhanced or diminished by these critical aspects of a given profession. Research suggests that states that have a history of low shortages of certified SETs make greater investment in these key aspects of attractiveness than do states with persistent shortages (Peyton et al., 2019), as we shall see.

Stemming Attrition

Attrition contributes to the shortage by reducing the number of qualified personnel who choose to stay in teaching (Billingsley & Bettini, 2019). Some attrition is inevitable (e.g., retirements, care for young children; Boe, Cook, & Sunderland, 2008), and some is even desirable (e.g., teachers who are persistently ineffective; Adnot, Dee, Katz, & Wyckoff, 2017). Nevertheless, these types of attrition account for only a small proportion of all attrition (18% and 14%), whereas two-thirds is voluntary (Carver-Thomas & Darling-Hammond, 2017).

Voluntary attrition appears to have serious consequences for students and for districts (Milanowski & Odden, 2007; Ronfeldt, Loeb, & Wyckoff, 2013). For example, Ronfeldt et al. found that grades within a school that experienced more teacher turnover had significantly lower student achievement than grades in the same school with lower turnover—and lower achievement than the same grade in the same school from a different year with lower turnover. The turnover appeared to impact the distribution of teacher effectiveness, as effective teachers were often replaced by less effective teachers, and to disrupt the effectiveness of teachers who stayed.

Teacher attrition also contributes to teacher quality gaps between high- and low-poverty schools (Boyd, Lankford, Loeb, & Wyckoff, 2005a; Goldhaber et al., 2018). For example, Boyd et al. found that highly effective beginning

teachers were more likely to leave high-poverty schools to move to low-poverty schools. No comparable research has examined the effects of SET turnover on student achievement (Billingsley & Bettini, 2019), but scholars have posited that the disruptive effects of SET turnover (i.e., the effects on colleagues' effectiveness) might be especially problematic, given the number of collaborative relationships that SETs must build with general education colleagues, related service providers, and parents (McLeskey & Billingsley, 2008). It is encouraging to note that extant research suggests that attrition is malleable, as SETs may be more likely to stay (or to intend to stay) when they experience stronger preparation (Connelly & Graham, 2009), better quality in-service induction and mentoring (Ingersoll & Strong, 2011), and more supportive working conditions (e.g., Billingsley & Bettini). Less encouraging is the reality that large, complex systems are often slow to change and often change in unintended or unhelpful ways.

Working Conditions

Bettini, Wang, Cumming, Kimerling, and Schutz (2019) defined working conditions as the demands placed on teachers (e.g., instructional responsibilities, extra tasks, paperwork), as well as the social (e.g., administrative support, school culture) and logistical supports (e.g., planning time, curricular resources) provided to fulfill those demands effectively. Although there are many pathways by which working conditions shape special educators' instructional quality and effectiveness (e.g., by fostering their learning, supporting positive affective responses to work, facilitating efforts to enact newly learned practices; Billingsley, Bettini, Mathews, & McLeskey, this issue), most working conditions research has examined how they are associated with special educators' intent to leave (Billingsley & Bettini, 2019). This research has consistently shown that working conditions are powerful predictors of teachers' intentions to leave their schools and the profession overall (Billingsley & Bettini, 2019). Research on *demands* has shown that paperwork; caseload size, complexity, and diversity; and student behavior challenges put teachers at greater risk for attrition (Billingsley & Bettini, 2019). *Social resources* that mitigate such risk are administrative support, school culture, and collegial support (Billingsley & Bettini, 2019). The availability of *logistical resources* has also been shown to mitigate attrition risk; these include the availability of curricular and instructional materials and time for planning (e.g., Bettini, Cumming et al., 2017). These conditions may be especially important for inexperienced and underprepared teachers, who may require more support and who are at higher risk of attrition (Billingsley & Bettini, 2019).

Nevertheless, addressing poor working conditions successfully will require attention to the ways in which the demands on special educators differ from the demands on general educators—necessitating different resources to support them in meeting those demands. One major difference is the degree to which special versus general educators' roles are clearly defined. General educators' responsibilities are typically defined by clear schedules specifying who, what, and when they will teach. Although general educators do have leeway to interpret these structures in different ways, the general parameters of their jobs are fairly well defined (Youngs, Jones, & Low, 2011). Furthermore, they have grade level (at elementary) or content-area (at secondary) colleagues whose jobs are very similar to their own; thus, for support, they can tap colleagues who understand their roles. In contrast, special educators are often assigned a caseload, then required to determine—often in negotiation with general education colleagues— when they will teach whom and what curricula they will use during that time. Such responsibilities are especially challenging, given that SETs experience difficulty negotiating these issues with general education colleagues, who may devalue their contributions to instruction (Scruggs, Mastropieri, & McDuffie, 2007), be reluctant to include their students or to release their students for intervention time (e.g., Bettini, Brunsting, Lillis, & Stark, 2019), or pressure them to focus on homework help and credit

recovery, thereby eliminating time for foundational skill instruction (e.g., Bray & Russell, 2018). Furthermore, they seldom have special education colleagues who share the same role, so they cannot rely on colleagues to provide the kinds of support and guidance that general educators are often able to get from colleagues.

