



ELEVATING THE EDUCATION PROFESSIONS

**SOLVING EDUCATOR SHORTAGES BY MAKING
PUBLIC EDUCATION AN ATTRACTIVE AND
COMPETITIVE CAREER PATH**

OCTOBER 2022



NATIONAL EDUCATION ASSOCIATION

The National Education Association is the nation's largest professional employee organization, representing more than 3 million elementary and secondary teachers, higher education faculty, education support professionals, school administrators, retired educators, students preparing to become teachers, healthcare workers, and public employees. Learn more at www.nea.org.

NEA EXECUTIVE OFFICERS

Rebecca S. Pringle, President

Princess R. Moss, Vice President

Noel Candelaria, Secretary-Treasurer

NEA EXECUTIVE COMMITTEE

Mark Jewell, North Carolina

Gladys Fátima Márquez, Illinois

Ronald (Duff) Martin, Wisconsin

Robert Rodriguez, California

Christine Sampson-Clark, New Jersey

Hanna Vaandering, Oregon

OFFICE OF THE EXECUTIVE DIRECTOR

Kim A. Anderson, Executive Director

Karen M. White, Deputy Executive Director

EDUCATION POLICY & IMPLEMENTATION CENTER

Daaiyah Bilal-Threats, Senior Director

Stacey Pelika, Director, Research

CENTER FOR ADVOCACY & POLITICAL ACTION

Mary Kusler, Senior Director

Dale Templeton, Director, Collective Bargaining and Member Advocacy

CENTER FOR PROFESSIONAL EXCELLENCE & STUDENT LEARNING

Andy Coons, Senior Director

Andrea Prejean, Director, Teacher Quality

Amber Parker, Director, Education Support Professional Quality

Ann Coffman, Manager, Teacher Quality

ELEVATING THE EDUCATION PROFESSIONS

SOLVING EDUCATOR SHORTAGES BY MAKING PUBLIC EDUCATION AN ATTRACTIVE AND COMPETITIVE CAREER PATH

We all know that public education has the power to change lives. To build communities. To support democracy. To build a bright future for all students across race, ZIP code, background, and ability. In the midst of a national educator¹ shortage, school districts are struggling to fill their essential school vacancies with caring, qualified, and committed educators who respect and reflect the communities they serve.

For decades, public school educators have worked hard to meet their students' needs with far too few resources and too little planning time. At the same time, educators have been grossly under-compensated as a profession compared to other professions with comparable education and training requirements; similarly, the wages and benefits for many education support professionals (ESPs) can no longer compete with jobs outside of education.

Elected officials who make funding and policy decisions have too often negated their responsibility to ensure fair and adequate access to public education resources. The result—low pay, lack of professional respect, and a failure to fund the resources that students need to thrive—has caused an unprecedented school staffing crisis across nearly every job category. The number of individuals entering and graduating from teacher preparation programs is much lower now than a decade ago, while the percentage leaving positions in public education continues to increase.

The educator shortage crisis is real, and it is the result of numerous factors not controlled by educators. It requires immediate and sustained attention to identify and implement long-term solutions to improve educator recruitment *and* retention. Every child needs and deserves a neighborhood school with well-prepared teachers, class sizes that enable one-on-one attention, and nurses, counselors, and healthy meals to ensure they can thrive. That is why educators at all levels—school district leaders; local, state, and national policymakers; families; and communities—must work together to solve this problem.

The good news is that we know what to do; we have the solutions in front of us. We cannot and should not turn from them and rely on short-term fixes. This report outlines a wide variety of long-term strategies and solutions that are effective at recruiting and retaining educators and, most importantly, reflect the needs and priorities of educators themselves. Across the country, educators and their unions, school and district administrators, and policymakers are working together to make education an attractive and competitive career. While we have a long way to go, the path to achieving a well-staffed, equitable, and just public education system is clear.

KEY TAKEAWAYS

- Educator shortages started before COVID-19 but were exacerbated by the pandemic. Shortages span many categories of school staff.
- Solving educator shortages requires evidence-based, long-term strategies that address both recruitment *and* retention.
- Specific attention must be paid to recruiting and retaining educators of color who face unique barriers to pursuing education careers.
- Failing to address educator shortages has led to negative effects on students, schools, districts, and communities.

A CRISIS ALREADY WELL UNDERWAY, EXACERBATED BY THE PANDEMIC

The COVID-19 pandemic was a perfect storm in terms of our nation's public school system, pairing existing underfunding and resource inequities with new challenges that no one could have predicted. As many districts closed school buildings and replaced in-person instruction with virtual learning, parents, community members, and the media gained new insights into the daily challenges faced by educators and students. Television magnate Shonda Rhimes tweeted a sentiment shared by many in the early days of the pandemic after coaching her children through just over an hour of learning in March 2020: “Teachers deserve to make a billion dollars a year. Or a week” (@shondarhimes, 2020).

Despite these initial accolades, school administrators and educators felt increased pressure as they were forced to adjust instruction—sometimes daily—between virtual and in-person experiences, which created increased stress for families and often untenable and unsustainable environments for educators. In addition, intense and long-lasting debates about COVID-19 mitigation protocols, vaccinations, and timelines for returning to full-time, in-person instruction dominated conversations.

With many educators fed up with the environments in which they were expected to work, the focus shifted to educator shortages: How many teachers will leave their jobs at the end of the school year? Do our schools have enough mental health staff to help students who are dealing with trauma? Are there enough paraeducators and special education teachers to work with students with special needs? Are there enough bus drivers to transport children safely to school and food service staff to ensure they are fed and ready to learn? If an educator needs to take a day off to care for themselves or a loved one—whether due to COVID-19 or another reason—will a substitute be available to step in or will a colleague be required to give up a much-needed prep period or step into a role for which they have little or no training? To add to educators' stress, these pandemic-specific concerns were joined by increased gun violence in schools and politically motivated challenges to those educators committed to honesty in education.

Multiple indicators point toward an educator shortage crisis that has been brewing for more than a decade, since the end of the Great Recession in 2009. **Figure 1** uses data from the Bureau of Labor Statistics Job Openings and Labor Turnover Survey (JOLTS) (U.S. Bureau of Labor Statistics, n.d.-b) to show job opening and hiring trends for the public education sector, which cover all positions in Pre-K-12 and higher education.ⁱⁱ By focusing on the right-hand third of the figure, it is evident that job openings started to outpace hires in late 2017, more than two years before the onset of the pandemic era, which is shaded in gray.

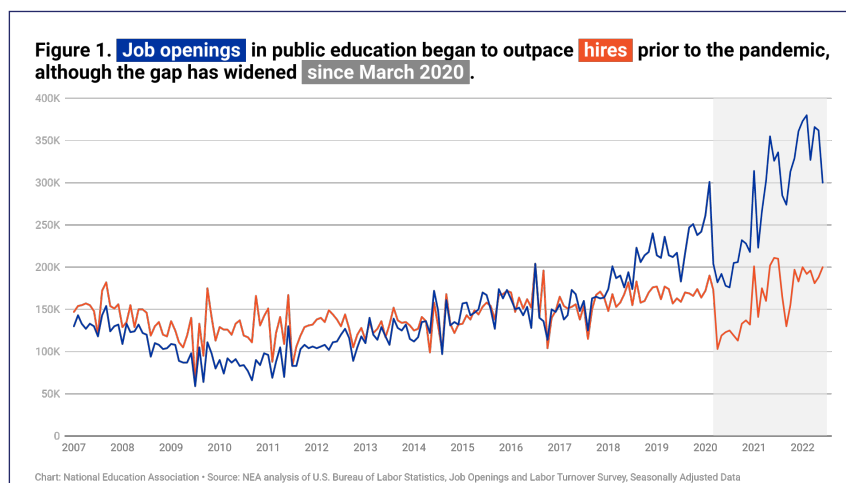
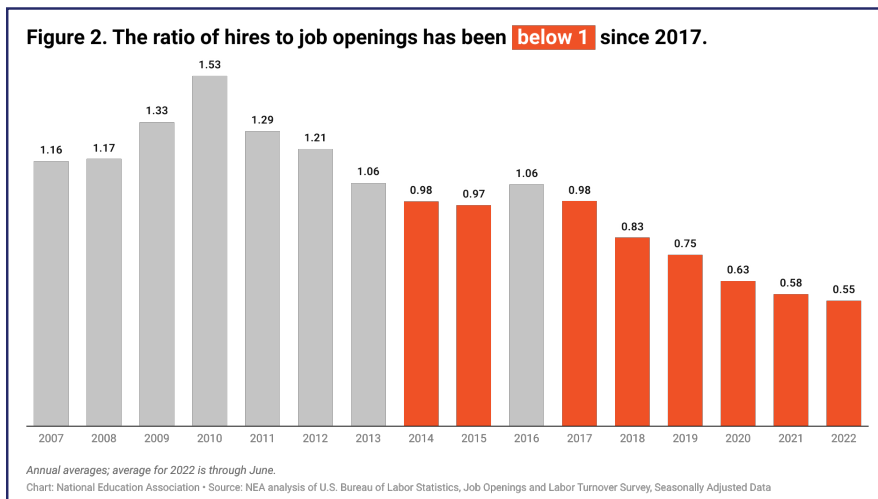


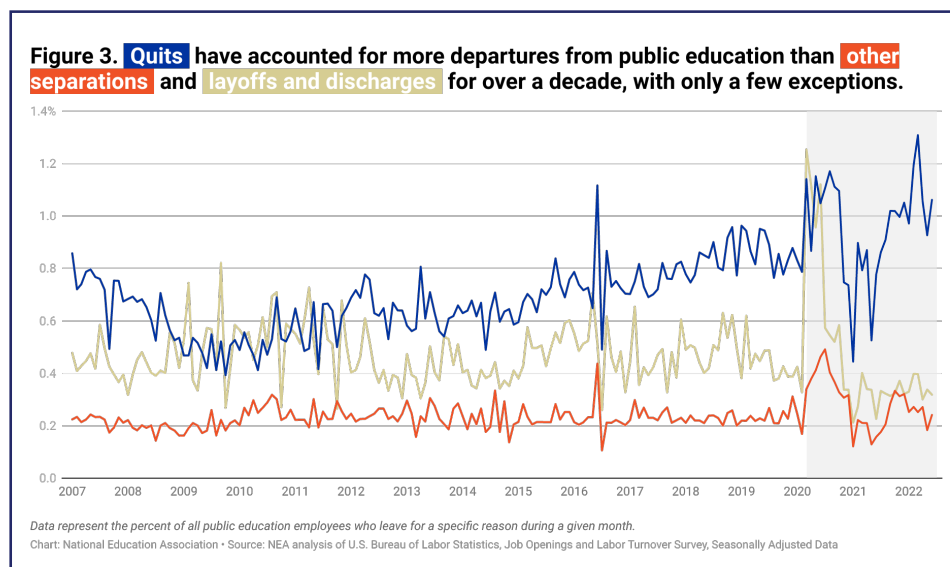
Figure 2 visualizes the same data in a different way—by showing the ratio between the two lines—and stretches back to the start of the JOLTS time series in 2001. Again, 2017 was the tipping point. From 2001 to 2012, hires consistently outpaced openings. This was followed by a period from 2012 to 2016 during which hires matched openings. Then, starting in 2017, openings started outpacing hires, with this gap growing year to year.



The JOLTS data also provide some insight into the dynamics behind this growing gap between openings and hires—specifically, whether educators were quitting or leaving for some other reason, such as retirement. **Figure 3** shows three monthly rates: the percent of all public education employees who quit; the percent who were laid off or discharged; and the percent who left due to an “other separation,” which is a category that includes retirements, transfers to other locations, deaths, and separations due to employee disability.

One rate—other separations—has been nearly flat since 2007, save for a brief peak in July 2020, just as the first pandemic-era school year ended (the pandemic era is shaded in gray). For layoffs/discharges, we see volatility and generally higher rates in 2009, 2010, and 2011 as districts laid off staff in the face of shrinking budgets. After this period, layoffs and discharges were relatively flat until March 2020, when there was a brief burst as schools laid off staff—which, according to news reports, included education support professionals (ESPs), such as bus drivers and food service staff (Rosewicz & Maciag, 2020)—when schools closed for in-person instruction. Understandably, layoffs and discharges plummeted as shortages set in and districts struggled to recruit and retain staff.

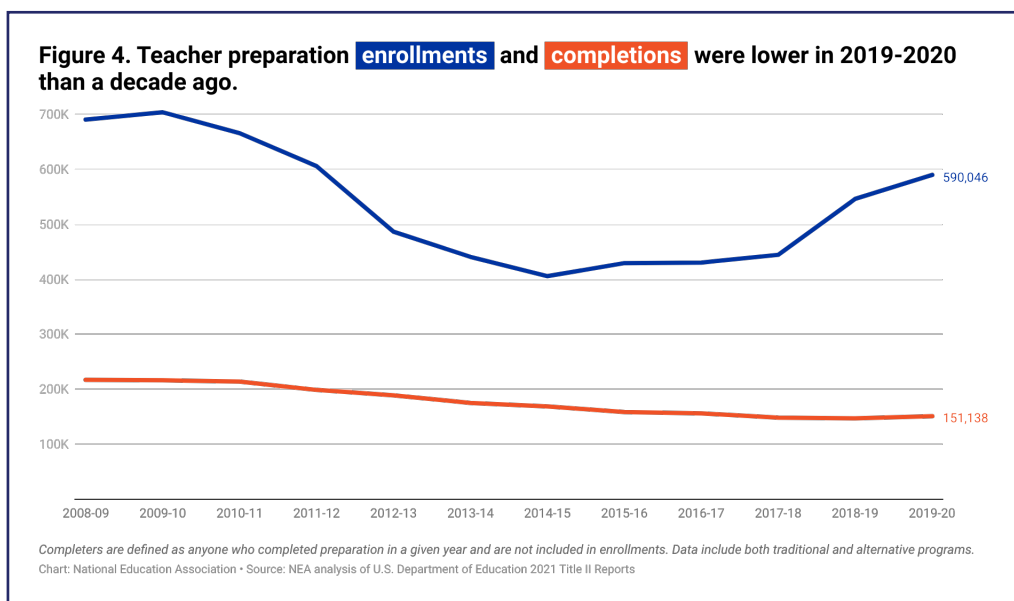
In contrast to these other two types of educator departures, the quits rate has been on a relatively steady climb since 2009. Although there has been considerable volatility during the pandemic era, the quits rate reached a record high of 1.3 percent in March 2022. These data provide a clear indication that educators quitting—not leaving for other reasons—is driving a significant part of the current educator shortage.



Further evidence for this theory comes from the School Pulse Panel (U.S. Department of Education, 2022b), which is a monthly survey conducted by the U.S. Department of Education. In the January 2022 survey, school principals were asked the reasons behind the teacher and school staff vacancies they were experiencing. About half of school leaders with at least one vacancy reported that their openings were due to resignations (51 percent for teacher vacancies, 52 percent for non-teaching staff); a little more than a quarter cited the creation of new positions (30 percent, 26 percent), most likely due to the influx of federal emergency funding; and around a fifth pointed to retirements (21 percent, 16 percent). In the June 2022 School Pulse Panel, 42 percent of all principals—not just those with current vacancies—said that teachers and staff leaving the profession became a more pressing concern in 2021–2022, and 30 percent said the same about early retirements.

While people leaving education is one part of the shortage equation, another key factor is the declining rate of people choosing education as a career path. The U.S. Department of Education gathers annual data on teacher preparation enrollments and completions that allow for a look at this critical early stage in the teacher pipeline (U.S. Department of Education, 2022a). **Figure 4** shows enrollment and completion levels from 2008–2009 to 2019–2020; unfortunately, data are not yet available that capture the effects of the pandemic. What is clear is that enrollments declined steeply from 2009–2010 to 2013–2014—recall that during this period, quits began to increase. They then leveled off from 2017 to 2019 before starting a promising increase.

Notably, completers, defined as anyone who completed preparation in a given school year, are *not* included in the enrollment counts. Looking at the separate trend line for completers, there is a somewhat different pattern: a steady decline in 2010–2011, with a very small uptick in 2019–2020. Given the upswing in enrollments in 2018–2019 and 2019–2020, we expect to see a similar upswing in completers in the next few years if those students complete their preparation programs at the same rate as students in past years. On the other hand, we would not be surprised to see lower-than-usual completion rates due to the extreme disruption of the pandemic during the 2020–2021 school year.



EDUCATOR SHORTAGES EXTEND INTO MANY SUBJECT AREAS AND STAFFING CATEGORIES

The educator shortage has not hit all subject areas, grade levels, or staff categories equally. In its analysis of the U.S. Department of Education's 2012 Schools and Staffing Survey and the 2013 Teacher Follow-Up Survey, the Learning Policy Institute found that teachers of mathematics, science, special education, English language development, and world languages were more likely to leave their positions, either for another school or from teaching entirely, than teachers in other fields (Carver-Thomas & Darling-Hammond, 2017).

A decade later, positions in these subject areas continue to be some of the hardest to fill. A 2019 meta-analysis of the literature on teacher attrition found that STEM and special education teachers were significantly more likely to leave the profession than those in other fields (Nguyen et al., 2019). Using the U.S. Department of Education's Teacher Shortage Areas data collection (U.S. Department of Education, 2022c), we can see the *subjects* in which states anticipate having shortages for the 2022–2023 school year, although not the specific *number* of vacancies they expect. Among the 50 states and the District of Columbia, at least 45 expected shortages in special education, mathematics, and/or science, while at least 30 expected shortages in language arts, world languages, career and technical education, English as a second language, social studies, and/or health and physical fitness. Twenty-seven states reported a shortage of support staff.

