

Special Issue  
Understanding and Solving Teacher Shortages:  
Policy Strategies for a Strong Profession

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**Breaking the Cycle of Teacher Shortages:  
What Kind of Policies Can Make a Difference?**

*Linda Darling-Hammond*



*Anne Podolsky*

Learning Policy Institute  
United States

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<http://dx.doi.org/10.14507/epaa.27.4633> This article is part of the special issue, *Understanding and Solving Teacher Shortages: Policy Strategies for a Strong Profession*, guest edited by Linda Darling-Hammond and Anne Podolsky.

**Abstract:** Teacher shortages have recurred in the United States over many decades. This article introduces a special issue of *EPAA* that seeks to better understand the factors that contribute to the insufficient supply and inequitable distribution of qualified teachers, as well as the recurrences of teacher shortages. Together, the six articles in this issue help provide an empirical understanding of the current state of the supply, demand, and distribution of America's public school teachers. This lead article provides an overview of the current status of teaching in the U.S. and outlines the volume's findings about the key contributors to teacher supply, demand, and shortages of qualified

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teachers; the subject areas and locations in need of teachers; the determinants of high turnover for particular types of teachers; promising policies to recruit and keep teachers; and states' attention to these policies. We hope the findings from this volume enable a better understanding of the obstacles and solutions to providing all students with high-quality teachers.

**Keywords:** teacher shortages; teacher supply; teacher demand; attrition; teacher quality

### **Deteniendo el ciclo de escasez de maestros: ¿Qué tipo de políticas pueden marcar la diferencia?**

**Resumen:** La escasez de maestros se ha repetido en los Estados Unidos durante muchas décadas. Este artículo presenta un número especial de EPAA que busca comprender mejor los factores que contribuyen a la oferta insuficiente y la distribución desigual de docentes calificados, así como las recurrencias de la escasez de docentes. Juntos, los seis artículos en este número ayudan a proporcionar una comprensión empírica del estado actual de la oferta, la demanda y la distribución de los maestros de escuelas públicas de los Estados Unidos. Este artículo principal proporciona una descripción general del estado actual de la enseñanza en los Estados Unidos y describe los resultados del volumen sobre los contribuyentes clave a la oferta, demanda y escasez de maestros calificados; las áreas temáticas y los lugares que necesitan maestros; los determinantes de la alta rotación para tipos particulares de maestros; políticas prometedoras para reclutar y mantener maestros; y la atención de los estados a estas políticas. Esperamos que los resultados de este volumen permitan una mejor comprensión de los obstáculos y soluciones para proporcionar a todos los estudiantes maestros de alta calidad.

**Palabras clave:** escasez de maestros; oferta de maestros; demanda de maestros; calidad de los maestros; atrición

### **Terminando o ciclo de escassez de professores: Que tipo de políticas podem fazer a diferença?**

**Resumo:** A escassez de professores vem ocorrendo nos Estados Unidos ao longo de muitas décadas. Este artigo apresenta uma edição especial da EPAA que procura entender melhor os fatores que contribuem para a oferta insuficiente e a distribuição desigual de professores qualificados, bem como as recorrências de falta de professores. Juntos, os seis artigos desta edição ajudam a fornecer uma compreensão empírica do estado atual da oferta, demanda e distribuição dos professores das escolas públicas dos Estados Unidos. Este artigo principal fornece uma visão geral da situação atual do ensino nos EUA e descreve as descobertas do volume sobre os principais contribuintes para a oferta, a demanda e a escassez de professores qualificados; as áreas temáticas e locais que necessitam de professores; os determinantes da alta rotatividade para tipos específicos de professores; políticas promissoras para recrutar e manter professores; e declara a atenção para essas políticas. Esperamos que os resultados deste volume permitam uma melhor compreensão dos obstáculos e soluções para fornecer a todos os alunos professores de alta qualidade.

**Keywords:** escassez de professores; oferta de professores; demanda de professores; qualidade do professor; atrito

## Introduction

Last week and this week, two of my teachers were out almost the whole week. Today, I had no teacher for my last period, and that period is Civics...My Civics teacher left in almost the middle of the year because she got a better job in another parish.

– New Orleans High School Student (NAACP, 2017).

As this recent quote from a New Orleans high school student illustrates, not every student in the United States experiences a stable, high-quality teaching force. In fact, over many decades, hundreds of thousands of U.S. students have attended schools where teacher turnover is high, many teachers are underprepared for their teaching assignments, and the inability to find teachers results in large classes or cancelled courses.

These conditions are in part the result of recurring teacher shortages, which have occurred in frequent waves since at least the 1930s, and in part the result of inadequate funding in under-resourced schools that offer low salaries and poor working conditions, a side-effect of the unequal funding systems for education in most states. These conditions are most common in schools serving children of color living in communities of concentrated poverty (Darling-Hammond, 2010).

This special issue of *Educational Policy Analysis Archives* addresses the current wave of teacher shortages, which became obvious in 2015 and has deepened in the several years since. By 2016, more than 40 states were reporting severe shortages in subject areas like mathematics, science, and special education, and many states were hiring substitutes and individuals without teaching credentials by the thousands in states ranging from Arizona, California, Oklahoma, and Utah to Florida, North Carolina, and South Carolina. Two-thirds of districts surveyed by the American Association for Employment in Education (AAEE) reported as a “big challenge” finding enough candidates for open positions—rates double those of a few years earlier.