Collectively, these conditions burden special educators with the responsibility of determining key parameters of their work. Such responsibility may be especially stressful and unproductive for early career teachers, who are still learning their craft (Billingsley, Bettini, & Jones, in press). Furthermore, schools tend to be oriented around general educators' roles, with social supports, schedules, materials, and professional learning opportunities focused on general education curricula (Bray & Russell, 2018), while special educators' ideal roles are often inadequately supported by social and logistical resources. For example, SETs often report lacking the curricular and instructional resources needed to teach content (Bettini, Cumming et al., in press), instructional grouping that would permit them to focus instruction tightly on students' learning needs (e.g., Bishop, Brownell, Klingner, Leko, & Galman, 2010), and adequate planning time (Bettini, Cumming et al., in press).

In spite of the fact that they are responsible for coordinating the work of all teachers in the school, administrators often express limited understandings of special educators' roles and how to support them (Billingsley, McLeskey, & Crockett, 2017). Case studies indicate that, when administrators do understand special educators' roles and orient school structures (e.g., schedules, curricular resources, and support systems) around those roles, schools do experience more positive outcomes for SWDs (e.g., McLeskey, Waldron, & Redd, 2014). Furthermore, survey studies indicate that special educators' ratings of administrative support predict their ratings of other working conditions (e.g., Gersten, Keating, Yovanoff, & Harniss, 2001), indicating that changing administrators' knowledge and skill for supporting special educators' roles could be a high leverage approach to improving working conditions, thereby promoting stronger SET retention.

In a comparison of high- versus low-shortage states, Peyton et al. (2019) provided additional evidence of the importance of working conditions. Drawing upon OSEP data, these researchers identified seven states with persistently high and seven states with consistently low shortages of certified SETs between 2006 and 2015. Using per pupil expenditures as a proxy for working conditions, Peyton et al. found that states with consistently low shortages of certified SETs invested nearly US$2,000 more per pupil than states with persistently high shortages of SETs. Although the discrepancy was not found to be statistically significant, the difference was substantial, equating to nearly US$39,000 per classroom of 20 students.

Compensation

Time and again, compensation has been found to be key to increasing workforce supply. In education, differential pay for teaching in high-needs schools or shortage areas has demonstrated effectiveness for reducing attrition. Clotfelter, Glennie, Ladd, and Vigdor (2008) reported that in North Carolina, modest salary supplements for middle- and high-school STEM teachers and SETs working in high-poverty schools reduced attrition by 17%. The supplements represented roughly 4% to 5% of teachers' salaries, or $2,600 in current dollars. Of course, differential pay is a challenging policy approach, given that collective bargaining agreements and state-defined salary schedules often require that all teachers with comparable experience be paid the same (Dee & Goldhaber, 2017). Nevertheless, there are other means of differentiating monetary incentives. For example, Feng and Sass (2017) reported similar effects for a loan forgiveness approach program. In part, the Florida's Critical Teacher Shortage Program repaid up to $10,000 in student loan debt for novice teachers in shortage fields. Participation reduced SET attrition by more than 12%, an impact greater than that experienced by middle- and high-school math

(10%) and science teachers (9%). Moreover, the impact on SET attrition was most pronounced when benefits were relatively more substantial (>$2,500/year).

Peyton et al. (2019) found substantial differences between high- and low-shortage states on two measures of compensation: salary (adjusted for cost of living) and a variable they termed *SET salary differential*. With regard to salary, teachers in states with historically low shortages were paid nearly $7,000 more annually than teachers in states with high shortages. This differential spread across a 30-year teaching career represents a difference of nearly a quarter of a million dollars in earnings. Peyton et al. also computed SET salary differentials, which adjusted SETs' salaries not only for cost of living but also for differences in states' overall wage scales. For example, a state with warm, sunny weather may pay less across the board for all occupations than states with less desirable climates. Taken together, these factors are called the *compensating differential*. States with low SET shortages had salaries 1.09 times higher than would be expected given the overall wage structure in these states; high shortage states had salaries 0.91 of what would be expected. Thus, in low-shortage states, special education teaching was a better than average job, whereas in high-shortage states, special education teaching was a worse than average job. Overall, these researchers found consistent trends that differentiated these samples, such that low-shortage states tended to invest more in working conditions and compensation than high shortage states. Clearly, special education teaching appeared to be a more attractive profession in the former.

Addressing the Larger Problem of SET Shortage

In combating shortages, special education has not sat idle. For one thing, federal investments in personnel preparation have assisted with building capacity and addressing shortages. States hoping to expand supply by attracting mid-career changers and other non-traditional candidates into the field have established alternative entrées to the profession, including some that streamline preparation and allow for immediate employment. Although, as we argue in the paragraphs to follow, none of these actions have had a discernible impact on SET shortage, we wonder how much more severe shortages might have been had these actions not been taken.