Notably, there is also considerable overlap between this list and the list of subject areas in which schools reported being understaffed in the August 2022 School Pulse Panel (U.S. Department of Education, 2022b). In that survey, the top three subject areas in which schools were understaffed for 2022–2023 were, in order: special education (65 percent), general elementary education (43 percent), and ESL or bilingual education (33 percent). More than three-quarters of principals reported that it was somewhat or very difficult to fill a position with a fully certified teacher for special education (78 percent), physical sciences (78 percent), foreign languages (76 percent), and mathematics (75 percent). The availability of substitute teachers also has been a cause for alarm, with 73 percent of principals in the June 2022 School Pulse Panel reporting that their staff had expressed concerns about a lack of substitutes (U.S. Department of Education, 2022b).

The August 2022 School Pulse Panel also asked about understaffing in non-teaching positions for 2022–2023. Here, the areas in which schools are most likely to be understaffed were transportation staff (59 percent), custodial staff (50 percent), mental health professionals (49 percent), and academic interventionists (43 percent). An astounding 94 percent of principals reported that it was somewhat or very difficult to fill transportation positions with fully certified staff, and 84 percent said the same about custodial positions (U.S. Department of Education, 2022b).

The Bureau of Labor Statistics's Occupational Employment and Wage Statistics (OEWS) (U.S. Bureau of Labor Statistics, n.d.-c) is a dataset that also allows us to parse out staffing shifts by grade level and staff category over time, providing information about specific occupations. Released annually in the spring, OEWS data are based on semi-annual surveys conducted each May and November. We focused on the period from 2012 to 2021 because the OEWS did not include substitute teachers as a separate occupation until 2012.

Notably, OEWS data do not account for situations in which employees work for a different entity than the one that operates their worksite. So, for example, bus drivers who are employed by a local school district are included as public school employees, yet those who drive buses for a school district but who are employed by a private company are not. Unfortunately, there are no data that allow for accurate measurement over time of the number of K–12 public school staff employed by private companies. As a result, this analysis focused solely on public-sector public school employees—those directly employed by public school districts and related local and state public education entities. The inability to capture

public school staff employed by private companies will have the greatest impact on the data for specific ESP job categories—such as transportation, custodial, and food service staff—because these sectors are the most susceptible to privatization among K-12 education positions.

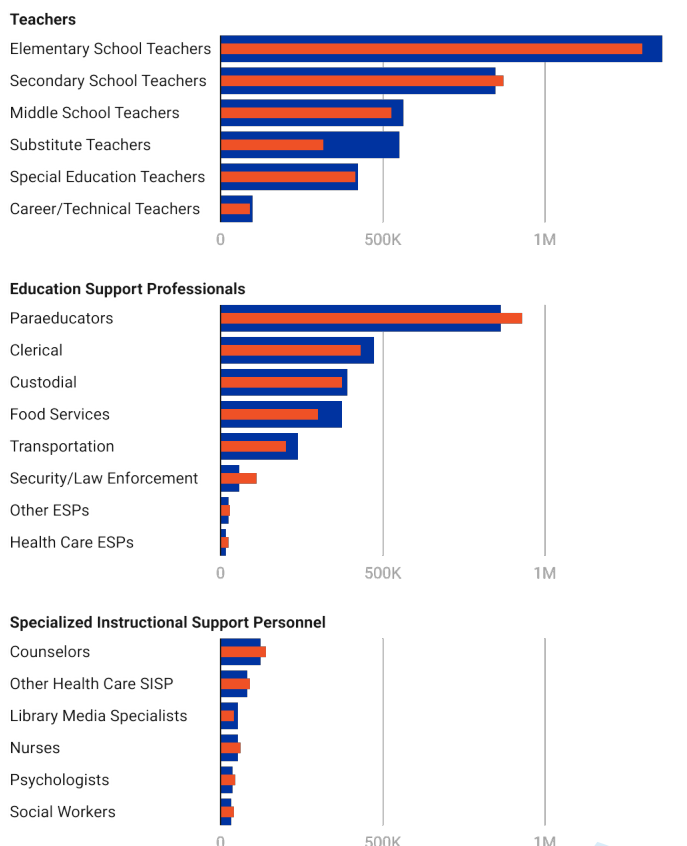
Figure 5 displays 2012 and 2021 staffing levels for nearly every category of non-administrative school staff, including teachers, ESPs, and specialized instructional support personnel (SISP)—a category that comprises counselors, library media specialists, psychologists, social workers, nurses, speech pathologists, and various types of therapists (for example, physical therapists and occupational therapists). Looking first at teachers, recent concerns about the lack of substitute teachers clearly has a basis in reality: the number of substitutes has decreased by more than 40 percent over the past decade, with most of that decline occurring since 2019. The only part of the teacher workforce that was larger in 2021 than in 2012 is secondary school teachers.

Moving to ESPs, two trends stand out. First, both paraeducators and security and law enforcement staff saw notable increases, with the latter career family nearly doubling. In contrast, there were declines in most other large ESP career families, particularly in food service and transportation. However, as noted above, the OEWS data do not capture staff working in public school settings who are employed by private companies. As a result, we do not know the extent to which observed declines were because there were fewer staff or because existing staff positions had been privatized.

In contrast to teachers and ESPs, many SISP job categories have seen staffing increases over the past decade. Other than library media specialists, which declined by 20 percent, most of the SISP occupations have expanded somewhat, with four categories—nurses, psychologists, counselors, and ‘other SISP’—seeing notable upswings in the COVID-19 era, likely due to the significant strain on mental and, in some cases, physical health posed by the pandemic.

While there are certainly some exceptions—most evident in the paraeducator, security and law enforcement staff, and SISP categories—the overall trend is clear: Education staffing has dropped and not just among teachers. While many of these declines started well before the pandemic, COVID-19 accelerated educator departures. Nationwide, there were about 363,000 fewer people working in the local public education sector, which included most K-12 positions, in August 2022 than there were in February 2020 (U.S. Bureau of Labor Statistics, n.d.-a). In the June 2022 School Pulse Panel, 47 percent of all respondents and 61 percent of those at schools with at least one vacancy agreed that the COVID-19 pandemic had increased teacher and staff vacancies at their school (U.S. Department of Education, 2022b).

Figure 5. From 2012 to 2021, the largest staffing decrease was in substitute teachers and the largest increases were in paraeducators and security/law enforcement staff.



Data do not include employees who work in public schools but are employed by private companies.
 Chart: National Education Association • Source: NEA analysis of U.S. Bureau of Labor Statistics, Occupational Employment and Wage Statistics

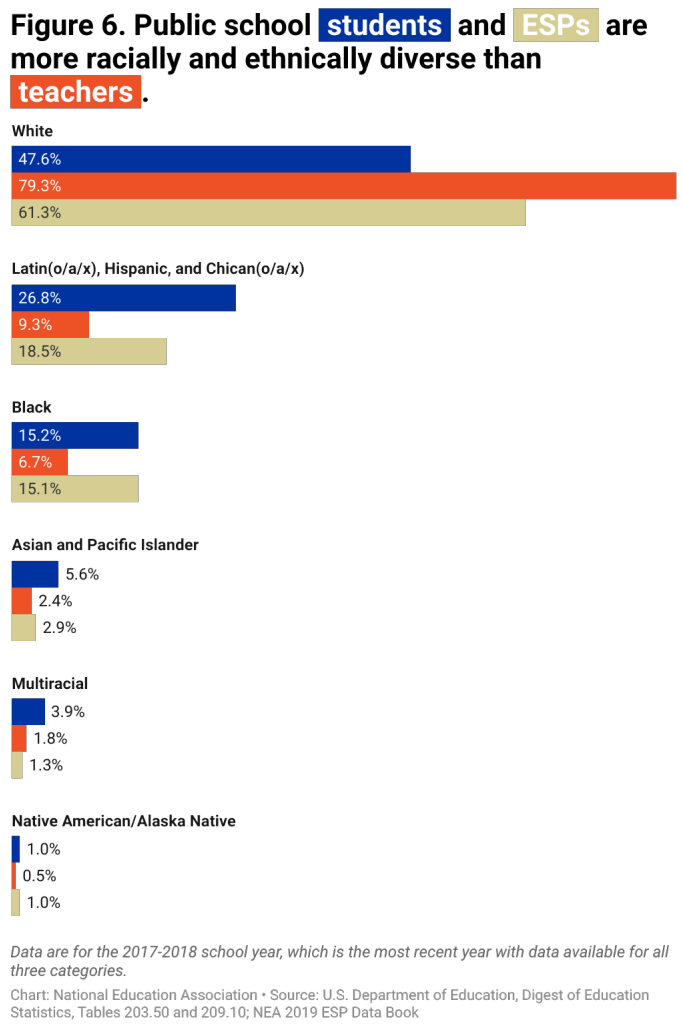
THE STRUGGLE TO ACHIEVE A DIVERSE EDUCATOR WORKFORCE

Concurrent with the emergence of the educator shortage, a significant demographic shift happened in the student population: In the 2014–2015 school year, students of color became the majority (U.S. Department of Education, 2021a). Yet, more than three-quarters of teachers were still white (U.S. Department of Education, 2021b). **Figure 6** illustrates this stark difference in the demographics of the student and teacher populations. An NEA analysis of the U.S. Census Bureau’s American Community Survey found that the K–12 ESP workforce looked much more like the students they serve (National Education Association, 2019).

While we do not yet know whether or how teacher demographics have shifted since the pandemic, there is little to suggest a significant increase in teachers of color. Rather, a January 2022 poll of NEA members found that while an astounding 55 percent of educators—including teachers, SISPs, and ESPs—were more likely to retire or leave education earlier than planned due to the pandemic, these rates were even higher for Black and Latin(o/a/x), Hispanic, and Chican(o/a/x) educators at 62 percent and 59 percent, respectively (GBAO, 2022). This is in line with pre-pandemic research that found that Black and Latin(o/a/x), Hispanic, and Chican(o/a/x) teachers had higher turnover rates than white teachers (Carver-Thomas, 2018; U.S. Department of Education, 2016) and were more likely to be unemployed or not teaching despite having a teaching degree (Lindsay, 2017).

Yet, teacher diversity is not simply a problem of increasing the retention of current teachers of color. Using prior research as a basis for their estimates, researchers at the National Center for Analysis of Longitudinal Data in Education Research used statistical simulations to look at four key components of the teacher pipeline: finishing high school or the equivalent and attending college; passing licensure tests; enrolling in teacher preparation and finishing college; and retaining new teachers of color for three years (Goldhaber & Mizrav, 2021). While some pieces of the pipeline have had greater effects on educator diversity than others, they concluded that it was necessary to address *all* of them to achieve a teacher workforce that truly reflects the K–12 student population. As we discuss in the next section of this report, educators of color often work in more challenging environments than and face challenges not encountered by their white counterparts.

Ensuring a diverse educator workforce is important beyond simple representation. Carver-Thomas’s review of the literature on the benefits of teacher diversity summarizes evidence that teachers of color improve the academic performance, graduation rates, attendance, suspension rates, and college aspirations of students of color (Carver-Thomas,



2018). Both students of color and white students have reported having positive perceptions of their teachers of color, including feeling cared for and academically challenged, and teachers of color often receive higher ratings than white teachers from students of all backgrounds—including white students. On a grand scale, having more interactions with individuals of other racial/ethnic backgrounds has been shown to make children less likely to hold implicit racial biases as adults.

Subsequent to Carver-Thomas's review, additional studies have provided further evidence to support the urgent need to diversify the educator workforce. First, the effects of having a same-race teacher can persist over the long term. In a longitudinal study of Tennessee students, which was replicated with administrative data from North Carolina, Black students who were randomly assigned to at least one Black teacher in early elementary school (grades K–3) were more likely to graduate from high school and enroll in college than same-race peers from the same schools (Gershenson et al., 2021).

Second, Blazar (2021) showed that teachers of color had positive short- and long-term effects on both students of color and white students in terms of their social-emotional, academic, and behavioral outcomes. Blazar's study used data based on the random assignment of upper-elementary teachers, and he was able to draw connections to fundamental differences in how teachers of color approached their work; for example, they were more likely to hold a growth mindset for their students, spend more time planning and differentiating instruction, and lead well-organized classrooms based on positive discipline practices. In other words, recruiting and retaining educators of color is essential to not only fostering a public school system that benefits students of color but also creating the best possible schools for *all* students.



“For 15 years, I was a vocal music teacher, and we did some amazing things at my school. I even led my students to perform at the famed John F. Kennedy Center for the Performing Arts in Washington, DC. But due to teacher shortages, which the COVID-19 pandemic has exacerbated, I have been reassigned to cover science and English language arts in the last three years. Teachers are being pulled in a million different directions to fill the gaps. This Band-Aid approach says to our students that—in the teaching profession—advanced, content-specific professionals should just teach what they’re told and not what they have dedicated their academic and professional lives to teaching.”

— Marvin Burton, Jr., Advanced Professionally Certified Vocal Music, Middle School and High School Teacher, 18 Years in Education, Forestville, Maryland

AN EVAPORATING POOL OF EDUCATORS

Why are fewer people choosing education as a career now than a decade ago? Why have educators across so many disciplines and job categories left the profession at such high rates for so long? And why are educators of color even more likely to leave than their white colleagues? In this section, we review the substantial body of research that explores these questions with respect to teachers; unfortunately, similar studies are lacking for other Pre-K-12 educator categories.

Regarding the first question—why fewer people are choosing to become teachers—it is important to note that fully credentialed teachers who have not yet taught typically comprise more than half of the teacher supply in any given year (Sutcher et al., 2016, 2019). Thus, understanding the reasons behind fluctuations in teacher preparation enrollments and completions is a key component to unpacking the complex dynamics behind teacher shortages. As shown above, the number of individuals enrolled in and completing teacher preparation programs is considerably lower now than a decade ago, despite a promising upswing in the past few years.

Large-scale economic shifts, including the expansion of career opportunities for women (Auguste et al., 2010), and the significant and growing wage gap between teachers and similarly educated professionals are among the reasons for this decline. In 2021, public school teachers earned, on average, 23.5 percent less than other college-educated workers

(Allegretto, 2022), and their average earnings have been shown to be lower than occupations with lower percentages of advanced degrees (Cheeseman Newburger & Beckhusen, 2022). Furthermore, the pay gap between U.S. teachers and other college-educated professionals is the largest among the world's industrialized economies (OECD, 2021a). Potential educators from middle- and lower-income backgrounds must also take student loan debt into account when making career choices; research has shown that each additional \$10,000 in student debt reduces the likelihood of choosing a career in education by nearly 6 percentage points (Rothstein & Rouse, 2011).

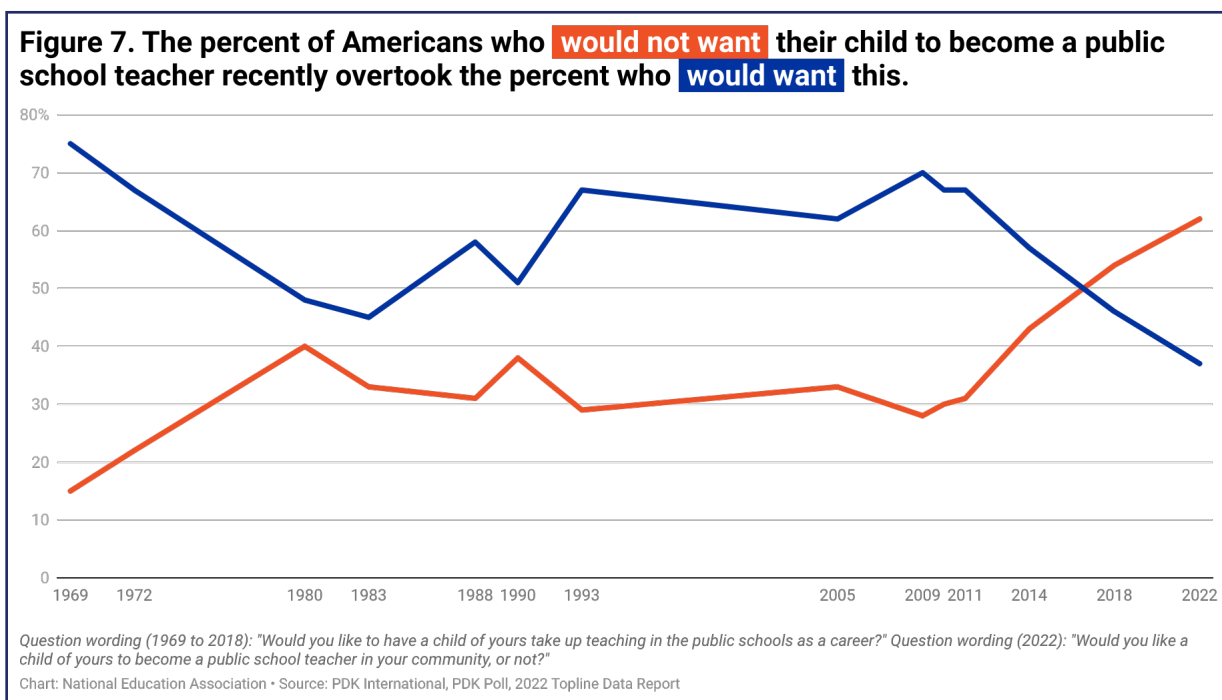
“There are fewer people enrolled in the general education program at my university, but I am not surprised. Whenever you see education in the news, it’s overwhelmingly negative. Our governor and the state legislature have imposed new regulations, mandated a scripted curriculum, stripped teachers of their autonomy in the classroom, and attempted to ban books in some school districts. All that does is take away the imagination and magic of teaching. I just started my senior year of college and will be student teaching next semester. I hope the emotional payoff of doing what I love and making a difference in the lives of my students will be enough to offset the salary gaps that early-career educators like me face.”



— Abigail Ericson, Aspiring Educator, University of Northern Iowa, Cedar Falls, Iowa

Another factor that cannot be overlooked is the declining status of teaching as a profession and the resulting pressure to not go down that path. Evidence of this can be seen in the 2018 Phi Delta Kappan (PDK) Poll of the Public’s Attitudes Toward the Public Schools, where, for the first time, a majority of Americans—54 percent—indicated that they did not want their children to become teachers (PDK International, 2018). This was a massive drop from the first time this question was asked, in 1969, when only 15 percent of people said no, with a 23-point drop occurring between 2011 and 2018 (Figure 7). In 2022, 62 percent said no, although it is important to note that the question wording changed (PDK International,

2022).ⁱⁱⁱ In 2019, Phi Delta Kappan surveyed public school teachers, and 55 percent said no, they would not like their child to become a teacher (PDK International, 2019). For both teachers and members of the public, “inadequate pay/benefits” was the top reason they opposed their child choosing teaching as a career.



These changing societal attitudes inevitably influence individuals’ career choices. In a qualitative study of high-achieving college graduates and graduating seniors, Mancenido (2021) found multiple examples of young adults being told explicitly and/or nudged through implicit cues by their families, advisers, and friends to stop considering a future as a classroom teacher or to see it as a brief stop on their way to a ‘more prestigious’ career. Similarly, Klimek (2019) used survey research with high school students and college undergraduates to show that while many students viewed teachers as high status—that is, as skilled and knowledgeable—perceptions that teaching was not valued and respected, nor was it compensated appropriately, contributed to reduced interest in teaching as a career.

The supply of new educators has been on a downward spiral for years, with undergraduates and other adults increasingly unlikely to see working in schools as a viable or desirable career path. At the same time, ever-increasing numbers of educators have been leaving the profession or have seriously considered doing so. This double whammy of more open positions and fewer qualified candidates to fill them is at the heart of the educator shortage—public education is trying to fill a bucket that has more and more holes in it. As a result, understanding why educators leave the profession is just as important as the dynamics of why fewer people are choosing to become educators in the first place.

Numerous studies have explored teacher attrition,^{iv} with many of the most-cited researchers drawing on the U.S. Department of Education’s Schools and Staffing Survey (SASS) and Teacher Follow-Up Survey (TFS) (Carver-Thomas & Darling-Hammond, 2017; García et al., 2022; García & Weiss, 2019a, 2019b, 2019c, 2019d, 2019e; Ingersoll et al., 2021). The TFS is the only large-scale study that follows teachers after they have left their positions for another school or left the teaching profession entirely; the survey was most recently conducted in 2012–2013, the year following the 2011–2012 SASS.^v

In their look at the SASS and TFS data, Carver-Thomas and Darling-Hammond (2017) showed that more than half (55 percent) of teachers who left voluntarily^{vi} did so, at least in part, because of dissatisfaction (respondents were allowed to select all reasons that applied). Within this large bin of reasons, the top areas of dissatisfaction were:

- Assessments and accountability measures (25 percent)
- Administration (21 percent)
- Teaching as a career (21 percent)
- Too many intrusions on teaching time (18 percent)
- Not enough support to prepare students for assessments (17 percent)
- Discipline issues at school (17 percent)
- Not enough autonomy in the classroom (14 percent)

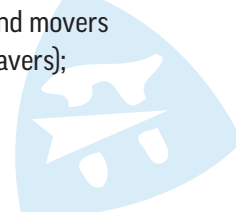
Forty-three percent of teachers left, at least in part, for personal reasons, such as pregnancy, health, caring for family members, or wanting to take a job in a more convenient location. Just under a third (31 percent) cited a change of career or retirement. A little under a fifth (18 percent) pointed to financial reasons, such as wanting or needing a higher salary, needing better benefits, or being concerned about job security.

García and Weiss built on Carver-Thomas and Darling-Hammond's analysis by looking at the connection between leaving teaching and various school climate and professional support factors. They found that those who left were more likely to report negative school climate factors, such as students who were not prepared to learn, parents who struggled to be involved, poor staff cooperation, and little say over setting curriculum or what was taught in class (2019a). On the other hand, having more professional supports and opportunities—such as a mentor, a teacher induction program, useful subject-specific professional development, and preparation to handle discipline issues—was associated with being more likely to stay (2019c).

However, it is important to note that *all* teachers—both those who left and those who stayed—reported troubling working conditions. For example, more than 70 percent of all teachers said they did not have a significant role in setting curriculum (79.6 percent) and/or say over what they taught in class (71.3 percent). More than 60 percent (61.6 percent) said that staff cooperation was “not great.” Only about 15 percent felt very well prepared to handle classroom management and discipline, and 18 percent felt prepared to use a variety of instructional methods.

In a subsequent analysis, García, Han, and Weiss (2022) matched teacher SASS and TFS data to district data from both the SASS/TFS and the NCES Local Education Agency (School District) Finance Survey (F-33) data. They found that four principal factors—greater teacher voice, greater school support, fewer school problems, and greater teacher morale—were associated with lower attrition, particularly among novice teachers. Furthermore, higher base salaries and greater returns to experience were connected to a greater likelihood of staying in the profession, with these effects strongest for mid-career teachers. Working in a district with either a collective bargaining or meet-and-confer agreement with a teachers' union or association was also linked to a significantly lower chance of attrition.

Ingersoll et al. (2021) took a different approach to the SASS/TFS data by zeroing in on teachers who left after their first year in the classroom. The group analyzed in this study was not directly comparable to the analyses cited above as they pooled ‘leavers’—those who left teaching entirely—and ‘movers’—those who left for a position at another school—while both Carver-Thomas and Darling-Hammond and García and Weiss provided results specifically for leavers. Also, Ingersoll et al.'s group was quite small—among those in their first three years of teaching, 7.1 percent left the profession entirely and 12.5 percent left for another school between 2011–2012 and 2012–2013 (Goldring et al., 2014). Yet, the results provide some interesting insights. In contrast to the entire group of leavers, Ingersoll et al.'s group of first-year leavers and movers were somewhat less likely to cite dissatisfaction (44 percent of first-year movers/leavers vs. 55 percent of all leavers); notably, about a third of this group (32 percent) left due to a school staffing action, such as a layoff or transfer.



Of the 44 percent of first-year teachers who left or moved due to dissatisfaction, poor salary or benefits (71 percent) was the top reason, followed by student discipline (56 percent), dissatisfaction with administration (53 percent), poor facilities and resources (53 percent), and lack of influence and autonomy (52 percent). While these results used a different base group than Carver-Thomas and Darling-Hammond and thus should not be compared, it is notable that poor salary or benefits and poor facilities or resources appeared near the top of the list for first-year leavers and movers.

Another important dynamic explored by Carver-Thomas and Darling-Hammond (2017) and Carver-Thomas (2018) was the higher rates of turnover among teachers of color. In her analysis of SASS and TFS data from 1988-1989 to 2012-2013, Carver-Thomas found that much of the gap was due to teachers of color being more likely than white teachers to ‘move’—in other words, leave for a position at another school—rather than leave the profession entirely. She attributes this to two factors that affect teachers of color disproportionately: preparing through an alternative certification route and working in a high-minority, low-income school.

Carver-Thomas and Darling-Hammond (2017) further found that in the 2012-2013 TFS data, Black teachers were more likely than teachers of other races/ethnicities to report dissatisfaction with their salary and/or their school’s resources; they were also more likely to be concerned about their job security, which is understandable given that involuntary turnover—through layoffs or transfers—was much higher for this group than others. They were less likely to report classroom autonomy and collegial support.

Researchers have also found that teachers of color are also more likely to stay in schools when they have higher proportions of colleagues of their same race or ethnicity (Rodriguez et al., 2022). Qualitative research has provided further insight into the importance of having a culturally responsive and inclusive workplace to teacher retention. The Education Trust and Teach Plus (Dixon et al., 2019) convened focus groups of Black and Latino/a/x, Hispanic, and Chicano/a/x teachers in five states, followed by in-depth case studies of district offices, traditional public schools, and charter schools. Participants in this study voiced five challenges that they faced as teachers of color:

- Experiencing antagonistic school cultures, including not feeling welcome or included;
- Feeling less valued than white teachers in their schools;
- Being deprived of agency and autonomy;
- Navigating unfavorable working conditions, including a lack of resources and professional support; and
- Bearing higher financial costs due to lower generational wealth among families of color and greater expectations that they act as “more than just educators” in terms of supporting the students they serve.

While most research on the reasons behind educator shortages was conducted prior to the pandemic, one study from RAND Corporation compared pre-pandemic teacher departures with teachers who departed between the start of the pandemic and early December 2020 (Diliberti et al., 2021). There were few demographic differences between the ‘pre-pandemic leavers’ and the ‘pandemic leavers’; however, the pandemic leaver group included slightly more Black teachers and inexperienced teachers. Among the pandemic leavers who left voluntarily and not due to retirement, nearly half (44 percent) said that they were leaving “mainly because of reasons related to the COVID-19 pandemic.” Within this group, a majority (64 percent) said that “the pay wasn’t sufficient to merit the risks or stress,” while other top reasons included concerns about one’s health or the health of a family member and challenges associated with remote or hybrid instruction.

Interestingly, stress—more specifically, “the stress and disappointments of teaching weren’t worth it”—was cited as the top reason for leaving by both those who left prior to the pandemic and the pandemic leavers who did not leave primarily due to COVID-19. RAND subsequently took a closer look at teacher stress and compared rates of stress and depression to the general population (Steiner & Woo, 2021). The results were sobering. In early 2021, teachers



were nearly twice as likely as other U.S. adults to report frequent job-related stress, 78 percent to 40 percent. They were also more than twice as likely to show symptoms of depression, 27 percent to 10 percent. This sizeable mental health gap between teachers and other working adults was further confirmed in a follow-up survey in early 2022 (Steiner et al., 2022). Not unexpectedly, rates of frequent job-related stress, inability to cope well with job-related stress, symptoms of depression, and feelings of burnout were all much higher among those who were likely to leave teaching—including both those who had considered it prior to the pandemic and those who had not—than among those who were unlikely to leave.

This finding about stress was further bolstered by the NEA's January 2022 member poll, in which 67 percent of educators cited burnout as a very serious issue—90 percent said it was a very or somewhat serious issue (GBAO, 2022). Notably, respondents to this poll included ESPs and SISP along with classroom teachers. “General stress from the coronavirus pandemic,” was second on the list, cited by 61 percent as very serious and 91 percent as very or somewhat serious. “Unfilled job openings leading to more work for remaining staff” was also cited by a large majority of educators, demonstrating that stress is both a cause and a result of ongoing shortages.

Beyond pandemic- and shortage-specific concerns, the remainder of the list reflected the findings of the pre-pandemic research on shortages: low pay, lack of respect from parents and the public, student behavioral issues, and not having enough planning or unstructured time. In other words, it appears that the conditions that led to shortages prior to March 2020 endure, only now with an added layer of significant, pandemic-driven stress and burnout. In the next section, we will explore the solutions that must be implemented if we are to build a public school system that will attract and retain educators over the long term.



“Across the board, there have been significant drops in the number of applications for open positions in my school district. We have been unable to fill certain positions, like special education, media specialist, and gifted education. But even subjects that have been relatively easy to attract teaching candidates are going unfilled. In my 26 years of teaching, I have never seen anything like it. This is unprecedented for us.”

**– Dan Greenberg, High School English Teacher,
26 Years in Education, Sylvania, Ohio**

LONG-TERM SOLUTIONS TO RECRUIT AND RETAIN A QUALIFIED EDUCATOR WORKFORCE

“Every system is perfectly designed to get the results it gets.” –W. Edwards Deming

The educator shortage issue is a complex, interdependent problem that exists within an education system that must prepare “every student to succeed in a diverse and interdependent world” (National Education Association, n.d.). We must re-envision education and make sure that we have quality, state-of-the-art public schools—schools that meet the needs of all students across race, place, background, and ability to ensure that they become healthy, productive citizens within our democratic society. Together, we can rewrite the rules to ensure every school has the engaging materials, up-to-date approaches, healthy meals, and emotional supports to set kids up to be all that they dream to be.

For this vision to become reality, public schools must attract and retain a diversity of education professionals in every job category. The NEA believes that ensuring every student has access to high-quality and diverse educators will have a fundamental impact on our nation’s public school students, their families, and communities. To recruit and retain high-quality educators, the education profession must be a respected and attractive career path. Right now, many would say it is not—as noted previously, a majority of Americans, including a majority of teachers, would not want their children to become teachers (PDK International, 2018, 2019, 2022).

During the last two years, many policymakers and districts have focused on short-term strategies rather than long-term solutions. For example, in Florida, effective July 1, 2022, military veterans without a bachelor’s degree can now receive a five-year teaching certificate if they have completed at least 60 college credits with a minimum 2.5 GPA and pass a state exam to demonstrate mastery of subject-area knowledge (Florida Department of Education, 2022). In Arizona, individuals can start training to become a teacher without a bachelor’s degree if they are enrolled in college and are supervised by a licensed teacher. If these candidates obtain an emergency teacher certificate, which is issued when a school cannot fill a vacancy otherwise, they can teach without supervision (Office of the Arizona Governor, 2022).

While we must keep schools staffed, short-term strategies, like those described above, do not lead to the foundational changes necessary for long-term success. Bold, long-term



“Teaching has not just been a job; it has been a calling. Educators are the gateway to every profession that exists. We are parents, comforters, friends, disciplinarians, protectors, and educators on any given day. We plant seeds that yield a harvest of innovators, entrepreneurs, scientists, and future leaders—the list is infinite. My state took strides to address educator shortages by authorizing the largest salary increase in decades. Although we appreciate a bump in pay, these raises are long overdue and should not be a one-and-done. Our local, state and national elected leaders must acknowledge and respect the sacrifices and struggle that educators face every day. Education must become a priority at all levels of government to preserve our planet and the future of our existence.”

– Lerenda Dixon, Fifth-Grade Science and Math Teacher, 15 Years in Education, McComb, Mississippi

solutions around educator recruitment and retention must be implemented to create an education system that supports and educates all students no matter where they are from, what they look like, or where they live. These solutions must include educator voices through collective bargaining, collective action, and labor-management collaboration.

In addition, recruiting educators into the profession and retaining them over the long term are inextricably connected. Policy strategies often focus on how we can find more educators to train and recruit into positions, but extraordinarily little attention is paid to how we then retain those individuals. We, therefore, end up in a position where districts are constantly trying to find new ways to identify more educators.

Table 1 outlines the various program and policy solutions that can positively impact the recruitment *and* retention of educators. It is important to note that some solutions impact both recruitment and retention and others more directly impact one or the other. It is also important to note that nearly everything in the table is applicable to educators in all job categories: teachers, SISPs, and ESPs. In the following sections, we unpack each of these proposed solutions and the evidence that supports their use. We start with the solutions that have the greatest leverage—those that will affect both recruitment and retention.

Table 1. Long-Term Solutions to the Educator Shortage

Recruitment	Recruitment & Retention	Retention
Comprehensive Educator Preparation*	Competitive and Attractive Pay and Benefits*	Strong, Short Salary Schedules*
Culturally Responsive Preparation*	Student Debt Relief and Forgiveness*	Comprehensive Induction and Mentoring*
Grow Your Own and Apprenticeship Programs*	Working Conditions*	Relevant and Useful Professional Learning*
Teacher Residencies	Educator Voice, Respect, and Professional Autonomy*	Career Lattices and Ladders*
Financial Support for Educator Preparation and Student Teaching*	Hiring Practices*	License and Certification Reciprocity

*These solutions address the needs of all educators: teachers, SISPs, and ESPs.

RECRUITMENT AND RETENTION SOLUTIONS

Solutions that address both recruitment and retention are key to solving educator shortages. Too often, policymakers and education leaders focus only on recruitment, potentially setting up a revolving door of educators in which districts are continually searching for and onboarding new staff. When retention is at the forefront without attention to recruitment, districts may not be well-situated to replace staff when they retire or leave for other reasons. Both recruitment and retention must be attended to.

The following long-term solutions help with recruitment *and* retention:

Competitive and Attractive Pay and Benefits

As discussed, educator pay is a critical factor in decision-making about whether to join and stay in the profession. This is understandable given the large and growing wage gap between teachers and similar professionals discussed previously, plus the low overall wages offered to educators. In 2020–2021, the average starting salary for teachers was \$41,770 and

nearly half (47 percent) of districts had a starting salary of less than \$40,000 (National Education Association, 2022a). In many districts, pay does not increase dramatically with experience, with the pay scale topping out at less than \$60,000 in nearly 20 percent of districts, even though reaching this point typically requires a Ph.D. or substantial credit hours beyond a master's degree *and* 25 to 30 years of experience. The pay gap between teachers and similar professions averaged 23.5 percent in 2021 and was more than 30 percent in five states: Colorado, Oklahoma, Virginia, Arizona, and Alabama (Allegretto, 2022).^{vii}

Unsurprisingly, ESP pay is well below what teachers earn. In 2020–2021, more than 40 percent of Pre-K–12 ESPs working full-time (at least 30 hours per week) earned less than \$25,000 a year (National Education Association, 2022b). In all but one state, the average ESP salary was at least \$10,000 below a basic living wage for a family of one adult and one child in the state's most affordable metro area.

Pay and benefits solutions that can help address the educator shortage crisis include the following:

Increase Base Pay and Benefits: As the data demonstrate, education careers lack adequate compensation, leading educators to work more than one job to achieve an adequate standard of living. According to a 2020 NEA survey that asked educators about jobs they held in addition to their primary assignment, 41 percent of Pre-K–12 teachers and 37 percent of their ESP colleagues held two or more jobs in calendar year 2019. The educator recruitment and retention crisis can be, in part, blamed on the fact that many educators can make more money in less-stressful jobs outside of education.

Increasing base pay has been connected to attracting more and higher-quality teaching candidates (Figlio, 1997; Sun et al., 2022), and districts that offer higher pay have had lower levels of teacher attrition, both in terms of moving to another district and leaving the profession altogether (Gray & Taie, 2015; Hendricks, 2014; Sun et al., 2022). Most important, states and districts with higher educator wages have had higher levels of student achievement and smaller achievement gaps due to higher achievement among Black and Hispanic students (García & Han, 2022). While time-limited bonuses may have filled classrooms in the short term, they have not led to the long-term improvements in teacher attrition that are so desperately needed; research has shown that attrition returns to normal levels after bonuses end (Glazerman et al., 2013). To recruit and retain educators, districts should implement strong, short salary schedules that offer competitive starting salaries, rewards for professional development, and competitive mid- and late-career earnings.