Federal Investment in Personnel Preparation

OSEP annually conducts personnel preparation grant competitions and makes numerous substantial awards. Between 2000 and 2016, OSEP's annual appropriations for personnel preparation averaged more than $87 million (see https://www2.ed.gov/programs/oseppprep/funding.html). Despite comparable investments over more than 40 years, OSEP's expenditures in personnel preparation seem unrelated to SET shortage. The apparent independence of SET shortage and appropriations belies the fact that from the inception, the personnel preparation funds were intended to increase quantity (as well as improve quality; Kleinhammer-Tramill & Fiore, 2003). Of course, it can be argued that SET shortages would be worse without the federal investment, and, indeed, personnel preparation funds fueled growth in both the number of institutions preparing special education personnel and the number of new SETs produced (Kleinhammer-Tramill, Tramill, & Brace, 2010), even if their impact cannot be observed in the shortage data.

ARs

Virtually every state has authorized ARs to special education teaching certification (Myers, Gilbert, & Sindelar, 2019). By definition, ARs by-pass traditional pre-service preparation. Although they take many forms, the most common involves hiring individuals to teach who have college degrees but lack certification and training. The logic of such *internship models*, in which participants complete training while teaching, derives from other shortage fields, particularly the STEM disciplines, for which subject matter mastery

is considered as essential as—if not more essential than—effective pedagogy. In some states, internship models provide more new teachers than traditional pre-service preparation, even in special education, where this logic fits less comfortably.

In special education, ARs have not attracted the caliber of participant envisioned for the STEM disciplines (Sindelar et al., 2012). Nonetheless, some ARs have been shown to prepare competent teachers (Rosenberg & Sindelar, 2005), provided programs are sufficiently long and involve school/university collaboration, including building-based mentorships (Rosenberg & Sindelar). ARs also have proven reasonably cost-effective (Sindelar et al., 2012). Nevertheless, other studies have shown that novice teachers (Boe et al., 2008) and teachers who are not fully prepared when they enter the classroom are vulnerable to attrition. For example, with data from the Teacher Follow-up Survey, Boe, Bobbitt, Cook, Whitener, and Weber (1997) found that in a nationally representative sample of teachers, those who were fully certified were more likely to stay in the same school than teachers who were not. Miller, Brownell, and Smith (1999) found the same relationship to hold true for special educators in Florida. Yet, as successful as ARs have been, they have not provided the silver bullet for SET shortages.

Some Disruptive Ideas

In our conversations about this article, we wondered whether there is an actual shortage of fully qualified SETs or rather *a shortage of fully qualified SETs who are willing to work for the wages we are able to pay and under the conditions we currently are able to provide in schools*. Our bet is on the latter, and we can point to several threads of evidence to substantiate our claim. For one thing, within-state studies of teacher shortage (e.g., Goff, Carl, & Yang, 2018; Lauritzen & Friedman, 1993) have demonstrated that shortages are more likely to be distributional rather than absolute. Ingersoll and Smith (2003) have made a similar argument as it relates to attrition, and the power to mitigate shortage that reducing attrition provides. As we have seen, urban and rural areas are disadvantaged relative to suburban districts, as are schools serving high poverty, low-achieving, often diverse student populations. Earlier, Boe and Cook (2006) established the importance of what they called the *reserve pool*—experienced teachers returning to the workforce and education graduates who postponed entry to the field, from which nearly two-thirds of new hires are made. No estimate of the size of the reserve pool has ever been made.

Second, Cowan, Goldhaber, Hayes, and Theobald (2016) have argued that despite current low enrollments in teacher preparation programs, the number of education degrees has grown substantially for decades, and that the number of education graduates far exceeds the annual number of new teacher hires. The circumstances are much the same for special education: Degree production nationally has grown steadily over the past 20 years and, since 2009, has exceeded SET demand (as defined by the number of SETs who are not highly qualified).

We believe that special education suffers from a shortage of teachers willing to work for the wages we pay and under the working conditions provided in schools. As we have seen in this article, strategies exist that may mitigate shortages and improve working conditions in the short term, but our reliance on them is akin to tarring potholes or patching cracks in dikes. We have been patching the road to FAPE for 40 years, and, in our judgment, it is time to re-engineer and re-pave. We believe we need to pay teachers more generally, pay teachers in shortage areas more than other teachers, and improve working conditions for teachers in all of our schools.

A major challenge is getting policymakers and the general public to make this happen. Although many of us have conducted extensive research on SET preparation and policy and have had success lobbying for the funding of specific initiatives, the shortage of SETs remains an ongoing crisis that has, unfortunately, not garnered substantial public or legislative attention. Why have we not found the appropriate leverage points to position

SET salary and working conditions more visibly on political and legislative agendas? How can we persuade policymakers of the importance of developing and funding bold disruptive ideas to address complex, multi-faceted educational issues?