Raise Substitute Pay and Include Full-Time Work and Benefits: Some districts have collectively bargained with their unions to have full-time substitutes assigned to every building. Other districts have also significantly raised substitute pay and provided benefits to attract and keep people in these positions. For example, Iowa City hired full-time substitutes for each building and improved pay and benefits, and the San Diego Education Association signed a collective bargaining agreement to maintain a cadre of high-quality substitute teachers. These changes are promising given research that has demonstrated the importance of pay, work schedule, and support from teachers and administrators to substitute teachers' decisions about whether to accept positions (Gershenson, 2012; J. Liu et al., 2022; Strauss & Strauss, 2003).



“Schools are in a vicious cycle, coming up with improvements, making plans, and then abandoning those plans to fill vacancies. They’re eating through staff. More people are leaving teaching, and they’re not going somewhere else to teach. Some of my colleagues are so demoralized that they would rather work in retail. So many educators are saying, ‘I can’t do this anymore.’”

— Sue Hannan, Literacy Intervention Teacher,
34 Years in Education, Manchester,
New Hampshire


Bargain and Advocate for Comprehensive Health

Care Benefits: Providing comprehensive, affordable, high-quality health care benefits is an important tool to improving retention and recruitment and in addressing the educator shortage crisis. When bargaining and advocating for health care benefits, it is essential to ensure comprehensive coverage that includes medical and mental health services, emergency care, preventative/wellness care, prescription medications, mail delivery for prescription drugs, and telehealth services. In addition, such comprehensive coverage must be affordable and not cost prohibitive as well as provide access to a robust provider network.

It is particularly important to note that while educator pay lags behind similar professionals, health care costs continue to increase. The national average premium for family coverage increased 22 percent between 2016 and 2021 and 47 percent from 2011 to 2021. The amount paid by employees is increasing in line with this explosion in cost; as of 2021, the average dollar contribution for family coverage had increased 13 percent since 2016 and 45 percent since 2011 (Kaiser Family Foundation, 2021). Educators have not been immune to these cost increases. In a 2018 analysis of Bureau of Labor Statistics data, Chang (2018) found that teachers pay significantly more for health insurance premiums than other state and local government employees. From 2007 to 2017, the amount teachers paid for premiums increased by nearly \$1,500 per year after adjusting for inflation, with the share of the overall premium cost paid by teachers increasing from 35 percent to 38 percent.

Understanding how the plan structure impacts health care costs and access to a robust provider network is vital in ensuring that educators are provided with comprehensive health care benefits that are not cost prohibitive. As such, it is imperative to understand the differences in health plan benefit structures and coverage under plans as well as other key factors impacting cost and provider networks, such as whether a plan is fully insured or self-insured; covers in-network and out-of-network providers; requires out-of-pocket expenses; includes premiums; has copayments and coinsurance; and requires deductibles.

Provide Paid Family Leave and Continue Emergency Sick Leave for COVID-19-Related Absences: Providing paid leave is particularly important to recruiting and retaining substitutes, bus drivers, and other personnel who do not typically receive coverage. With non-education employers stepping up their wages and benefits to attract and retain employees, it is imperative that school districts follow suit. States and districts should also ensure that all staff have ongoing access to emergency sick leave for COVID-19-related absences. Providing such leave will reduce the spread of COVID-19 and thus lower the overall number of absences, thereby reducing the demand for substitute teachers and the need for staff to cover empty classrooms.



“After more than three decades as a teacher’s assistant, my pay was \$31,000. I’ve always had to work multiple jobs to make ends meet, including as a school bus driver and part-time custodian. I don’t love the pay, but I love what I do. This past year, our union helped negotiate a 14 percent pay increase, but it is still embarrassingly low. Today, with my principal’s encouragement, I am studying to become a special education teacher and will be the first of my father’s and mother’s children to graduate from college. I want to give back to kids with special needs, particularly those with dyslexia like me. I want to show them that there is a path where they, too, can make a difference in the world.”

— Arthur Anderson, Teacher’s Assistant and Inclusion Specialist, 32 Years in Education, Chesapeake, Virginia

Reverse the Trend of Eroding Pension Benefits in New Tiers: When teachers and other public-sector workers have had an unbiased choice between a defined benefit pension and a savings account-based plan, they overwhelmingly chose a real pension (J. E. Brown & Larrabee, 2017). We also know that once an educator has vested in a pension plan, retention rates increase dramatically (Boivie, 2017). However, eroding plan provisions in new tiers can weaken the recruitment and retention capabilities of pensions. It is time to reverse the trend and strengthen plan provisions. Additionally, defined benefit pension plans must be offered to those educators who are currently only offered defined contribution plans.

Repeal the Government Pension Offset (GPO) and the Windfall Elimination Provision (WEP): Currently, GPO-WEP deprives more than 2.5 million educators and other public employees of Social Security benefits they have earned. GPO reduces the Social Security spousal or survivor benefits of people who get a government pension (federal, state, or local) but did not pay Social Security taxes themselves. Two-thirds of the government pension is deducted from the Social Security benefit—for example, for someone receiving a \$600 monthly government pension, the Social Security benefit is reduced by \$400. Some people lose their entire Social Security benefit.

“Like many other school districts across the country, we were hit hard by the substitute shortage. There has not been a school day this past year when all the substitute positions were filled in our district. When we’re short subs, there is a ripple effect on the teaching staff, with many of us being pulled from our school duties or planning periods to fill in, which isn’t great for our students or educators. One middle school teacher had to sub 92 times, which is more than half of the school year. Pay and benefits are always major issues in attracting and retaining subs in our district. Our local union was able to collectively bargain and negotiate a 16 percent pay increase for substitute educators, which helped fill some of the sub-slots that were so desperately needed to keep our schools running.”

— Brannin Dorsey, Kindergarten and First-Grade Teacher, 23 Years in Education, Fremont, California



The WEP reduces the Social Security retirement, disability, spousal, or survivor benefits of people who work in jobs in which they pay Social Security taxes and jobs in which they do NOT pay Social Security taxes—for example, educators compelled to take part-time or summer jobs to make ends meet. These offsets discourage people from becoming educators, especially those in mid-career who stand to lose Social Security benefits they have already earned. That, in turn, can adversely affect the quality of the education our students receive and contribute to the educator shortage facing our nation.

Rescind the Regulation Excluding Teachers from FLSA Protections: Currently, the only professions that are categorically excluded from the protections of the Fair Labor Standards Act (FLSA) are lawyers, doctors, and teachers. This means that teachers do not qualify for overtime protections, even if they are paid hourly or earn less than the current weekly salary threshold of \$684 per week. While most lawyers and doctors earn well above this limit, many teachers do not. The Economic Policy Institute estimated that the regulatory change to end this exclusion would support higher pay for 1.5 million teachers (Schmitt et al., 2021) This amounts to 23.8 percent of the teacher workforce, and even higher percentages of teachers under the age of 25 (67.3 percent), preschool and kindergarten teachers (33.1 percent), non-unionized teachers (32.4 percent), and teachers of color (28.0 percent). By making this regulatory change to put a salary floor under the teaching profession, the federal government would push school districts to either raise teachers’ base pay to maintain FLSA exempt status or provide overtime pay or, for public-sector

“These past few years have been challenging in all levels of education. Today’s college students are brilliant and resilient, but they have more complicated financial and mental health needs. To meet their needs, we must have a full staff of experts in well-being, including physical and mental health, equity, and inclusion topics. When campuses can’t find or retain those professionals, our students are less likely to succeed and realize their dreams through higher education.”

– Frances C. Cortez Funk, Director, Health Promotion and Alcohol & Other Drug Services, 16 Years in Education, University of Pennsylvania, Kutztown, Pennsylvania



employees, provide compensatory time off for more than 40 hours worked per week (National Education Association, 2022c).

Increase Union Representation: According to a study by the Economic Policy Institute (Banerjee et al., 2021), workers who were represented by a union earned 10 percent higher wages than an employee with similar education, occupation, and experience in a non-unionized workplace in the same industry. This finding holds true in education, with both teachers and ESPs covered by collective bargaining laws earning more than those who are not covered (National Education Association, 2022d). Workplaces with union representation have been shown to enjoy stronger health and safety provisions, better health insurance, and more paid leave provisions. All of these are critical components in recruiting and retaining high-quality educators. Unionization has also been linked to higher civic engagement and more economically just public policy (Banerjee et al., 2021).

Provide Housing and Child Care Supports: Given relatively low wages and ever-increasing housing prices, many educators cannot afford to live in the communities in which they teach and work (Mongeau, 2015). Both housing and child care costs often prove prohibitive to remaining in the education profession or even considering a career in education.

One policy solution is for communities to provide housing incentives that attract educators to their district, including relocation reimbursement, reduced rent, down payment assistance, reduced mortgage rates, and tax incentives for living in the community in which they work. Survey data have shown that for nearly a quarter of teachers who have left the profession, housing incentives would be extremely or very important in deciding whether or not to return (Podolsky et al., 2019). In addition, some districts have provided child care for young children as an option to employees. Bringing child care centers into middle and/or high schools provides educators who have young children more flexibility and also offers an opportunity for middle and high school students to engage and work with young children (Sparks, 2018).

Student Debt Relief and Forgiveness

For educators, the student debt burden is especially cruel. Teachers typically earn a bachelor’s degree and teacher certification to enter the classroom, and in some states, they must earn a master’s degree within a few years to continue their careers. Some ESPs are also required to earn college degrees and certification, or they must undergo training in their specific field of work. To get this postsecondary education, more than half of teachers (53 percent) and more than a quarter of ESPs (29 percent) have taken out student loans. Among those who took out loans, more than a quarter of teachers and ESPs took out at least \$65,000, with younger educators and educators of color more likely to have higher levels of debt than their peers (Hershcopf et al., 2021).

This debt has had a variety of negative consequences for educators. In a 2020 survey, the NEA found that educators who were currently holding student loan debt were more likely to report difficulties building up emergency savings and maintaining their own well-being. They were also more likely to have difficulties paying for basic needs, such as food,

housing, and medical care (Hershcopf et al., 2021). Some educators are still paying off their student debt as they take out loans for their children's education or in their retirement. Fixing the student debt crisis makes our public schools stronger by increasing the recruitment of diverse school staff, retaining talented educators, and fundamentally improving the lives and family income in our communities.

Student debt relief and forgiveness solutions that can help recruit and retain educators include the following:

Enact Broad-Based, Federal Student Debt Cancellation for Borrowers: The Biden administration's proposal to cancel \$10,000 of loan debt for low- and middle-income borrowers, with an additional \$10,000 canceled for Pell Grant recipients, is a promising first step. However, cancelling \$50,000 of student loan debt would fully remove the burden from more than half of the educators currently carrying it and substantially reduce it for the remainder. While current policy efforts focus on federal student loans, these need to be expanded to include private loans, which account for more than 7 percent of student debt (Amir et al., 2021).


Support Educators' Applications for the PSLF Waiver: In October 2021, the U.S. Department of Education announced a major overhaul to the failing Public Service Loan Forgiveness (PSLF) program. The Biden administration's overhaul fixed some of the technicalities and resulted in near-immediate forgiveness for tens of thousands of public service workers and eventual forgiveness for many more. However, the PSLF waiver expires on October 31, 2022. Employers should help to make sure that every eligible educator receives the student debt relief they deserve.^{viii}

Utilize CARES Act Funds to Pay or Reimburse Employees'

Student Loans: The CARES Act modified the IRS code (Section 127), which allows employers, through established educational assistance programs, to pay or reimburse employees' student loans up to \$5,250 per year tax-free to both the employer and the employee. The student loans can be for education received before employment or education the employee is currently pursuing while employed. Payments can be made to the employee, the lender, or the student loan servicer that processes payments for the lender. Congress extended this benefit through January 1, 2026. The U.S. Department of Education released guidance that school districts can use the emergency federal funding from recent stimulus bills to create and support this program.

Working Conditions

Students' learning conditions are educators' working conditions. Studies have found that the character of the workplace influences whether educators stay or leave and impact student learning (Berry et al., 2021; Carver-Thomas & Darling-Hammond, 2017). Key factors determining educator working conditions include, but are not limited to, teacher and school leadership, educator voice, community support and parent engagement, time for teaching, class size and caseload, student conduct, physical and cultural environment, professional learning and collaboration, and assessment cultures. These factors were all well-known prior to the pandemic.



“When I retired from the classroom after 17 years as a math and science teacher, I knew I would continue in education as a substitute educator. Substitute educators are the emergency team. We are the rescue squad who comes in and makes sure everything is okay. That is a valuable service—and we should be treated as the certified professionals we are. We will continue to experience this severe sub shortage if school districts keep plucking early-career subs out of the sub-pool. We are seeing a conveyor belt of teachers who are coming and going. This widespread practice is not good for anyone, particularly our students.”


— Nancy Paine, Retired Educator Who Now Substitute Teaches, 23 Years in Education, Edmonds, Washington

Yet, the pandemic and subsequent labor shortages in our schools have caused educators to work even more hours than ever before, whether teaching, driving buses, preparing meals, counseling students, or supporting students in so many other ways. The stresses of the pandemic—including changing models of teaching to virtual or hybrid, personal safety concerns, loss of loved ones, student and educator mental health challenges, and so on—have pushed many to the breaking point, with K-12 workers reporting the highest level of burnout of any sector (Marken & Agrawal, 2022) and teachers more than twice as likely to report frequent job-related stress than other working adults (Steiner et al., 2022; Steiner & Woo, 2021). Educators are exhausted, demoralized, stressed, and overwhelmed. As a result, any serious solution to the educator shortage must address educator working conditions.

Solutions on how to improve working conditions for educators include the following:

Increase Staffing Levels: Among the top job-related stressors mentioned by teachers were supporting academic learning in the wake of the pandemic, managing student behavior, taking on extra work due to staff shortages, and supporting students' mental health and well-being (Steiner et al., 2022). Increasing the number of educators would help address each of these concerns. By increasing the number of teachers, class sizes would be reduced and students would receive more one-on-one attention, and increasing the number of paraeducators would allow more students with specialized needs to receive the services they require and deserve. Specialized instructional support personnel—such as school psychologists, counselors, and nurses—must often endure immense caseloads (Riser-Kositsky, 2022; Willgerodt et al., 2018). By increasing the numbers of staff in these positions, the entire system would be able to help support students and staff coping with their own trauma and wellness. Adding more permanent staff can relieve much of the stress placed on educators by making caseloads more manageable and curtailing long workdays.

Address Mental Health Supports: As noted, Pre-K-12 employees have much higher levels of stress and burnout than other workers (Marken & Agrawal, 2022; Steiner et al., 2022; Steiner & Woo, 2021). Teachers who are burned out are not only more likely to consider leaving the profession (Steiner et al., 2022; Steiner & Woo, 2021), but their classroom environments are also less likely to foster student learning (P. A. Jennings & Greenberg, 2009; Klusmann et al., 2008). On top of this, more than a third of teachers of color have reported experiencing discrimination based on their race or ethnicity, with these teachers more likely to report burnout, depression, and thoughts of leaving the profession (Steiner et al., 2022).



“When most people think of Hawai‘i, they assume it’s all a paradise. But our school is in a high-poverty area—just like what you could find anywhere else. Our community has a large homeless population, cycles of drug and alcohol abuse, and many socio-economic challenges that face our students and their families. One of the biggest challenges for our schools is finding teachers, counselors, and other school staff who can afford to stay on O‘ahu and teach in our public schools. Because of the astronomical costs of living on the island and the opportunities available on the mainland, many teachers leave Hawai‘i for better pay, benefits, and working conditions. As a result, we don’t have a lot of homegrown educators teaching in our island schools. Most of the teaching staff are long-term substitute teachers or Teach for America recruits who leave within a year. These disruptions caused by this churn shortchange our kids.”

— Nicole “Nikki” Kiliona, Academic Counselor, 11 Years in Education, Wai‘anae, Hawai‘i

Districts must provide staff and employee support that will assist educators in their own mental wellness, including mentoring, coaching, and affinity groups for new teachers and staff. It is crucial that all employees have quality, affordable health insurance with deductibles, copayments, and coinsurance that do not impede access to mental health services and are provided employee assistance programs that are robust and easy to use. Teachers with access to at least one employer-provided mental health support have been shown to be less likely to report burnout and depression and more likely to say that they are coping well with job-related stress (Steiner et al., 2022).

Ensure Mental Health Parity: In plans that must comply, mental health and substance use disorder benefits and services must be comparable and/or less restrictive than those of medical/surgical benefits in terms of, for example, treatment limits (e.g., visit limits), deductibles, copayments, coinsurance, how treatment is accessed and under what

conditions treatment is covered, and need for prior authorization. Most employer-sponsored health plans, including private-sector plans and those covering state and local government employees, must comply with parity requirements. In addition, the following plans must comply with mental health and substance use disorder parity requirements: both grandfathered and non-grandfathered group health plans and group health insurance plans; non-grandfathered individual and small group market plans that must cover certain essential health benefits, such as mental health/substance use disorder benefits, as required under the Affordable Care Act; Medicaid alternative benefit plans; and certain Children's Health Insurance Program (CHIP) plans. In plans that must comply, it is essential to ensure that these mental health and substance use disorder parity requirements are being met.

Create Environments That Support and Retain Educators of Color:

Teachers of color have been under-represented in schools since the mid-20th century due to racist reactions to the integration of schools after the *Brown* decision in 1954 (Carter Andrews et al., 2019). Today, a common reason why teachers of color leave the profession is due to an inhospitable work environment that is not culturally responsive or inclusive. Teachers of color have reported difficulty relating to colleagues, feeling silenced or undervalued by administration, facing racial microaggressions and a hostile climate, and experiencing under-representation in leadership roles and the curriculum (Dixon et al., 2019; Frank et al., 2021; Grooms et al., 2021; Steiner et al., 2022). To address these problems, schools and districts should actively commit to

“Quite simply, school transportation staff is overworked and under-paid! In a typical school day, bus drivers do three to four runs in the morning and another three to four in the afternoon.