First, we need to recognize that politicians and the general public are overwhelmed with requests for resources to address societal needs. Advocates for public housing, veterans' affairs, and climate change research, to name a just a few, can and do make strong cases for public attention and resources. The costs associated with SET shortages, human and financial, need to be made explicit and infused into public consciousness. Although social marketing may be an effective strategy (Henig, 2008), our message must be direct and clear: We can reduce shortages by paying SETs more and improving working conditions and pay for these changes with savings that result, in part, from reducing the costs of turnover and litigation. We must be careful, however, about how policies are designed. For example, although we believe all teachers should be making more money, across-the-board salary increases are not likely to address field-specific shortages (Peyton et al., 2019). In a recent *New York Times* op-ed piece, Kraft (June 13, 2019) concurred: "if our ultimate goal—as parents, students and voters—is to improve student outcomes, then an across-the-board raise for teachers is not the best approach."

Second, we need to seize the moment. It would appear that there is no time like the present to advance bold disruptive ideas into the consciousness of policy makers. A confluence of data points indicate that the public is open and receptive to greater investment in public education and that political candidates are amenable to them as well. Recent polls have found that public support for increasing teacher salaries is at its highest point since 2008 (Cheng, Henderson, Peterson, & West, 2019), and a recent AP poll (cited by Kraft, 2019) found that 78% of the American public believes that teachers are paid too little. Perhaps most encouraging, public support was found to be greatest in states that have recently experienced teacher strikes. Successful strikes, coupled with public support, affirm that policymakers are susceptible to constituent pressure. Indeed, the forthcoming presidential election offers an opportunity for stakeholders to thrust these ideas onto the national stage and pressure commitments from candidates. Clearly, there are opportunities to advance a set of bold and disruptive policy proposals that gets at the heart of SET shortages—compensation and working conditions.

Finally, we must recognize that special educators are not going to do it alone. We need strong allies and advocates, such as AERA, which sponsored a convening of researchers and other stakeholders to advance innovative and disruptive ideas (Dieker et al., 2019). We also need more and better data on the consequences of shortage for SWDs, and more data that speak to the economic consequences of our failure to provide an adequate workforce. There is no task in this prescription that lies beyond our abilities as teacher educators and scholars, or that lies beyond our responsibilities as special education professionals. Let's do this.

Declaration of Conflicting Interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

The author(s) received no financial support for the research, authorship, and/or publication of this article.

References

Abeson, A., Bolick, N., & Hass, J. (1976). Due process of law: Background and intent. In F. J. Weintraub, A. Abeson, J. Ballard, & M. L. LaVor (Eds.), *Public Policy and the Education of Exceptional Children* (pp. 22-32). Reston, VA: The Council for Exceptional Children.

Achinstein, B., & Ogawa, R. (2011). Change(d) agents: School contexts and the cultural/professional roles of new teachers of Mexican descent. *Teachers College Record*, *113*, 2503-2551.

Achinstein, B., Ogawa, R., Sexton, D., & Freitas, C. (2010). Retaining teachers of color: A

pressing problem and a potential strategy for "hard-to-staff" schools. *Review of Educational Research*, *80*, 71-107. doi:10.3102/0034654309355994

Adnot, M., Dee, T., Katz, V., & Wyckoff, J. (2017). *Teacher turnover, teacher quality, and student achievement in DCPS*. Washington, DC: National Center for Analysis of Longitudinal Data in Education Research. doi:10.3102/0162373716663646

Alliance for Excellent Education. (2014). *On the path to equity: Improving the effectiveness of beginning teachers*. Washington, DC: Author. Retrieved from https://all4ed.org/wp-content/uploads/2014/07/PathToEquity.pdf

Amos, Y. T. (2016). Voices of teacher candidates of color on white race evasion: "I worried about my safety!." *International Journal of Qualitative Studies in Education*, *29*, 1002-1015. doi:10.1080/09518398.2016.1174900

Barnes, G., Crowe, E., & Schaefer, B. (2007). *The cost of teacher turnover in five school districts: A pilot study*. Washington, DC: National Commission on Teaching and America's Future. Retrieved from https://files.eric.ed.gov/fulltext/ED497176.pdf

Bednar, S., & Gicheva, D. (2019). Workplace support and diversity in the market for public school teachers. *Education Finance and Policy*, *14*, 272-297. doi:10.2139/ssrn.3007683

Bettini, E., Brunsting, N., Lillis, J., & Stark, K. (2019, January). *Interpersonal dynamics among adults serving students with EBD in self-contained classes*. Poster presented at the Council for Exceptional Children Conference, Indianapolis, IN.

Bettini, E. A., Cumming, M. M., Merrill, K. L., Brunsting, N. C., & Liaupsin, C. L. (2017). Working conditions in self-contained settings for students with emotional disturbancve. *Journal of Special Education*, *51*, 83-94.

Bettini, E., Wang, J., Cumming, M., Kimerling, J., & Schutz, S. (2019). Special educators' experiences of roles and responsibilities in self-contained classes for students with emotional/behavioral disorders. *Remedial and Special Education*, *31*, 126-142.

Billingsley, B., & Bettini, E. (2019). Special education teacher attrition and retention: A review of the literature. *Review of Educational Research. Advance Online Publication*. doi:10.3102/0034654319862495

Billingsley, Bettini, E., & Jones, N. (in press). Supporting special education teacher induction through high-leverage practices. *Remedial and Special Education.*

Billingsley, B., Bettini, E., Mathews, H., & McLeskey, J. (in press). Improving working conditions to support special educators' effectiveness: A call for leadership. *Teacher Education and Special Education*.

Billingsley, B., Bettini, E., & Williams, T. (2019). Teacher diversity in special and general education: Composition and distribution of teachers of color across schools. *Remedial and Special Education*, *40*, 199-212.

Billingsley, B., McLeskey, J., & Crockett, J. (2017, June). Principal leadership: Moving toward inclusive and high-achieving schools for students with disabilities (Revised ed., Document No. IC-8). CEEDAR Center, University of Florida. Retrieved from http://ceedar.education.ufl.edu/wp-content/uploads/2017/12/Principal-Leadership-IC-2017-Revision.pdf

Bishop, A., Brownell, M., Klingner, J., Leko, M., & Galman, S. (2010). Differences in beginning special education teachers: The influence of personal attributes, preparation, and school environment on classroom reading practices. *Learning Disability Quarterly*, *33*(2), 75-92. doi:10.1177/073194871003300202

Boe, E. E. (2006). Long-term trends in the national demand, supply, and shortage of special education teachers. *Journal of Special Education*, *40*, 138-150. doi:10.1177/00224669060400030201

Boe, E. E., Bobbitt, S. A., Cook, L. H., Whitener, S. D., & Weber, A. L. (1997). Why didst thou go? Predictors of retention, transfer, and attrition of special and general education teachers from a national perspective. *The Journal of Special Education*, *30*, 390-411. doi:10.1177/002246699703000403

Boe, E. E., & Cook, L. H. (2006). The chronic and increasing shortage of fully certified teachers in special and general education. *Exceptional Children*, *72*, 443-460. doi:10.1177/001440290607200404

Boe, E. E., Cook, L. H., & Sunderland, R. J. (2008). Teacher turnover: Examining exit attrition, teaching area transfer, and school migration. *Exceptional Children*, *75*, 7-31. doi:10.1177/001440290807500101

Boyd, D., Lankford, H., Loeb, S., & Wyckoff, J. (2005a). Explaining the short careers of high-achieving teachers in schools with low-performing students. *American Economic Review*, *95*, 166-171. doi:10.1257/000282805774669628

Boyd, D., Lankford, H., Loeb, S., & Wyckoff, J. (2005b). The draw of home: How teachers' preferences for proximity disadvantage urban schools. *Journal of Policy Analysis and Management*, *24*, 113-132. doi:10.1002/pam.20072

Bray, L. E., & Russell, J. L. (2018). The dynamic interaction between institutional pressures and activity: An examination of the implementation of IEPs in secondary inclusive settings. *Educational Evaluation and Policy Analysis*, *40*, 243-266. doi:10.3102/0162373718756189

Carver-Thomas, D. (2018). *Diversifying the teaching profession: How to recruit and retain teachers of color*. Palo Alto, CA: Learning Policy Institute. Retrieved from https://learningpolicyinstitute.org/sites/default/files/product-files/Diversifying_Teaching_Profession_REPORT_0.pdf

Carver-Thomas, D., & Darling-Hammond, L. (2017). *Teacher turnover: Why it matters and what we can do about it*. Palo Alto, CA: Learning Policy Institute. Retrieved from https://learningpolicyinstitute.org/sites/default/files/product-files/Teacher_Turnover_REPORT.pdf

Cheng, A., Henderson, M., Peterson, P., & West, M. (2019). Results from the 2018 EDNEXT Poll. *Education Next*, *19*, 9-26.

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. doi:10.1016/j.jpubeco.2007.07.003

Connelly, V., & Graham, S. (2009). Student teaching and teacher attrition in special education. *Teacher Education and Special Education*, *32*, 257-269. doi:10.1177/0888406409339472

Cowan, J., Goldhaber, D., Hayes, K., & Theobald, R. (2016). Missing elements in the discussion of teacher shortages. *Educational Researcher*, *45*, 460-462. doi:10.3102/0013189X16679145

Dee, T. S., & Goldhaber, D. (2017, April). *Understanding and addressing teacher shortages in the United States* (The Hamilton Project). Retrieved from https://www.brookings.edu/wp-content/uploads/2017/04/es_20170426_understanding_and_addressing_teacher_shortages_in_us_pp_dee_goldhaber.pdf

Dewey, J., Sindelar, P. T., Bettini, E., Boe, E. E., Rosenberg, M. S., & Leko, C. (2017). Explaining the decline in special education teacher employment from 2005 to 2012. *Exceptional Children*, *83*, 315-329. doi:10.1177/0014402916684620

Dieker, L. A., Rock, M., Billingsley, B., Ryndak, D., Leko, M., Davis, T., & Romauldo, A. (2019). *The role of systems thinking and change in ameliorating the special education workforce crisis, improving preparation and support and fortifying the pipeline to improve outcomes for students with disabilities: Research, policy, and practice*. Unpublished manuscript, AERA Research Conference Brief, University of North Carolina, Greensboro.