The earliest bus route starts at 5:30 a.m. Most days, I work for 12 hours or more. Wages are a major issue. I only got a quarter raise when I became a school bus driver. My mom is a bus aide and has been there for 18 years and makes \$17 per hour. She is 76 years old. The state gave us a \$3-per-hour wage increase this past year but only gave the aides a 2 percent raise. Our bus aides are critical to helping us serve students, and they deserve more! And even with the pay increase, we still live under the poverty line. Working 12-hour days as a school bus driver, I will make just over \$20,000 this year. There's a commonsense solution that school districts could implement to avoid school bus driver shortages: pay us a living wage for doing a vital job, like making sure kids get to and from school safely.”

— Jeanette Schwartz, School Bus Driver, 18 Years in Education, New Castle, Delaware




racial and social justice and equity to eliminate bias, implement policies that promote a culturally responsive and inclusive environment, make curricular changes that include under-represented populations, provide racial and social justice-centered professional learning, and create opportunities to diversify leadership roles (Dixon et al., 2019; Grooms et al., 2021). Taking these actions can help increase retention rates among teachers of color.

Ensure an Inclusive Environment for LGBTQ+ Educators:

LGBTQ+ teachers have reported issues of bias, harassment, and abuse from parents, students, fellow staff members, and administrators (Davis, 2022; T. E. Wright et al., 2019). Many teachers have felt that they must hide their identity from colleagues and students to avoid negative backlash (Davis, 2022; Taylor et al., 2020). Although legal victories in recent years have added much-needed workplace protections for LGBTQ+ persons, public education remains a political and cultural battleground in many states (R. Kim, 2020). Most notably, Florida’s “Don’t Say Gay” bill signed by Governor Ron DeSantis in March 2022 places restrictions on instruction regarding sexual orientation and gender identity. As of April 2022, Education Week reported that at least 15 states were considering anti-LGBTQ+ legislation regarding public schools (Sawchuk, 2022). These bills have led some LGBTQ+ teachers to reconsider their future career plans as public education seemingly becomes more inhospitable. Solutions include carefully crafting and consistently enforcing policies related to homophobia, transphobia, and the language used to refer to LGBTQ+ individuals; increasing legal protections; providing professional development about and inclusive of LGBTQ+ issues; ensuring that school-sponsored events that allow spouses or significant others are inclusive of LGBTQ+ individuals; and involving LGBTQ+ persons and issues in the curriculum (T. E. Wright et al., 2019; T. E. Wright & Smith, 2015).

Restructure Educators’ Workdays: One of the higher-priority items that educators have identified is the need for more time to dedicate to needs and responsibilities beyond classroom instruction, which is not surprising given that U.S. teachers at all levels of Pre-K–12 education spend more time in the classroom teaching than teachers in nearly any other industrialized country (OECD, 2021b). In addition to time spent teaching, educators need time to plan; time to grade; time to learn; time to collaborate; time to eat; time to use the restroom; and so on. Several things can be done to help reorganize time to lessen the load, including reorganizing the school day, adjusting bell schedules, adjusting academic programming, partnering educators together, and year-round schooling. While guaranteeing educators duty-free breaks is a positive first step (Stanford, 2022), it is critical that local school districts work with educators through collective bargaining—or when bargaining does not exist, other labor-management advocacy—to determine which approaches will best meet educators’ and students’ needs.



“Every student in every neighborhood should have access to a safe, just, well-maintained, and fully resourced public school. Our students deserve a commitment to modern schools with heating and air conditioning that works, smaller class sizes, and a well-rounded curriculum that includes art, music, and physical education. Educators also deserve respect and competitive pay that will help attract and retain them in the teaching profession, which is critical when we are dealing with chronic staffing shortages. That is why educators in Columbus, Ohio, stood up and spoke out about what our students need and deserve by going on strike. Through collective action and bargaining for the common good, we were able to secure what our students and educators need and deserve.”


— Regina Fuentes, High School English Teacher, 24 Years in Education, Columbus, Ohio

Ensure Safe and Healthy Workplaces: Health and safety concerns—mold, lead, violence, exposure to chemicals, poor indoor air quality, and so many more—predated the COVID-19 pandemic, due, in large part, to decades of under-spending on school infrastructure (American Society of Civil Engineers, 2021; Filardo, 2021). In 2018, the Government Accountability Office (GAO) found that more than a third of tested school districts had elevated lead in their drinking water (U.S. Government Accountability Office, 2018). A 2020 GAO report determined that more than half of public school districts needed to update or entirely replace components of their physical infrastructure and one-third needed to update their heating, ventilation, and air conditioning (HVAC) systems (U.S. Government Accountability Office, 2020). The quality of school facilities affects student learning, educator morale, and teacher retention (Buckley et al., 2004, 2005).

We must ensure that school buildings and grounds are safe, healthy, and conducive to learning. Hazards, such as lead in drinking water, need to be identified and removed. The structural integrity of buildings, air quality of indoor spaces, and other infrastructure concerns must be addressed. These facility upgrades should be undertaken in collaboration with educators. Strong labor-management health and safety committees that draw from the breadth and varied experience of educators can be one of the most useful ways school and district leaders can engage with educators on these critical issues. Comprehensive school health and safety plans on relevant topics—including indoor air quality, infectious diseases, and violence—are important tools to develop and implement. Solutions must focus on equity, ensuring an analytical framework that will identify how racial and social inequities affect health and safety problems and ensure inequities are addressed.

Provide Sufficient Resources for Teaching and Learning:

Teachers and other school staff must consistently use their own money to purchase supplies that other workers take for granted, such as pens/pencils, books, cleaning supplies, and food for students who would otherwise go hungry. In the 2022–2023 school year, the average teacher plans to spend \$560 out-of-pocket on supplies, up 10 percent from the previous year (A. Kim, 2022). Beyond the financial costs, schools that provide educators with sufficient instructional materials, supplies, support, and a clean and safe work environment can improve retention and recruitment rates, while those with insufficient technology, outdated textbooks, and inadequate supplies limit the ways in which educators can effectively teach their students and negatively impact teacher morale (Borman & Dowling, 2008; Podolsky et al., 2019). Increasing the educator expense deduction, as recently occurred, helps alleviate some of the burden, but it does not solve the larger problem. State and district funding must be increased so that educators no longer need to rely on parent organizations, DonorsChoose appeals, fundraisers, and their own paychecks to provide their students with basic supplies.



“The ability for educators to afford the skyrocketing costs of housing in Fort Collins and many other cities and towns in Colorado has been another challenge for our school district to attract and retain high-quality teachers and education support professionals. Unless an educator already owns a home, new ones are simply priced out of homeownership, especially on their salaries that have not kept up with inflation. Many educators are forced to rent homes outside of their teaching communities, which adds to their commutes and long workday hours, plus they are dealing with the ever-increasing rental costs. It’s tough. But more importantly, these barriers also prevent educators from being a part of the community. It is so important for students to see their teachers and school staff as active participants in the communities they serve.”

— Alex Oberto, Social Studies Teacher, 7 Years in Education, Fort Collins, Colorado

Provide Administrator and Leadership Development: Evidence has shown that a lack of administrative support and administrative leadership style are reasons why teachers decide to leave the profession (Campoli, 2017; Espinoza et al., 2018; Hopper et al., 2022; Hughes et al., 2014). This is especially true in high-poverty and hard-to-staff schools that are plagued with high turnover rates (Goodpaster et al., 2012; Marinell et al., 2013). Capable and well-trained school administrators, by way of leadership development programs, can improve working conditions and lower both principal and teacher attrition rates (K. M. Brown & Wynn, 2009; Jacob et al., 2015). High-quality principals should encourage educators to pursue leadership roles, collaborate with teachers and staff by including them in decision-making, view administration as a team effort, effectively communicate, and facilitate emotional, environmental, and instructional support (Podolsky et al., 2019; Simon & Johnson, 2015; Thibodeaux et al., 2015). Additionally, administrators that strive to facilitate a nurturing and inclusive environment, encourage culturally responsive instruction, and actively address racial and social biases are critical to retaining teachers of color (Campoli, 2017; Hopper et al., 2022). Ultimately, educator retention rates increase with supportive school administrators who understand the importance of collaboration with the educators with whom they work.

Educator Voice, Respect, and Professional Autonomy

School systems are filled with educators who possess a wealth of experience and expertise. Educator voice refers to the meaningful incorporation of their values, opinions, beliefs, perspectives, knowledge, and expertise into education decision-making. It is essential that educators are at the table in these decision-making spaces. The research is clear: The lack of educator voice is a contributing factor to teacher dissatisfaction, and efforts should be made to increase teachers' say in decision-making processes, which would result in increased teacher retention (García et al., 2022; Ingersoll, 2006; McCarthy & Rubinstein, 2017; Podolsky et al., 2019). While there isn't a strong research base for other categories of school staff, we know that anecdotally this holds true for them as well. Ensuring all educators have an authentic place in decision-making spaces is critical.

Solutions to help increase educator voice, respect, and professional autonomy include the following:

Establish and/or Expand Collective Bargaining Rights: Providing education employees with the right to engage in collective bargaining ensures that they have a legally guaranteed voice at the table to determine their terms and conditions of employment. In exercising that right, educators can improve the conditions under which they work and their students learn.

Include Educators in School Transformation Efforts, Such as Hiring New Educators and Creating Community Schools: Respecting the knowledge and opinions of educators to help regulate and improve the profession in which they work is a sign of respect and a necessary step to ensure that transformation efforts are long-term solutions and not short-term, feel-good activities. Utilizing proven models that require authentic and comprehensive stakeholder engagement, such as community schools, activates change in a system that is not currently designed to provide an equitable education for all students or supportive working conditions for educators.^{ix}

Ensure Professional Autonomy: Educator autonomy occurs when their professional expertise and opinions are respected and listened to in their classrooms and worksites. For example, working with educators to create learning objectives and guidelines for classrooms and then allowing educators to adapt lessons to meet the students' needs in their classrooms *is* autonomy; grade-level teams working together to make professional decisions about the needs of their students while working toward school and grade goals *is* autonomy. Unfortunately, most educators report that they have little influence over such basic decisions as curriculum, instructional materials, the content of professional learning opportunities, discipline policies, and educator hiring practices and evaluation (García & Weiss, 2019a). Schools that allow autonomy have higher job satisfaction among their educators (Ingersoll, 2006), while teachers that do not have significant roles in setting curriculum and determining what they teach in class are more likely to quit (García & Weiss, 2019a).


Improve Working Conditions Through Educator Surveys:

Although research is limited, some states have found success in utilizing surveys to capture teacher and staff perspectives on how to improve school and working conditions (Podolsky et al., 2019). The Teaching, Empowering, Leading, and Learning (TELL) Survey is widely used to understand educator concerns. After receiving feedback from TELL, North Carolina implemented statewide initiatives that increased weekly planning hours and professional development funding (Maddock, 2009, as cited in Podolsky et al., 2019). Likewise, Massachusetts school districts were able to gauge teacher satisfaction and career intentions related to working conditions (Johnson et al., 2012). Using surveys can increase retention rates by helping districts understand and directly address problems that may cause teachers to leave and creating a collaborative environment in which teachers and staff can use their voices to impact change (Podolsky et al., 2019).

Hiring Practices

Public schools use often-complex processes to hire educators, resulting in decisions that are, in one study's estimation, "late, rushed, and information-poor" (E. Liu & Johnson, 2006). With respect to timing, studies have shown that in some districts, up to 30 percent of new hires are brought on after the start of the school year (Jones et al., 2011; E. Liu & Johnson, 2006; Papay & Kraft, 2016). Teachers hired later in the summer or after the school year started have had lower effects on student achievement and have been more likely to leave the profession than those hired earlier in the year (Jones et al., 2011; Papay & Kraft, 2016). Late hiring is most prevalent among schools with higher proportions of students living in poverty, thereby increasing already-existing resource inequities (Papay & Kraft, 2016). Late hiring also contributes to a lack of information: Research has shown that when teachers are hired in the summer, other educators may not be available to participate in the hiring process, and prospective hires are unable to see what a school is like when it is in session, making a poor fit more likely (E. Liu & Johnson, 2006).

According to a 2020 NEA survey, about 40 percent of ESPs are laid off in the summer and then rehired in the fall, further exacerbating staff shortages (National Education Association, 2020). This interruption in employment affects the benefits, pensions, and patterns of reliable income for the most diverse and lowest-paid segment of the educator workforce. It also provides these educators with an incentive to pursue employment outside of education. With compensation rising faster in the private sector than for government positions (U.S. Bureau of Labor Statistics, 2022), these workers might decide not to return to their ESP positions in the fall.



“For more than 25 years, I have been teaching special education and had to borrow for a master’s degree, which I earned in 2000. Like many teachers of color, I didn’t have generational wealth that could help with skyrocketing college costs. My master’s degree made an immediate difference in my craft and helped me serve my students, but it cost. The price tag of my studies was more than \$100,000. It was like a house I didn’t get to live in. It felt like a fleecing of America. I participated in the federal Public Service Loan Forgiveness program, and for years, it was frustrating. I was paying, paying, paying, but the needle never moved. Thanks to the Biden-Harris administration’s PSLF temporary waiver, which counted some older loan payments that had previously been ineligible, my college debt has finally been forgiven. It has been a huge relief. If this country is serious about finding long-term solutions that work to fix the educator shortages, student debt relief and college loan forgiveness programs will help in the recruitment and retention of high-quality educators.”

— Jamie Walker-Sallis, Special Education Teacher and Equity Innovator, 25 Years in Education, Davenport, Iowa

To improve hiring, school districts and local unions should work together through collective bargaining and labor-management collaboration where collective bargaining does not exist. This gives both parties an opportunity to agree on practices that will acknowledge and respect current educators while also helping to attract the best talent to the district. Promising practices include offering financial incentives for educators to announce retirements earlier; working with central and government offices to get budget and enrollment information earlier; and providing opportunities for current staff to engage with and share their thoughts on prospective colleagues (Papay & Qazilbash, 2021; Podolsky et al., 2019).

RECRUITMENT SOLUTIONS

Recruiting new educators to be profession-ready requires some upfront planning and effort, whether they are starting their career in a front office, classroom, school bus, cafeteria, or elsewhere in the school system.

There are several recruitment solutions that can help prepare us for the future, including the following:

Ensure Profession-Ready Educators Through Comprehensive Educator Preparation Programs: Comprehensive educator preparation programs require potential educators to utilize intensive clinical placements under the guidance of an expert mentor and include coursework on student learning and development, content and teaching methods, cultural competence, and ways to differentiate instruction. Teachers who lack intensive clinical experience and coursework have been shown to be two to three times more likely to leave the profession than those who have this type of preparation (Ingersoll et al., 2014). Likewise, research has demonstrated that teachers who enter the profession through an alternative preparation program, many of which provide less coursework and experience than traditional programs, are 25 percent more likely to leave their schools and teaching, even after controlling for other factors (Carver-Thomas & Darling-Hammond, 2017). On average, teachers of color have been more likely to enter the teaching profession through alternative certification programs and, therefore, are less likely to have formalized training compared to other teachers (Carver-Thomas & Darling-Hammond, 2017).

Teachers are not the only educators that benefit from specialized training and preparation. ESPs often report not being sufficiently prepared or trained for their roles in education. In a 2016–2017 survey conducted by the NEA, 72 percent of ESPs felt “somewhat” or “not very well” prepared for entry into their profession. Of those educators who did feel prepared, they cited higher education coursework, apprenticeships, and mentoring as most helpful in their preparation (National Education Association, 2017).

Create Welcoming and Supportive Pathways for Candidates of Color and LGBTQ+ Candidates: Formal teacher preparation programs must provide an equitable pathway to teaching to increase recruitment of candidates of color. We must ensure programs are culturally responsive, actively reduce racial or ethnic bias within the program, provide a safe and nurturing environment for all candidates, center critical issues in the curriculum, and work to correct the racial and ethnic barriers that make it difficult for candidates of color to become teachers (Carter Andrews et al., 2019; Kohli, 2019; Kozleski & Proffitt, 2020; Leong, 2018). By taking these actions, we can help diversify the teaching profession while also increasing educator numbers.

Similarly, to attract LGBTQ+ teacher candidates and help educate all teacher candidates to better serve their students, it is vital that teacher preparation programs include LGBTQ+ issues (T. Jennings & Sherwin, 2008; Taylor et al., 2020). Practices and policies within teacher preparation programs and K–12 schools have often reinforced heteronormative perspectives that exclude LGBTQ+ persons and issues (T. Jennings & Sherwin, 2008). By actively examining policy and practice and recruiting LGBTQ+ candidates, we can provide teacher preparation programs that help disrupt the rigid gender and sexual binaries that often endanger students and create an unwelcoming environment for teachers (Meyer, 2022).

Create and Implement Grow Your Own (GYO) and Apprenticeship Programs: GYO programs are designed to identify promising teacher candidates from local communities and school systems and provide candidates with tuition, time, and materials as they train to become teachers. Programs can focus on nontraditional candidates, career-changers, high school students, education support professionals, or any other adults in the community who may be interested in becoming a teacher. While, as of this writing, all but one state (Wyoming) has such a program, they vary widely in focus and structure (Garcia, 2022). The most common type of program is designed to introduce high school students to the teaching field (Garcia, 2022). These programs embed education-focused coursework and field experiences in the regular curriculum, giving students the opportunity to explore teaching as a career option. In contrast, paraeducator pathway programs—which are also quite common—focus on helping current school employees obtain teaching certification while continuing to work. Paraeducators often have specialized backgrounds working with English language learners or students with special needs that make them particularly strong candidates for GYO opportunities (Garcia, 2022).