Elfers, A. M., Plecki, M. L., John, E., & Wedel, R. (2008). *Undergraduates' views of K-12 teaching as a career choice*. Retrieved from https://education.uw.edu/sites/default/files/profiles/documents/plecki/Elfers%20et%20al%202008%20undergrads.pdf

Fall, A. M., & Billingsley, B. S. (2011). Disparities in work conditions among early career special educators in high- and low-poverty districts. *Remedial and Special Education*, *32*, 64-78. doi:10.1177/0741932510361264

Feng, L., & Sass, T. R. (2017). Teacher quality and teacher mobility. *Education Finance and Policy*, *12*, 396-418. doi:10.1162/EDFP_a_00214

Fish, W. W., & Stephens, T. L. (2010). Special education: A career of choice. *Remedial and Special Education*, *31*, 400-407. doi:10.1177/0741932509355961

Ganimian, A., Alfonso, M., & Santiago, A. (2013, June). *Calling their bluff: Expressed and revealed preferences of top college graduates entering teaching in Argentina* (Inter-American Development Bank Working Paper Series No. IDB-WP-446). Washington, DC: Inter-American Development Bank. Retrieved from https://lacer.lacea.org/bitstream/handle/123456789/12577/lacea_2013_college_graduates_Argentina.pdf?sequence=1

Gersten, R., Keating, T., Yovanoff, P., & Harniss, M. K. (2001). Working in special education: Factors that enhance special educators' intent to stay. *Exceptional Children*, *67*, 549-567. doi:10.1177/0014402901067004

Gist, C. D. (2017). Voices of aspiring teachers of color: Unraveling the double bind in teacher education. *Urban Education*, *52*, 927-956. doi:10.1177/0042085915623339

Goff, P., Carl, B., & Yang, M. (2018). *Supply and demand for public school teachers in Wisconsin* (WCER Working Paper No. 2018-2). Wisconsin Center for Education Research. Retrieved from https://files.eric.ed.gov/fulltext/ED588483.pdf

Goldhaber, D., Quince, V., & Theobald, R. (2018). Has it always been this way? Tracing the evolution of teacher quality gaps in US public schools. *American Educational Research Journal*, *55*, 171-201.

Grissom, J. A., Kern, E. C., & Rodriguez, L. A. (2015). The "representative bureaucracy" ineducation: Educator workforce diversity, policy outputs, and outcomes for disadvantaged students. *Educational Researcher*, *44*, 185-192.

Han, S. W., Borgonovi, F., & Guerriero, S. (2018). What motivates high school students to want to be teachers? The role of salary, working conditions, and societal evaluations about occupations in a comparative perspective. *American Educational Research Journal*, *55*, 3-39. doi:10.3102/0002831217729875

Henig, J. R. (2008). *Spin cycle: How research is used in policy debates*. New York, NY: Russell Sage Foundation.

Hettleman, K. (2002). *Still getting it wrong: The continuing failure of special education in the Baltimore City Public Schools*. Baltimore, MD: The Abell Foundation. Retrieved from https://www.abell.org/sites/default/files/publications/ed_getting_it_wrong.pdf

Ingersoll, R. M., & Smith, T. M. (2003). The wrong solution to the teacher shortage. *Educational Leadership*, *60*(8), 30-33.

Ingersoll, R. M., & Strong, M. (2011). The impact of induction and mentoring programs for beginning teachers: A critical review of the research. *Review of Educational Research*, *81*, 201-233. doi:10.3102/0034654311403323

Irizarry, J. (2011). Buscando la libertad: Latino youths in search of freedom in school. *Democracy & Education*, *19*(1), 4.

Jameson, J. M., & Huefner, D. S. (2006). "Highly qualified" special educators and the provision of a free appropriate public education to students with disabilities. *Journal of Law and Education*, *35*, 29-50.

Johnson, E. S., Humphrey, M. J., & Allred, K. W. (2009). Online learning and mentors: Addressing the shortage of rural special educators through technology and collaboration. *Rural Special Education Quarterly*, *28*(2), 17-21. doi:10.1177/875687050902800203

Johnson, S. M., Kraft, M. A., & Papay, J. P. (2012). How context matters in high-need schools: The effects of teachers' working conditions on their professional satisfaction and their students' achievement. *Teachers College Record*, *114*(10), 1-39.

Katsiyannis, A., Counts, J., Popham, M., Ryan, J., & Butzer, M. (2016). Litigation and students with disabilities: An overview of cases from 2015. *NASSP Bulletin*, *100*, 26-46. doi:10.1177/0192636516664827

Kleinhammer-Tramill, J., & Fiore, T. A. (2003). A history of federal support for preparing special educators and related services personnel to serve children and youth with disabilities. *Teacher Education and Special Education*, *26*, 217-229. doi:10.1177/088840640302600309

Kleinhammer-Tramill, J., Mickelson, A., & Barton, J. (2014). Federal support for personnel development in special education: Where we've been, where we are, and a look to the future. In P. T. Sindelar, E. McCray, M. T. Brownell, & B. Lignugaris/Kraft (Eds.), *Handbook of research on special education teacher preparation* (pp. 17-29). New York, NY: Routledge.