Many GYO programs have demonstrated success in recruiting, training, and placing new teachers (Clewell & Villegas, 1999; State of Washington Professional Educator Standards Board, 2016). Recruiting from local communities helps to diversify the education field; however, to be successful in building cultural and community-focused capital, these programs must operate from an equity and racial and social justice perspective and prioritize the knowledge, skills, and experiences of candidates of color and multilingual candidates (Gist, 2022; Gist et al., 2019; Valenzuela, 2017). Funding for GYO and apprenticeship programs may come from a variety of sources, including, but not limited to, ESSA Title II, the American Rescue Plan Act, and U.S. Department of Labor apprenticeship grants.

Promote Residency Programs as an Essential Form of Teacher Preparation: A teacher residency program integrates a full-time, full-year clinical experience with coursework prior to being employed as the teacher-of-record. Contrary to a typical semester-long student teaching experience, aspiring educators can see how a teacher begins and ends the year as well as receive a dedicated mentor and stipend throughout the entire school year. Studies have found that residency programs have helped recruit teachers for hard-to-staff schools, diversify the teacher candidate pool, and increase retention rates (Gist et al., 2021; Guha et al., 2016; Papay et al., 2012; Silva et al., 2014). Title II of the Higher Education Grant has a program titled Teacher Quality Partnership Grants, which contains targeted funding for teacher residencies.

Offer Grants, Scholarships, and Stipends to Offset the Costs of Teacher Preparation and Student Teaching: The cost of an undergraduate degree has increased exponentially over the last several years (U.S. Department of Education, 2021c), creating a barrier for many aspiring educators—especially candidates of color and bilingual candidates (Connally et al., 2017). In addition, on top of paying tuition, candidates pursuing an education degree must participate in a clinical experience. In many programs, that includes, at minimum, a full-time student-teaching placement. During this time, aspiring educators are advised that they should not work another job, which can create further financial hardship.

A few federal programs exist to support those individuals pursuing education degrees, such as TEACH grants, Teacher Loan Forgiveness, and Public Service Loan Forgiveness, and some states offer similar programs; however, federal and state governments should dedicate more dollars to scholarships and grants for individuals—particularly, aspiring educators of color—who want to become educators. During student teaching, aspiring educators should receive a stipend that covers the cost of living at the very minimum. This could come in the form of waiving tuition for the semester, federal work-study, or other funds to support the initiative. Some programs also incorporate transportation and child care supports—basic needs that are especially helpful to ESPs.

Those scholarship and grant programs that have successfully attracted teacher candidates generally offer a substantial award covering most or all costs for an undergraduate and/or graduate degree, target high-need fields, and recruit for hard-to-staff schools and districts (Liou et al., 2010; Liou & Lawrenz, 2011; Podolsky & Kini, 2016; Steele et al., 2010). Candidates who came into the profession through such a program have been shown to be more effective than their peers

and more likely to stay in the profession for five years or more (Henry et al., 2012). Scholarship programs that specifically focus on recruiting candidates of color can lessen the financial burden of an education degree and bring greater diversity to the profession (Carver-Thomas & Darling-Hammond, 2017; Gist et al., 2021).

RETENTION SOLUTIONS

Recruiting educators into the profession will only be effective if we are able to retain them. We do not yet fully know the effects of the pandemic on career plans, but within a single year, from March 2020 to March 2021, the percent of teachers who said they would remain in the classroom until retirement dropped from 74 percent to 69 percent (Zamarro et al., 2022). If a teacher, ESP, or SISP is underpaid, undervalued, and not respected or supported, what would stop them from looking elsewhere, especially when non-education employers are providing higher pay, better benefits, more manageable hours, better working conditions, and a higher level of professional respect?

There are several retention solutions that can help address the educator shortage crisis, including the following:

Reduce the Time It Takes to Reach Career-Level

Pay: For an educator to reach the top of a pay scale, it can take decades. As a result, the pay gap between teachers and similarly educated professionals actually has been wider at mid-career than at the start (Baker et al., 2015), and teachers with 10 years of experience have been shown to make less than workers in positions that do not require a college degree in some states (Boser & Straus, 2014). A strong, short salary schedule that offers competitive starting rates, rewards for professional development, and competitive mid- and late-career earnings are promising recruitment and retention tools.

Continue or Establish Comprehensive Induction and Mentoring Programs: While all early-career teachers and staff need resources and supports, they have individual needs—just as their students have diverse learning and cultural needs. Although many districts have implemented induction and mentoring programs, the most effective programs offer a multifaceted approach to support new educators. Comprehensive induction and mentoring allows for customization to meet educator needs and includes the following: new educator orientation week at the beginning of the school year; mentoring by qualified and trained mentors for at least the first two years of work; support teams that meet routinely, in addition to formal mentoring by a mentor; courses and workshops for beginning educators from the school district central office on relevant topics; continuous training for mentors throughout their coaching career; and training for principals on how



“Many educators in my school district resigned at the end of the 2021–2022 school year. Some left because of the cumulative effect of issues like COVID-19 concerns and safety protocols, the impact of standardized testing, culture war attacks, and the Uvalde school shooting that happened close to our community. For educators, it hasn’t been a single issue that has driven them from the profession—it has been compounding. And it has been emotionally and mentally exhausting. Teachers are in the middle of a polarizing political landscape, and the attack on educators has increased the pressure and stress we feel daily. Dictating what we can teach in our classes, banning books, and disrespecting our craft have become breaking points for many educators who have dedicated their lives and careers to ensuring students succeed. It’s just been a gut punch after some of the most difficult years of our careers. Teachers need to be treated as professionals instead of being used as a political football.”

– Alejandra Lopez, Second-Grade Teacher, 5 Years in Education, San Antonio, Texas

to support early-career educators and mentors. Educators who receive high-quality, targeted support at the beginning of their careers have been shown to be more effective and more likely to stay in teaching as those who did not (Bastian & Marks, 2017; García & Weiss, 2019c; Ingersoll & Strong, 2011). These benefits outweigh the costs of providing mentoring and induction to new educators (Villar & Strong, 2007).

Ensure Educators Have Access to Relevant, Immediately Useful Professional Learning: All educators should have access to high-quality professional learning opportunities. In its in-depth review of the research on this topic, the Learning Policy Institute (Darling-Hammond et al., 2017) outlines seven shared features of effective professional development, which require the following: be content focused; incorporate active learning; support collaboration; use models of effective practice; provide coaching and expert support; offer feedback and reflection; and be of sustained duration. Unfortunately, many teachers have not found the learning opportunities provided to them useful, and these teachers have been more likely to quit teaching (García & Weiss, 2019c).

The issue of professional learning is even more acute for ESPs. According to a 2016–2017 NEA survey, only 39 percent of ESPs have been provided time during the workday to attend professional development, and 11 percent have been provided *no* access to learning opportunities by their school, worksite, or district. Less than two-thirds of ESPs (62 percent) said that the professional development provided by their employer was relevant to their work (National Education Association, 2017).

Create Career Lattices and Ladders: Educators often note that teaching is a “flat profession” (Rebora, 2014). Some experienced educators leave the profession because once they had become a teacher, there is often very little room for advancement without becoming an administrator. Creating teacher leadership opportunities with additional compensation allows educators to remain close to teaching while still experiencing other roles, such as mentor, instructional coach, and professional learning specialist. Teachers who have taken on such leadership roles are more likely to plan to stay in the profession (Berry et al., 2010), as are teachers who have worked in districts with career ladders (Silman & Glazerman, 2009). Similarly, teachers who have become National Board Certified Teachers (NBCT) are not only more effective (Clotfelter et al., 2010; Cowan & Goldhaber, 2016) but are also more likely to stay in the classroom, with teachers attributing this in part to the salary supplements tied to achieving NBCT status (Center for Educator Recruitment, Retention & Advancement, 2018, 2022).

Advocate for License/Certification Reciprocity: Obtaining a state teacher’s license or certificate is highly controlled to ensure a high quality of education and to protect children. However, requirements for a license can vary widely from state to state, making it difficult for existing license holders to obtain a license in a new state. A few states have reciprocity agreements in place to make this process easier, but it is not universal. Limited research has suggested that non-reciprocal licensure may discourage teachers from re-entering the profession after relocating to a new state (Goldhaber et al., 2015; Podolsky et al., 2019). In fall 2020, the Council of State Governments began the groundwork to create an Interstate Teacher Mobility Compact to help solve these issues by creating an agreement across states.^x


WHY IT MATTERS

Now is the time to implement wide-ranging, long-term solutions to reverse the nation's educator shortages. While COVID-19 is not the only cause of these shortages, the pandemic revealed the fragility of school staffing, with unprecedented numbers of educators choosing to leave the profession and untold numbers of people deciding that education is not a career path they would like to pursue. At the same time, the need for high-quality educators has never been greater as our schools work to support students in recovering academically, mentally, emotionally, and socially from the pandemic.

Financially, states are in an unusually strong position to invest in the future of public education. In addition to the considerable influx of federal emergency funds, most states have reported stronger-than-expected revenues and rainy-day funds that are sound and growing (National Association of State Budget Officers, 2022; National Conference of State Legislatures, 2022). These additional funds must be invested in the future of students through educator recruitment and retention programs and supports. Plus, averting future educator shortages will save states and districts money. From recruiter costs to training new educators, the cost to replace an educator is enormous. Research has shown that, on average, that urban districts spend more than \$20,000 on each new hire, including school and district expenses related to separation, recruitment, hiring, and training (Barnes et al., 2007; Learning Policy Institute, 2017), which amounts to millions of dollars nationwide each year.

Financial expense aside, educator turnover and shortages come at a high cost for students. When teachers leave, they are often replaced by teachers who have less experience and specialize in a different subject area (Sorensen & Ladd, 2020). As a result, student learning and other outcomes—such as behavior and attendance—suffer (Kini & Podolsky, 2016; Sorensen & Ladd, 2020). Crucially, when teacher turnover has been high, the negative effects on student achievement affect all students in a school, not just those in classrooms where a teacher has departed (Ronfeldt et al., 2013).

Given the patterns in turnover and shortages and the differing challenges schools have faced in replacing



“Enrollment in teacher education programs is down significantly. Half of our state’s 18 teacher prep colleges produced fewer than 20 teaching graduates this past year. I’ve been teaching for 21 years, and I would normally be asked to take a student teacher in the spring and fall. Sometimes they wanted me to take two in the spring semester because there used to be that much of a demand. I haven’t had a student teacher in my classroom in years. Aspiring educators who are just beginning in the program would do classroom observations and see how demanding this career can be. And, whenever the student teachers discover the money they’d make and compare all the demands on them, many switch career paths. The shift of taking away teachers’ professional discretion, imposing all-encompassing oversight, and micro-managing everything we do in the classroom has become another huge barrier to attracting and retaining high-quality educators to the profession. Teaching is not about a warm body in the classroom following a scripted curriculum that will produce successful students. It’s about passion and dedication.”

— Amber McCoy, Fourth-Grade Teacher, 21 Years in Education, Huntington, West Virginia

teachers who have left (Sorensen & Ladd, 2020), the impact of teacher attrition has fallen disproportionately on students with the highest needs: those living in poverty, those with special needs, and English language learners, among others. As discussed, the higher rates of attrition among teachers of color have been particularly troubling given the changing demographics of the student body and the positive contributions of teachers of color to the learning and whole-child outcomes of students of all races and ethnicities (Blazar, 2021).

While research has focused primarily on the effects of teacher attrition and its effects on students, it is important to keep in mind that public school communities extend well beyond teacher-student relationships. Teacher turnover and the resulting shortages have negatively affected the quality of working relationships and schools' abilities to plan and implement curricula (Guin, 2004). In addition, while research has not looked at the implications of ESP and SISIP departures and shortages, it stands to reason that high turnover in these positions would negatively impact both school communities and students who rely on these staff to provide a wide range of non-instructional supports. It is imperative that policy solutions to educator shortages move beyond focusing solely on teachers given the importance of developing lasting relationships to whole-child health and well-being.

Just prior to the pandemic, thousands of educators rose up during the Red for Ed movement to demand the safe, equitable, and just public schools our students deserve. This wave of activism led to improvements in teaching and learning conditions and educator pay and benefits in some states, and it showed the power of educator voice in shaping the future of public education. Now, after more than two years weathering an international health crisis and a variety of political and social upheavals at home, we are faced with the reality that our work has only just begun. Once again, educators across the country—in Minneapolis, Columbus, and other cities and states—are working in union and with their unions to advocate for the strong public schools that are in the best interest of our children and our nation.

Education has fundamentally changed, and the systems that surround it must be restructured. We must build an education pipeline for the future—one that recruits diverse, well-prepared educators to remain in a respected profession that values its educators and supports and pays them accordingly. This report has presented long-term strategies and solutions that have had proven success in specific schools, districts, and states. It is now up to educators, administrators, and policymakers to join together to take what we know works and ensure that this vision of a transformed education profession becomes a reality in every state, district, and school.

ENDNOTES

- i** This report uses the term “educators” when referring to all non-administrative staff working in a K-12 school system. This includes K-12 teachers, education support professionals (ESPs—classified staff, such as paraeducators, transportation workers, and clerical staff), and specialized instructional support personnel (SISP— non-teaching certificated staff, such as counselors, social workers, library media specialists, and speech-language pathologists).
- ii** JOLTS data for public education cannot be broken down by sector, type of position, or state. In the remainder of this report, we focus on K-12 educators.
- iii** From 1969 to 2018, the question was “Would you like to have a child of yours take up teaching in the public schools as a career?” In 2022, the question was “Would you like a child of yours to become a public school teacher in your community, or not?”
- iv** For a recent meta-analysis of empirical studies on this topic, see Nguyen et al. (2019).
- v** In 2015–2016, the SASS was replaced by the National Teacher and Principal Survey (NTPS). The NTPS was fielded in 2015–2016, 2017–2018, and 2020–2021. The first two NTPS administrations were not followed by a Teacher Follow-Up Survey (TFS), but a TFS did field during the 2021–2022 school year, with results expected to be released starting in winter 2022.
- vi** In the 2012–2013 TFS, 9.7 percent of leavers said that they left the profession involuntarily.
- vii** Even when benefits are taken into account, teachers still make more than 14 percent less than similar professionals (Allegretto, 2022).
- viii** For more information about NEA’s work on student debt, visit nea.org/your-rights-workplace/student-debt-support/navigate-your-student-debt.
- ix** To learn more about NEA’s vision of community schools, visit nea.org/student-success/great-public-schools/community-schools.
- x** For more information about the Interstate Teacher Mobility Compact, please see nasdtec.net/page/Teacher_Mobility_Interstate_Compact.

BIBLIOGRAPHY

- Allegretto, S. (2022). *The teacher pay penalty has hit a new high*. Economic Policy Institute. <https://www.epi.org/publication/teacher-pay-penalty-2022/>
- American Society of Civil Engineers. (2021). *2021 Report Card for America's Infrastructure: Schools*. <https://infrastructurereportcard.org/cat-item/schools-infrastructure/>
- Amir, E., Teslow, J., & Borders, C. (2021). *The MeasureOne private student loan report*. <https://fs.hubspotusercontent00.net/hubfs/6171800/assets/downloads/MeasureOne%20Private%20Student%20Loan%20Report%20Q3%202021%20FINAL%20VERSION.pdf>
- Auguste, B., Kihn, P., & Miller, M. (2010). *Closing the teaching talent gap: Attracting and retaining top-third graduates to careers in teaching*. McKinsey & Company. <https://www.mckinsey.com/industries/education/our-insights/closing-the-teaching-talent-gap>
- Baker, B. D., Sciarra, D. G., & Farrie, D. (2015). *Is school funding fair? A national report card*. Education Law Center. https://edlawcenter.org/assets/files/pdfs/publications/National_Report_Card_2015.pdf
- Banerjee, A., Poydock, M., McNicholas, C., Mangundayao, I., & Sait, A. (2021). *Unions are not only good for workers, they're good for communities and for democracy*. Economic Policy Institute. <https://www.epi.org/publication/unions-and-well-being/>
- Barnes, G., Crowe, E., & Schaefer, B. (2007). *The cost of teacher turnover in five school districts: A pilot study*. National Commission on Teaching and America's Future. <https://eric.ed.gov/?id=ED497176>
- Bastian, K. C., & Marks, J. T. (2017). Connecting teacher preparation to teacher induction: Outcomes for beginning teachers in a university-based support program in low-performing schools. *American Educational Research Journal*, 54(2), 360-394.
- Berry, B., Bastian, K. C., Darling-Hammond, L., & Kini, T. (2021). *The importance of teaching and learning conditions: Influences on teacher retention and school performance in North Carolina*. Learning Policy Institute. https://learningpolicyinstitute.org/sites/default/files/product-files/Leandro_Teacher_Working_Conditions_BRIEF.pdf
- Berry, B., Daughtrey, A., & Wieder, A. (2010). *Teacher leadership: Leading the way to effective teaching and learning*. Center for Teaching Quality. <https://files.eric.ed.gov/fulltext/ED509719.pdf>
- Blazar, D. (2021). *How and why do Black teachers benefit students?: An experimental analysis of causal mediation*. (EdWorkingPaper 21-501). Annenberg Institute at Brown University. <https://doi.org/10.26300/jym0-wz02>
- Boivie, I. (2017). *Revisiting the three Rs of teacher retirement: Recruitment, retention and retirement*. National Institute on Retirement Security. <https://www.nirsonline.org/reports/revisiting-the-three-rs-of-teacher-retirement-systems-recruitment-retention-and-retirement/>
- Borman, G. D., & Dowling, N. M. (2008). Teacher attrition and retention: A meta-analytic and narrative review of the research. *Review of Educational Research*, 78(3), 367-409. <https://doi.org/10.3102/0034654308321455>
- Boser, U., & Straus, C. (2014). *Mid- and late-career teachers struggle with paltry incomes*. Center for American Progress. <https://www.americanprogress.org/issues/education-k-12/reports/2014/07/23/94168/mid-and-late-career-teachers-struggle-with-paltry-incomes/>
- Brown, J. E., & Larrabee, M. (2017). *Decisions, decisions: An update on retirement plan choices for public employees and employers*. National Institute on Retirement Security. <https://www.nirsonline.org/reports/decisions-decisions-an-update-on-retirement-plan-choices-for-public-employees-and-employers/>
- Brown, K. M., & Wynn, S. R. (2009). Finding, supporting, and keeping: The role of the principal in teacher retention issues. *Leadership and Policy in Schools*, 8(1), 37-63. <https://doi.org/10.1080/15700760701817371>
- Buckley, J., Schneider, M., & Shang, Y. (2004). *The effects of school facility quality on teacher retention in urban school districts*. National Clearinghouse for Educational Facilities. <https://files.eric.ed.gov/fulltext/ED539484.pdf>