Kleinhammer-Tramill, J., Tramill, J., & Brace, H. (2010). Contexts, funding history, and implications for evaluating the office of special education program's investment in personnel preparation. *The Journal of Special Education*, *43*, 195-205.

Kohli, R. (2018). Behind school doors: The impact of hostile racial climates on urban teachers of color. *Urban Education*, *53*, 307-333. doi:10.1177/0042085916636653

Kozleski, E. B., Artiles, A., McCray, E. D., & Lacy, L. (2014). Equity challenges in the accountability age: Demographic representation and distribution in the teacher workforce. In P. T. Sindelar, E. McCray, M. T. Brownell, & B. Lignugaris/Kraft (Eds.), *Handbook of research on special education teacher preparation* (pp. 113-126). New York, NY: Routledge.

Krieg, J. M., Theobald, R., & Goldhaber, D. (2016). A foot in the door: Exploring the role of student teaching assignments in teachers' initial job placements. *Educational Evaluation and Policy Analysis*, *38*, 364-388. doi:10.3102/0162373716630739

Lauritzen, P., & Friedman, S. J. (1993). Meeting the supply/demand requirements of the Individuals with Disabilities Education Act. *Teacher Education and Special Education*, *16*, 221-229.

Lovenheim, M., & Turner, S. (2018). *Economics of education*. New York, NY: Worth.

Mac Iver, M. A., Vaughn, E. S., & Katz, G. (2005). *A teacher for every classroom: New teachers in the Baltimore City public schools, 1999-2004*. Baltimore, MD: Abell Foundation.

Retrieved from https://files.eric.ed.gov/fulltext/ED546149.pdf

Maryland Disability Law Center. (2008, January). *Chronology of the Vaughn G. case*. Baltimore, MD: Author. Retrieved from https://www.disabilityrightsmd.org/wp-content/uploads/2010/02/VG-Chronology-1988-January2008.pdf

Maryland State Department of Education. (2010). *Maryland teacher staffing report 2010 - 2012*. Retrieved from http://dlslibrary.state.md.us/publications/Exec/MSDE/ED18-703(g)(1)_2010-2012.pdf

Mason-Williams, L. (2015). Unequal opportunities: A profile of the distribution of special education teachers. *Exceptional Children*, *81*, 247-262. doi:10.1177/0014402914551737

Mason-Williams, L., Bettini, E. E., & Gagnon, J. C. (2017). Access to qualified special educators across elementary neighborhood and exclusionary schools. *Remedial and Special Education*, *38*, 297-230. doi:10.1177/0741932517713311

Mason-Williams, L., & Gagnon, J. C. (2016). An analysis of teacher sorting in secondary special education and alternative schools. *Journal of Special Education*, *50*, 239-250. doi:10.1177/0022466916656174

Mason-Williams, L., Sindelar, P. T., & Fisher, T. (2017). *[Qualifications of special education teachers in urban, rural, and suburban schools]*. Unpublished raw data.

McLaughlin, M. J. (2010). Evolving interpretations of educational equity and students with disabilities. *Exceptional Children*, *76*, 265-278. doi:10.1177/001440291007600302

McLeskey, J., & Billingsley, B. S. (2008). How does the quality and stability of the teaching force influence the research-to-practice gap? A perspective on the teacher shortage in special education. *Remedial and Special Education*, *29*, 293-305. doi:10.1177/0741932507312010

McLeskey, J., Waldron, N. L., & Redd, L. (2014). A case study of a highly effective, inclusive elementary school. *Journal of Special Education*, *48*, 59-70.

Milanowski, A., & Odden, A. (2007). *A new approach to the cost of teacher turnover*. Seattle, WA: Center on Reinventing Public Education. Retrieved from https://www.crpe.org/sites/default/files/wp_sfrp13_milanowski-odden_aug08_0.pdf

Miller, M. D., Brownell, M. T., & Smith, S. W. (1999). Factors that predict teachers staying in, leaving, or transferring from the special education classroom. *Exceptional Children*, *65*, 201-218. doi:10.1177/001440299906500206

Myers, J. A., Gilbert, K., & Sindelar, P. (2019). *Does alternate route preparation meet the requirements of IDEA assurance 14? A policy analysis*. Manuscript submitted for publication.

Park, H., & Byun, S.-Y. (2015). Why some countries attract more high-ability young students to teaching: Cross-national comparisons of students' expectation of becoming a teacher. *Comparative Education Review*, *59*, 523-549. doi:10.1086/681930

Peyton, D., Acosta, K., Pua, D., Harvey, A., Mason-Williams, L., Dewey, J., … & Crews, E. (2019). *Special education teacher shortages: Characteristics separating states with low and high shortages*. Manuscript submitted for publication.

Prater, M. A., Harris, T., & Fisher, L. (2007). Special education attrition in the state of Utah: Rural vs. urban school districts. *Rural Special Education Quarterly*, *26*(3), 25-31. doi:10.1177/875687050702600304

Ramanathan, A. K. (2004, March). *The Vaughn G. Consent decree: A leadership briefing paper*. Baltimore, MD: Urban Special Education Leadership Collaborative. Retrieved from https://www.clearinghouse.net/chDocs/public/ED-MD-0001-0002.pdf

Roderick, M., Coca, V., & Nagaoka, J. (2011). Potholes on the road to college: High school effects in shaping urban students' participation in college application, four-year college enrollment, and college match. *Sociology of Education*, *84*, 178-211. doi:10.1177/0038040711411280

Ronfeldt, M., Loeb, S., & Wyckoff, J. (2013). How teacher turnover harms student achievement. *American Educational Research Journal*, *50*, 4-36. doi:10.3102/0002831212463813

Rosenberg, M. S., & Sindelar, P. T. (2005). The proliferation of alternative routes to certification in special education: A critical review of the literature. *Journal of Special Education*, *39*, 117-127. doi:10.1177/00224669050390020201

Rozalski, M., Stewart, A., & Miller, J. (2010). How to determine the least restrictive environment for students with disabilities. *Exceptionality*, *18*, 151-163. doi:10.1080/09362835.2010.491991

Rude, H., & Miller, K. J. (2018). Policy challenges and opportunities for rural special education. *Rural Special Education Quarterly*, *37*, 21-29. doi:10.1177/8756870517748662

Sack-Min, J. (2007). The issues of IDEA. *American School Board Journal*, *194*(3), 20-25.

Scott, L. A. (2018). Recruiting and retaining Black students for special education teacher preparation inclusion programs. *Inclusion*, *6*, 143-157. doi:10.1352/2326-6988-6.2.143

Scott, L. A., & Alexander, Q. (2017). Strategies for recruiting and retaining Black male special education teachers. *Remedial and Special Education*. doi:10.1177/0741932517732636

Scruggs, T. E., Mastropieri, M. A., & McDuffie, K. A. (2007). Co-teaching in inclusive classrooms: A metasynthesis of qualitative research. *Exceptional Children*, *74*, 392-416. doi:10.1177/001440290707300401

Sindelar, P. T., Dewey, J. F., Rosenberg, M. S., Corbett, N. L., Denslow, D., & Lotfinia, B. (2012). Cost effectiveness of alternative route special education teacher preparation. *Exceptional Children*, *79*, 25-42. doi:10.1177/001440291207900102

Sindelar, P. T., Pua, D. J., Fisher, T., Peyton, D. J., Brownell, M. T., & Mason-Williams, L. (2018). The demand for special education teachers in rural schools revisited: An update on progress. *Rural Special Education Quarterly*, *37*, 12-20. doi:10.1177/8756870517749247

Sorensen, L. C., & Ladd, H. (2018, May). *The hidden costs of teacher turnover* (CALDER Working Paper No. 203-0918-1). Retrieved from https://caldercenter.org/sites/default/files/CALDER%20WP%20203-0918-1_0.pdf

Sullivan, K., Barkowski, E., Lindsay, J., Lazarev, V., Nguyen, T., Newman, D., & Lin, L. (2017, December). *Trends in teacher mobility in Texas and associations with teacher, student, and school characteristics* (REL Report No. 2018-283). Regional Educational Laboratory Southwest. Retrieved from https://files.eric.ed.gov/fulltext/ED578907.pdf

U.S. Department of Education, National Center for Education Statistics, Common Core of Data. (2013). *Local education agency universe survey*. Retrieved from https://nces.ed.gov/surveys/rural-ed/tables/A.1.a.-1_2.asp?refer=

Villegas, A. M., & Irvine, J. J. (2010). Diversifying the teaching force: An examination of major arguments. *Urban Review*, *42*, 175-192. doi:10.1007/s11256-010-0150-1

Villegas, A. M., Strom, K., & Lucas, T. (2012). Closing the racial/ethnic gap between students of color and their teachers: An elusive goal. *Equity & Excellence in Education*, *45*, 283-301. doi:10.1080/10665684.2012.656541

Watlington, E., Shockley, R., Guglielmino, P., & Felsher, R. (2010). The high cost of leaving: An analysis of the cost of teacher turnover. *Journal of Education Finance*, *36*, 22-37. doi:10.1353/jef.0.0028

Yell, M. L., & Katsiyannis, A. (2019). The supreme court and special education. *Intervention in School and Clinic*, *54*, 311-318. doi:10.1177/1053451218819256

Youngs, N., Jones, P., & Low, M. (2011). How beginning special and general education elementary teachers negotiate role expectations and access professional resources. *Teachers College Record*, *113*, 1506-1540.

Author Biographies

Loretta Mason-Williams, PhD is an associate professor in the Department of Teaching, Learning, and Leadership at Binghamton University.

Elizabeth Bettini PhD is an assistant professor of Special Education at Boston University.

David Peyton PhD is an assistant professor of Special Education at Apalachian State University.

Alexandria Harvey also is a doctoral candidate in Special Education at the University of Florida.

Michael Rosenberg PhD is professor and dean of the School of Education at SUNY New Paltz.

Paul T. Sindelar PhD is distinguished professor of Special Education at the University of Florida.