- Buckley, J., Schneider, M., & Shang, Y. (2005). Fix it and they might stay: School facility quality and teacher retention in Washington, D.C. *Teachers College Record*, 107(5), 1107–1123. <https://doi.org/10.1111%2Fj.1467-9620.2005.00506.x>
- Campoli, A. K. (2017). Supportive principals and black teacher turnover: ESSA as an opportunity to improve retention. *Journal of School Leadership*, 27(5), 675–700. <https://doi.org/10.1177/105268461702700504>
- Carter Andrews, D. J., Castro, E., Cho, C. L., Petchauer, E., Richmond, G., & Floden, R. (2019). Changing the narrative on diversifying the teaching workforce: A look at historical and contemporary factors that inform recruitment and retention of teachers of color. *Journal of Teacher Education*, 70(1), 6–12. <https://doi.org/10.1177/0022487118812418>
- Carver-Thomas, D. (2018). *Diversifying the teaching profession: How to recruit and retain teachers of color*. Learning Policy Institute. <https://doi.org/10.54300/559.310>
- Carver-Thomas, D., & Darling-Hammond, L. (2017). *Teacher turnover: Why it matters and what we can do about it*. Learning Policy Institute. <https://doi.org/10.54300/454.278>
- Center for Educator Recruitment, Retention & Advancement. (2018). *Retaining South Carolina teachers through National Board Certification*. https://www.cerra.org/uploads/1/7/6/8/17684955/nbct_retention_paper_1.30.18.pdf
- Center for Educator Recruitment, Retention & Advancement. (2022). *Updated: Retaining South Carolina teachers through National Board Certification*. https://www.cerra.org/uploads/1/7/6/8/17684955/nbct_retention_paper_spring_2022.pdf
- Chang, Alvin. (2018, March 16). “Teacher pay is falling. Their health insurance costs are rising.” *Vox*. <https://www.vox.com/2018/3/16/17119366/teacher-health-insurance-cost-rising-data>
- Cheeseman Newburger, J., & Beckhusen, J. (2022). *Average teachers’ earnings declining, lower than similarly educated workers*. U.S. Census Bureau. <https://www.census.gov/library/stories/2022/07/teachers-among-most-educated-yet-pay-lags.html>
- Clewell, B. C., & Villegas, A. M. (1999). Creating a nontraditional pipeline for urban teachers: The Pathways to Teaching Careers model. *The Journal of Negro Education*, 68(3), 306–317. <https://doi.org/10.2307/2668103>
- Clotfelter, C. T., Ladd, H. F., & Vigdor, J. L. (2010). Teacher credentials and student achievement in high school: A cross-subject analysis with student fixed effects. *The Journal of Human Resources*, 45(3), 655–681.
- Connally, K., Garcia, A., Cook, S., & Williams, C. P. (2017). *Teacher talent untapped: Multilingual paraprofessionals speak about the barriers to entering the profession*. New America. <http://na-production.s3.amazonaws.com/documents/Teacher-Talent-Untapped.pdf>
- Cowan, J., & Goldhaber, D. (2016). National Board Certification and teacher effectiveness: Evidence from Washington State. *Journal of Research on Educational Effectiveness*, 9(3), 233–258. <https://doi.org/10.1080/19345747.2015.1099768>
- Darling-Hammond, L., Hylar, M. E., & Gardner, M. (2017). *Effective teacher professional development*. Learning Policy Institute. <https://learningpolicyinstitute.org/product/effective-teacher-professional-development-factsheet>
- Davis, S. (2022). Muddying the boundary waters: Examining a gay novice teacher’s attempts to support a transgender student. *Journal of Teacher Education*, 00224871221093971. <https://doi.org/10.1177/00224871221093971>
- Diliberti, M. K., Schwartz, H. L., & Grant, D. (2021). *Stress topped the reasons why public school teachers quit, even before COVID-19* (No. RRA1121-2). RAND Corporation. <https://doi.org/10.7249/RRA1121-2>
- Dixon, D., Griffin, A., & Teoh, M. (2019). *If you listen, we will stay: Why teachers of color leave and how to disrupt teacher turnover*. The Education Trust & Teach Plus. https://teachplus.org/sites/default/files/downloads/teachers_of_color_retention_.pdf
- Espinoza, D., Saunders, R., Kini, T., & Darling-Hammond, L. (2018). *Taking the long view: State efforts to solve teacher shortages by strengthening the profession*. Learning Policy Institute. <https://learningpolicyinstitute.org/product/long-view-report>
- Figlio, D. N. (1997). Teacher salaries and teacher quality. *Economics Letters*, 55(2), 267–271. [https://doi.org/10.1016/S0165-1765\(97\)00070-0](https://doi.org/10.1016/S0165-1765(97)00070-0)
- Filardo, M. (2021). *2021 State of Our Schools: America’s PK-12 public school facilities*. 21st Century School Fund. <https://education.wellcertified.com/hubfs/IWBI%20-%20State%20of%20Our%20Schools%202021.pdf>
- Florida Department of Education. (2022, July 26). *Military veterans certification pathway*. <https://www.fldoe.org/teaching/certification/military/>

- Frank, T. J., Powell, M. G., View, J. L., Lee, C., Bradley, J. A., & Williams, A. (2021). Exploring racialized factors to understand why Black mathematics teachers consider leaving the profession. *Educational Researcher*, 50(6), 381–391. <https://doi.org/10.3102/0013189X21994498>
- Garcia, A. (2022). *A 50-state scan of Grow Your Own teacher policies and programs*. New America. <http://newamerica.org/education-policy/reports/grow-your-own-teachers/>
- García, E., & Han, E. S. (2022). Teachers' base salary and districts' academic performance: Evidence from national data. *SAGE Open*, 12(1). <https://doi.org/10.1177/21582440221082138>
- García, E., Han, E., & Weiss, E. (2022). Determinants of teacher attrition: Evidence from district-teacher matched data. *Education Policy Analysis Archives*, 30(25). <https://doi.org/10.14507/epaa.30.6642>
- García, E., & Weiss, E. (2019a). *Challenging working environments ('school climates'), especially in high-poverty schools, play a role in the teacher shortage* (The Fourth Report in 'The Perfect Storm in the Teacher Labor Market' Series). Economic Policy Institute. <https://epi.org/162910>
- García, E., & Weiss, E. (2019b). *Low relative pay and high incidence of moonlighting play a role in the teacher shortage, particularly in high-poverty schools* (The Third Report in 'The Perfect Storm in the Teacher Labor Market' Series). Economic Policy Institute. <https://epi.org/161908>
- García, E., & Weiss, E. (2019c). *The role of early career supports, continuous professional development, and learning communities in the teacher shortage* (The Fifth Report in 'The Perfect Storm in the Teacher Labor Market' Series). Economic Policy Institute. <https://epi.org/164976>
- García, E., & Weiss, E. (2019d). *The teacher shortage is real, large and growing, and worse than we thought* (The First Report in 'The Perfect Storm in the Teacher Labor Market' Series). Economic Policy Institute. <https://epi.org/163651>
- García, E., & Weiss, E. (2019e). *U.S. schools struggle to hire and retain teachers* (The Second Report in 'The Perfect Storm in the Teacher Labor Market' Series). Economic Policy Institute. <https://epi.org/164773>
- GBAO. (2022). *Poll results: Stress and burnout pose threat of educator shortages*. National Education Association. <https://www.nea.org/sites/default/files/2022-02/NEA%20Member%20COVID-19%20Survey%20Summary.pdf>
- Gershenson, S. (2012). How do substitute teachers substitute? An empirical study of substitute-teacher labor supply. *Economics of Education Review*, 31(4), 410–430. <https://doi.org/10.1016/j.econedurev.2011.12.006>
- Gershenson, S., Hart, C. M., Hyman, J., Lindsay, C., & Papageorge, N. W. (2021). *The long-run impacts of same-race teachers* (NBER Working Paper 25254). National Bureau of Economic Research. <https://doi.org/10.3386/w25254>
- Gist, C. D. (2022). "Grow Your Own" programs: Examining potential and pitfalls for a new generation of Black, Indigenous, and people of color community teachers. National Education Policy Center. <https://nepc.colorado.edu/publication/grow-your-own>
- Gist, C. D., Bianco, M., & Lynn, M. (2019). Examining Grow Your Own programs across the teacher development continuum: Mining research on teachers of color and nontraditional educator pipelines. *Journal of Teacher Education*, 70(1), 13–25. <https://doi.org/10.1177/0022487118787504>
- Gist, C. D., Bristol, T. J., Carver-Thomas, D., Hyler, M. E., & Darling-Hammond, L. (2021). Motivating teachers of color and Indigenous teachers to stay in the field. *Building a More Ethn racially Diverse Teaching Force: New Directions in Research, Policy, and Practice. A Kappan Special Report*. <https://kappanonline.org/motivating-bipoc-teachers-to-stay-gist-bristol-carver-thomas-hyler-darling-hammond/>
- Glazerman, S., Protik, A., Teh, B., Bruch, J., & Max, J. (2013). *Transfer incentives for high-performing teachers: Final results from a multisite randomized experiment* (NCEE 2014-4004). U.S. Department of Education, National Center for Education Evaluation and Regional Assistance. <https://ies.ed.gov/ncee/pubs/20144003/pdf/20144004.pdf>
- Goldhaber, D., Grout, C., Holden, K., & Brown, N. (2015). *Crossing the border? Exploring the cross-state mobility of the teacher workforce* (CALDER Working Paper No. 143). National Center for Analysis of Longitudinal Data in Education Research. <https://caldercenter.org/publications/crossing-border-exploring-cross-state-mobility-teacher-workforce>
- Goldhaber, D., & Mizrav, E. (2021). *The prospective teacher pipeline: Simulation evidence on levers to influence teacher diversity* (CALDER Policy Brief 28-1121). National Center for Analysis of Longitudinal Data in Education Research. <https://caldercenter.org/publications/prospective-teacher-pipeline-simulation-evidence-levers-influence-teacher-diversity>

- Goldring, R., Taie, S., & Riddles, M. (2014). *Teacher attrition and mobility: Results from the 2012-13 Teacher Follow-up Survey* (NCES 2014-077). U.S. Department of Education, National Center for Education Statistics. <https://nces.ed.gov/pubs2014/2014077.pdf>
- Goodpaster, K. P. S., Adedokun, O. A., & Weaver, G. C. (2012). Teachers' perceptions of rural STEM teaching: Implications for rural teacher retention. *Rural Educator*, 33(3), 9-22.
- Gray, L., & Taie, S. (2015). *Public school teacher attrition and mobility in the first five years: Results from the first through fifth waves of the 2007-08 Beginning Teacher Longitudinal Study* (NCES 2015-337). U.S. Department of Education, National Center for Education Statistics. <https://nces.ed.gov/pubs2015/2015337.pdf>
- Grooms, A. A., Mahatmya, D., & Johnson, E. T. (2021). The retention of educators of color amidst institutionalized racism. *Educational Policy*, 35(2), 180-212. <https://doi.org/10.1177/0895904820986765>
- Guha, R., Hylar, M. E., & Darling-Hammond, L. (2016). *The teacher residency: An innovative model for preparing teachers*. Learning Policy Institute. <https://learningpolicyinstitute.org/product/teacher-residency>
- Guin, K. (2004). Chronic teacher turnover in urban elementary schools. *Education Policy Analysis Archives*, 12, 42-42. <https://doi.org/10.14507/epaa.v12n42.2004>
- Hendricks, M. D. (2014). Does it pay to pay teachers more? Evidence from Texas. *Journal of Public Economics*, 109, 50-63. <https://doi.org/10.1016/j.jpubeco.2013.11.001>
- Henry, G. T., Bastian, K. C., & Smith, A. A. (2012). Scholarships to recruit the "best and brightest" into teaching: Who is recruited, where do they teach, how effective are they, and how long do they stay? *Educational Researcher*, 41(3), 83-92. <https://doi.org/10.3102/0013189X12437202>
- Herschopf, M., Puckett Blais, M., Taylor, E. D., & Pelika, S. (2021). *Student loan debt among educators: A national crisis*. National Education Association. <https://www.nea.org/sites/default/files/2021-07/Student%20Loan%20Debt%20among%20Educators.pdf>
- Hopper, E. B., Robinson, D., & Fitchett, P. (2022). Early career African American teachers and the impact of administrative support. *Urban Education*, 57(3), 401-431. <https://doi.org/10.1177/0042085920988335>
- Hughes, A. L., Matt, J. J., & O'Reilly, F. L. (2014). Principal support is imperative to the retention of teachers in hard-to-staff schools. *Journal of Education and Training Studies*, 3(1), 129-134. <https://doi.org/10.11114/jets.v3i1.622>
- Ingersoll, R. M. (2006). *Who controls teachers' work? Power and accountability in America's schools*. Harvard University Press.
- Ingersoll, R. M., Merrill, E., Stuckey, D., Collins, G., & Harrison, B. (2021). The demographic transformation of the teaching force in the United States. *Education Sciences*, 11(5). <https://doi.org/10.3390/educsci11050234>
- Ingersoll, R. M., Merrill, L., & May, H. (2014). *What are the effects of teacher education and preparation on beginning teacher attrition?* Consortium for Policy Research in Education. https://www.cpre.org/sites/default/files/researchreport/2018_prepeffects2014.pdf
- 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(2), 201-233. <https://doi.org/10.3102/0034654311403323>
- Jacob, R., Goddard, R., Kim, M., Miller, R., & Goddard, Y. (2015). Exploring the causal impact of the McREL Balanced Leadership Program on leadership, principal efficacy, instructional climate, educator turnover, and student achievement. *Educational Evaluation and Policy Analysis*, 37(3), 314-332. <https://doi.org/10.3102/0162373714549620>
- Jennings, P. A., & Greenberg, M. T. (2009). The prosocial classroom: Teacher social and emotional competence in relation to student and classroom outcomes. *Review of Educational Research*, 79(1), 491-525. <https://doi.org/10.3102/0034654308325693>
- Jennings, T., & Sherwin, G. (2008). Sexual orientation topics in elementary teacher preparation programs in the USA. *Teaching Education*, 19(4), 261-278. <https://doi.org/10.1080/10476210802436328>
- 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.
- Jones, N. D., Maier, A., & Grogan, E. (2011). *The extent of late-hiring and its relationship with teacher turnover: Evidence from Michigan*. Society for Research on Educational Effectiveness. <https://eric.ed.gov/?id=ED519005>

- Kaiser Family Foundation. (2021). *2021 Employer health benefits survey: Summary of findings*. <https://www.kff.org/report-section/ehbs-2021-summary-of-findings/>
- Kim, A. (2022, August 2). *2022 teacher spending study*. Savings.Com. <https://www.savings.com/insights/teacher-spending-study>
- Kim, R. (2020). Under the law: The historic *Bostock* opinion and LGBTQ rights in schools. *Phi Delta Kappan*, 102(2), 64–65. <https://doi.org/10.1177/0031721720963238>
- Kini, T., & Podolsky, A. (2016). *Does teaching experience increase teacher effectiveness? A review of the research*. Learning Policy Institute. <https://learningpolicyinstitute.org/product/does-teaching-experience-increase-teacher-effectiveness-review-research>
- Klimek, S. G. (2019). Prestige, status, and esteem and the teacher shortage. *Journal of Education and Learning*, 8(4), 185. <https://doi.org/10.5539/jel.v8n4p185>
- Klusmann, U., Kunter, M., Trautwein, U., Lüdtke, O., & Baumert, J. (2008). Teachers' occupational well-being and quality of instruction: The important role of self-regulatory patterns. *Journal of Educational Psychology*, 100(3), 702–715. <https://doi.org/10.1037/0022-0663.100.3.702>
- Kohli, R. (2019). Lessons for teacher education: The role of critical professional development in teacher of color retention. *Journal of Teacher Education*, 70(1), 39–50. <https://doi.org/10.1177/0022487118767645>
- Kozleski, E. B., & Proffitt, W. A. (2020). A journey towards equity and diversity in the educator workforce. *Teacher Education and Special Education*, 43(1), 63–84. <https://doi.org/10.1177/0888406419882671>
- Learning Policy Institute. (2017, September 13). *What's the cost of teacher turnover?* <https://learningpolicyinstitute.org/product/the-cost-of-teacher-turnover>
- Leong, M. (2018). *Common practices for recruiting, training, and retaining bilingual and diverse teachers*. U.S. Department of Education, National Center for Education Evaluation and Regional Assistance. <https://ies.ed.gov/ncee/edlabs/regions/northwest/pdf/common-bractices-bilingual.pdf>
- Lindsay, C. A. (2017, December 13). Teachers of color are less likely to be teaching than their white counterparts. *Urban Wire*. <https://www.urban.org/urban-wire/teachers-color-are-less-likely-be-teaching-their-white-counterparts>
- Liou, P.-Y., Kirchhoff, A., & Lawrenz, F. (2010). Perceived effects of scholarships on STEM majors' commitment to teaching in high need schools. *Journal of Science Teacher Education*, 21(4), 451–470. <https://doi.org/10.1007/s10972-010-9191-2>
- Liou, P.-Y., & Lawrenz, F. (2011). Optimizing teacher preparation loan forgiveness programs: Variables related to perceived influence. *Science Education*, 95(1), 121–144. <https://doi.org/10.1002/sce.20409>
- Liu, E., & Johnson, S. M. (2006). New teachers' experiences of hiring: Late, rushed, and information-poor. *Educational Administration Quarterly*, 42(3), 324–360. <https://doi.org/10.1177/0013161X05282610>
- Liu, J., Loeb, S., & Shi, Y. (2022). More than shortages: The unequal distribution of substitute teaching. *Education Finance and Policy*, 17(2), 285–308. https://doi.org/10.1162/edfp_a_00329
- Maddock, A. (2009). *North Carolina teacher working conditions: The intersection of policy and practice*. New Teacher Center.
- Mancenido, Z. (2021). How high achievers learn that they should not become teachers. *Harvard Educational Review*, 91(4), 433–456. <https://doi.org/10.17763/1943-5045-91.4.433>
- Marinell, W. H., Coca, V. M., Arum, R., Goldstein, J., Kemple, J., Pallas, A., Bristol, T., Buckley, C., Scallon, A., & Tanner, B. (2013). "Who stays and who leaves?" Findings from a three-part study of teacher turnover in NYC middle schools. In *Research Alliance for New York City Schools*. Research Alliance for New York City Schools. <https://steinhardt.nyu.edu/research-alliance/research/publications/who-stays-and-who-leaves>
- Marken, S., & Agrawal, S. (2022, June 13). *K-12 workers have highest burnout rate in U.S.* Gallup. <https://news.gallup.com/poll/393500/workers-highest-burnout-rate.aspx>
- McCarthy, J. E., & Rubinstein, S. A. (2017). *National study on union-management partnerships and educator collaboration in U.S. public schools*. Collaborative School Leadership Initiative. https://www.cecweb.org/wp-content/uploads/2017/10/Union_Management_Partnerships.pdf

- Meyer, E. J. (2022). Sex, gender, and education research: The case for transgender studies in education. *Educational Researcher*, 51(5), 315–323. <https://doi.org/10.3102/0013189X211048870>
- Mongeau, L. (2015, July 21). Is Silicon Valley driving teachers out? *The Atlantic*. <https://www.theatlantic.com/education/archive/2015/07/silicon-valley-housing-tough-on-teachers/399071/>
- National Association of State Budget Officers. (2022). *Fiscal survey of states: Overview—Spring 2022*. <https://www.nasbo.org/mainsite/reports-data/fiscal-survey-of-states>
- National Conference of State Legislatures. (2022). *FY 2022 state budget update*. <https://www.ncsl.org/research/fiscal-policy/fy-2022-state-budget-update.aspx>
- National Education Association. (n.d.). *Our mission, vision, & values*. Retrieved July 4, 2022, from <https://www.nea.org/about-nea/mission-vision-values>
- National Education Association. (2017). *ESP professional supports survey [Unpublished data set]*.
- National Education Association. (2019). *ESP data book [Unpublished report]*.
- National Education Association. (2020). *Educator financial circumstances survey [Unpublished data set]*.
- National Education Association. (2022a). *2020-21 teacher salary benchmark report*. <https://www.nea.org/resource-library/teacher-salary-benchmarks>
- National Education Association. (2022b). *Education support professional earnings report*. <https://www.nea.org/resource-library/esp-earnings>
- National Education Association. (2022c). *Ending the FLSA teacher exclusion: Putting a floor under the teaching profession by providing teachers with the same wage and hour protections as other professionals*. <https://www.nea.org/resource-library/ending-flsa-teacher-exclusion>
- National Education Association. (2022d, April 26). *Educator pay and student spending: How does your state rank?* <https://www.nea.org/resource-library/educator-pay-and-student-spending-how-does-your-state-rank>
- Nguyen, T. D., Pham, L., Springer, M. G., & Crouch, M. (2019). *The factors of teacher attrition and retention: An updated and expanded meta-analysis of the literature* (EdWorkingPaper 19-149). Annenberg Institute at Brown University. <https://doi.org/10.26300/cdf3-4555>
- OECD. (2021a). *Education at a Glance 2021: Indicator D3. How much are teachers and school heads paid?* OECD. <https://www.oecd-ilibrary.org/sites/bc0586e8-en/index.html?itemId=/content/component/bc0586e8-en>
- OECD. (2021b). *Education at a Glance 2021: Indicator D4. How much time do teachers and school heads spend teaching and working?* OECD. <https://www.oecd-ilibrary.org/sites/d4187f9b-en/index.html?itemId=/content/component/d4187f9b-en>
- Office of the Arizona Governor. (2022, July 5). *Governor Ducey signs legislation to expand training pathways for future educators*. <https://azgovernor.gov/governor/news/2022/07/governor-ducey-signs-legislation-expand-training-pathways-future-educators>
- Papay, J. P., & Kraft, M. A. (2016). The productivity costs of inefficient hiring practices: Evidence from late teacher hiring. *Journal of Policy Analysis and Management*, 35(4), 791–817. <https://doi.org/10.1002/pam.21930>
- Papay, J. P., & Qazilbash, E. K. (2021). *What do we know about teacher hiring? Using early, open, and intensive hiring processes to build the teacher workforce*. Center on the Study of Educators, Annenberg Institute at Brown University. <https://annenberg.brown.edu/educators/teacher-hiring>
- Papay, J. P., West, M. R., Fullerton, J. B., & Kane, T. J. (2012). Does an urban teacher residency increase student achievement? Early evidence from Boston. *Educational Evaluation and Policy Analysis*, 34(4), 413–434. <https://doi.org/10.3102/0162373712454328>
- PDK International. (2018). *Teaching: Respect but dwindling appeal. The 50th annual PDK Poll of the Public's Attitudes Toward the Public Schools, Appendix B: Topline data report*. <https://pdkpoll.org/wp-content/uploads/2020/10/PDKPoll2018Topline.pdf>
- PDK International. (2019). *Frustration in the schools: Teachers speak out on pay, funding, and feeling valued. The 51st annual PDK Poll of the Public's Attitudes Toward the Public Schools, Appendix B: Topline data report*. <https://pdkpoll.org/wp-content/uploads/2020/10/PDKPoll2019Topline.pdf>

- PKD International. (2022). *Local public school ratings rise, even as the teaching profession loses ground. The 54th annual PDK Poll of the Public's Attitudes Toward the Public Schools*. <https://pdkpoll.org/2022-pdk-poll-results/>
- Podolsky, A., & Kini, T. (2016). *How effective are loan forgiveness and service scholarships for recruiting teachers?* Learning Policy Institute. <https://learningpolicyinstitute.org/product/how-effective-are-loan-forgiveness-and-service-scholarships-recruiting-teachers>
- Podolsky, A., Kini, T., Darling-Hammond, L., & Bishop, J. (2019). Strategies for attracting and retaining educators: What does the evidence say? *Education Policy Analysis Archives*, 27, 38. <https://doi.org/10.14507/epaa.27.3722>
- Rebora, A. (2014, April 2). Educators envision a less flat, more respected teaching profession. *Education Week*. <https://www.edweek.org/teaching-learning/educators-envision-a-less-flat-more-respected-teaching-profession/2014/04>
- Riser-Kositsky, M. (2022, March 28). Data: Does your state have enough school psychologists and counselors? *Education Week*. <https://www.edweek.org/leadership/data-does-your-state-have-enough-school-psychologists-and-counselors/2022/03>
- Rodriguez, L. A., Pham, J., & Gonçalves, B. K. (2022). *Leaving to fit in: School leadership, peer teacher relationships, and turnover among teachers of color in New York City* (EdWorkingPaper 22-547). Annenberg Institute at Brown University. <https://www.edworkingpapers.com/ai22-547>
- Ronfeldt, M., Loeb, S., & Wyckoff, J. (2013). How teacher turnover harms student achievement. *American Educational Research Journal*, 50(1), 4–36. <https://doi.org/10.3102/0002831212463813>
- Rosewicz, R., & Maciag, M. (2020, November 10). Nearly all states suffer declines in education jobs: COVID-19 pandemic has taken a heavy toll on employment at local schools and public colleges. *The Pew Charitable Trusts*. <https://www.pewtrusts.org/en/research-and-analysis/articles/2020/11/10/nearly-all-states-suffer-declines-in-education-jobs>
- Rothstein, J., & Rouse, C. E. (2011). Constrained after college: Student loans and early-career occupational choices. *Journal of Public Economics*, 95(1), 149–163. <https://doi.org/10.1016/j.jpubeco.2010.09.015>
- Sawchuk, S. (2022, April 6). Beyond “Don’t Say Gay”: Other states seek to limit LGBTQ youth, teaching. *Education Week*. <https://www.edweek.org/policy-politics/beyond-dont-say-gay-other-states-seek-to-limit-lgbtq-youth-teaching/2022/04>
- Schmitt, J., Shierholz, H., & Kandra, J. (2021). *Expanding overtime protection for teachers under the Fair Labor Standards Act*. Economic Policy Institute. <https://www.epi.org/publication/expanding-overtime-protection-for-teachers-under-the-fair-labor-standards-act/>
- @shondarhimes. (2020, March 16). *Been homeschooling a 6-year old and 8-year old for one hour and 11 minutes. Teachers deserve to make a billion dollars a year. Or a week.* [Tweet]. Twitter. <https://twitter.com/shondarhimes/status/1239600550515101696?s=20&t=We-8UxGcPqP6T7-yrTZn6g>
- Silman, T., & Glazerman, S. (2009). *Teacher bonuses for extra work: A profile of Missouri’s career ladder program*. Mathematica Policy Research, Inc. <https://files.eric.ed.gov/fulltext/ED507471.pdf>
- Silva, T., McKie, A., Knechtel, V., Gleason, P., & Makowsky, L. (2014). *Teaching residency programs: A multisite look at a new model to prepare teachers for high-need schools* (NCEE 2015-4002). U.S. Department of Education, National Center for Education Evaluation and Regional Assistance. <https://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=NCEE20154002>
- Simon, N. S., & Johnson, S. M. (2015). Teacher turnover in high-poverty schools: What we know and can do. *Teachers College Record*, 117(3).
- Sorensen, L. C., & Ladd, H. F. (2020). The hidden costs of teacher turnover. *AERA Open*, 6(1), 2332858420905812. <https://doi.org/10.1177/2332858420905812>
- Sparks, S. D. (2018, January 23). Can child-care benefits keep teachers in the classroom? *Education Week*. <https://www.edweek.org/leadership/can-child-care-benefits-keep-teachers-in-the-classroom/2018/01>
- Stanford, L. (2022, May 24). Teachers often don’t get lunch or bathroom breaks. That’s why some states guarantee them. *Education Week*. <https://www.edweek.org/teaching-learning/teachers-often-dont-get-lunch-or-bathroom-breaks-thats-why-some-states-guarantee-them/2022/05>
- State of Washington Professional Educator Standards Board. (2016). *Grow Your Own teachers: Enhancing educator pathways to address teacher shortage and increase diversity*. <https://www.pesb.wa.gov/resources-and-reports/reports/grow-your-own-teachers-report/>

- Steele, J. L., Murnane, R. J., & Willett, J. B. (2010). Do financial incentives help low-performing schools attract and keep academically talented teachers? Evidence from California. *Journal of Policy Analysis and Management*, 29(3), 451–478.
- Steiner, E. D., Doan, S., Woo, A., Gittens, A. D., Lawrence, R. A., Berdie, L., Wolfe, R. L., Greer, L., & Schwartz, H. L. (2022). *Restoring teacher and principal well-being is an essential step for rebuilding schools: Findings from the State of the American Teacher and State of the American Principal Surveys* (RR-A1108-4). RAND Corporation. https://www.rand.org/pubs/research_reports/RRA1108-4.html
- Steiner, E. D., & Woo, A. (2021). *Job-related stress threatens the teacher supply: Key findings from the 2021 State of the U.S. Teacher Survey* (RR-A1108-1). RAND Corporation. https://www.rand.org/pubs/research_reports/RRA1108-1.html
- Strauss, R. P., & Strauss, D. A. (2003). *The market for substitute classroom teachers in South West Pennsylvania in 2001-2: A research report to the Pittsburgh Foundation*. https://www.andrew.cmu.edu/user/rs9f/substitute_8_4_03.pdf
- Sun, M., Candelaria, C. A., Knight, D., LeClair, Z., Kabourek, S. E., & Chang, K. (2022). *The effects and local implementation of school finance reforms on teacher salary, hiring and turnover* (EdWorkingPaper 22-585). Annenberg Institute at Brown University. <https://www.edworkingpapers.com/ai22-585>
- Sutcher, L., Darling-Hammond, L., & Carver-Thomas, D. (2016). *A coming crisis in teaching? Teacher supply, demand, and shortages in the U.S.* <https://doi.org/10.54300/247.242>
- Sutcher, L., Darling-Hammond, L., & Carver-Thomas, D. (2019). Understanding teacher shortages: An analysis of teacher supply and demand in the United States. *Education Policy Analysis Archives*, 27, 35–35. <https://doi.org/10.14507/epaa.27.3696>
- Taylor, D. M., Talbot, B. C., Holmes, E. J., & Petrie, T. (2020). Experiences of LGBTQ+ students in music education programs across Texas. *Journal of Music Teacher Education*, 30(1), 11–23. <https://doi.org/10.1177/1057083720935610>
- Thibodeaux, A., Labat, M., Lee, D. E., & Labat, C. (2015). The effects of leadership and high-stakes testing on teacher retention. *Academy of Educational Leadership Journal*, 19(1). <https://www.semanticscholar.org/paper/The-Effects-of-Leadership-and-High-Stakes-Testing-Thibodeaux-Labat/Oe4eedf8ed2cc4149d09ccbd2baf9287ccc4b7d3>
- U.S. Bureau of Labor Statistics. (n.d.-a). *Current Employment Statistics* [Data set]. <https://www.bls.gov/ces/>
- U.S. Bureau of Labor Statistics. (n.d.-b). *Job Openings and Labor Turnover Survey* [Data set]. <https://www.bls.gov/jlt/>
- U.S. Bureau of Labor Statistics. (n.d.-c). *Occupational Employment and Wage Statistics* [Data set]. <https://www.bls.gov/oes/>
- U.S. Bureau of Labor Statistics. (2021). *Number of jobs, labor market experience, marital status, and health: Results from a national longitudinal survey*. <https://www.bls.gov/news.release/pdf/nlsoy.pdf>
- U.S. Bureau of Labor Statistics. (2022). *Employment Cost Index summary*. <https://www.bls.gov/news.release/eci.nr0.htm>
- U.S. Department of Education. (2016). *The state of racial diversity in the educator workforce*. Office of Planning, Evaluation and Policy Development, Policy and Program Studies Service. <https://www2.ed.gov/rschstat/eval/highered/racial-diversity/state-racial-diversity-workforce.pdf>
- U.S. Department of Education. (2021a). *Digest of education statistics* (Table 203.50). Institute of Education Sciences, National Center for Education Statistics. https://nces.ed.gov/programs/digest/d21/tables/dt21_203.50.asp
- U.S. Department of Education. (2021b). *Digest of education statistics* (Table 209.10). Institute of Education Sciences, National Center for Education Statistics. https://nces.ed.gov/programs/digest/d20/tables/dt20_209.10.asp?current=yes
- U.S. Department of Education. (2021c). *Digest of education statistics* (Table 330.40). Institute of Education Sciences, National Center for Education Statistics. https://nces.ed.gov/programs/digest/d21/tables/dt21_330.40.asp
- U.S. Department of Education. (2022a). *2021 Title II reports: National teacher preparation data*. <https://title2.ed.gov/Public/DataTools/Tables.aspx>
- U.S. Department of Education. (2022b). *School Pulse Panel (2022–23)*. Institute of Education Sciences, National Center for Education Statistics. <https://ies.ed.gov/schoolsurvey/spp/#tab-4>
- U.S. Department of Education. (2022c). *Teacher shortage areas*. <https://tsa.ed.gov/#/reports>
- U.S. Government Accountability Office. (2018). *K–12 education: Lead testing of school drinking water would benefit from improved federal guidance* (GAO-18-382). <https://www.gao.gov/products/gao-18-382>

- U.S. Government Accountability Office. (2020). *K-12 education: School districts frequently identified multiple building systems needing updates or replacement* (GAO-20-494). <https://www.gao.gov/products/gao-20-494>
- Valenzuela, A. (2017). *Grow Your Own educator programs: A review of the literature with an emphasis on equity-based approaches*. Intercultural Development Research Association. <https://eric.ed.gov/?id=ED582731>
- Villar, A., & Strong, M. (2007). Is mentoring worth the money? A benefit-cost analysis and five-year rate of return of a comprehensive mentoring program for beginning teachers. *ERS Spectrum*, Summer, 25. https://www.researchgate.net/publication/228653979_Is_mentoring_worth_the_money_A_benefit-cost_analysis_and_five-year_rate_of_return_of_a_comprehensive_mentoring_program_for_beginning_teachers
- Willgerodt, M. A., Brock, D. M., & Maughan, E. D. (2018). Public school nursing practice in the United States. *Journal of School Nursing*, 34(3), 232-244. <https://doi.org/10.1177/1059840517752456>
- Wright, T. E., & Smith, N. J. (2015). A safer place? LGBT educators, school climate, and implications for administrators. *The Educational Forum*, 79(4), 394-407. <https://doi.org/10.1080/00131725.2015.1068901>
- Wright, T. E., Smith, N. J., & Whitney, E. (2019). LGBT educators' perceptions of safety and support and implications for equity-oriented school leaders. *Journal of Educational Leadership and Policy Studies*, 3(2). <https://eric.ed.gov/?id=EJ1233796>
- Zamarro, G., Camp, A., Fuchsman, D., & McGee, J. B. (2022). *Understanding how COVID-19 has changed teachers' chances of remaining in the classroom* (EdWorkingPaper 22-542). Annenberg Institute at Brown University. <https://www.edworkingpapers.com/ai22-542>