A team of researchers at the Learning Policy Institute set out to find out why districts were reporting these difficulties when teachers were being laid off only a few years earlier. We titled the first study, “A Coming Crisis in Teaching?” with a question mark denoting that what feels like a crisis in many states may be resolved by policies states and districts enact to boost supply and reduce attrition. We modeled supply, demand, and turnover from national data, and examined evidence of shortages across the states.

We defined shortages as an inadequate quantity of qualified individuals willing to offer their services for available jobs under prevailing wages and conditions. We defined qualifications according to state requirements for teacher certification or licensure, which evaluate preparation to teach in terms of exposure to particular bodies of content and pedagogical knowledge, as well as passage of licensure tests—often in basic skills, subject matter knowledge, and pedagogy or teaching performance. From this perspective, the key issue is not whether there are enough warm bodies to enter teaching, but whether there are enough qualified individuals, by state’s licensure standards, willing to offer their services in the specific fields and locations that currently lack an adequate supply—and whether sufficiency of supply can be achieved solely in response to the market, or will require policy interventions.

A series of studies followed, some of which are represented in this special issue, along with research by others who have been examining these issues. We offer a set of six articles, including this one, that together examine the size and extent of the shortages; their sources (with a special focus on teacher attrition, which currently accounts for nearly 90% of annual hiring); and potential solutions found effective in previous research. One article examines the particular case of recruiting

and retaining teachers of color, whom recent research identifies as particularly important for the achievement of students of color. A final piece looks ahead at how states are intending to respond to teacher shortages and the unequal distribution of qualified teachers in their plans for educator equity under the Every Student Succeeds Act. A substantial body of literature on teacher supply, demand, quality, and turnover is reviewed in the course of these articles, offering the reader a framework for understanding the field. The intention is to strengthen our collective understanding of teacher shortages as an initial step to eventually solving them.

## **The Current Status of Teaching in the United States**

An important part of the story of teacher shortages is that teaching conditions in the United States have deteriorated over the last decade and currently compare poorly with those of other nations. Unlike teachers in many Organization for Economic Co-operation and Development (OECD) countries whose salaries are, on average, comparable to those of other college graduates, U.S. teachers are, on average, paid 30% less than other college graduates (OECD, 2017). Indeed, in 30 states, the average teacher heading a family of four qualifies for several forms of government assistance (Boser & Straus, 2014). The children of teachers can themselves be on food stamps at home and free lunch at school. U.S. teachers' wages have declined relative to those of other college-educated workers since the early 1990s, when they were at their most competitive—and when teacher attrition was much lower than it is today (Allegretto & Mishel, 2016).

Furthermore, U.S. teachers teach the greatest number of hours per week of countries and have among the lowest number of hours for planning. They also have above-average class sizes, by international standards, and teach more low-income students than teachers in the other higher-achieving OECD countries (OECD, 2014). This is because child poverty, food insecurity, and homelessness in the U.S. have climbed to the highest levels in the industrialized world: Nearly 1 in 4 American children live in poverty and 1 in 30 are homeless (American Institutes for Research, 2019; National Center for Children in Poverty, 2019).

Exacerbating inequalities, the salaries that teachers can expect are often lowest in the urban and poor rural school districts serving the most disadvantaged students with the greatest educational needs (Adamson & Darling-Hammond, 2012). And the supports teachers receive in the critical first years of teaching—both mentoring and physical supports like adequate classrooms, materials, and supplies—are much less available in poorer districts, which then suffer greater turnover and must continually recruit greater numbers of teachers.

Meanwhile, during the Great Recession, beginning in 2007, states made deep cuts to their education budgets. Even a decade later, several years after the recovery began, most are still providing fewer school dollars per student than they had in 2008, according to the Center on Budget and Policy Priorities (Leachman, 2017). Salaries were often frozen; mentoring programs were cut; service scholarships for training were eliminated; and professional development supports were reduced. Budget cuts also led to teacher layoffs; reductions in support personnel such as counselors, librarians, and instructional specialists; larger class sizes; narrowed curriculum; and less investment in books, materials, supplies, computers, and other school equipment.

As schools have been left with fewer resources to address growing student needs, the result has been growing turnover and unrest in the teaching profession. Signs from recent teacher strikes in West Virginia, Oklahoma, and Kentucky—some of them carried by parents and students—reflected the issues many experience:

*Speed limit 35. Not class size.*

*Do the math: 28 seats, 44 students, 89°, 0 books. CPS classroom.*

*Teacher working conditions are student learning conditions.*

Deteriorating school conditions in many communities exacerbate the problems of attracting and retaining teachers. As middle school teachers from recent focus groups in North Carolina explained:

*They try to address it, but unfortunately, funding is not there—that's what we are told. For instance...we don't have textbooks, we need to make copies of reading selections to teach those kids. We only get like 1,500 copies per nine weeks...we [use] our own money, we have to buy cartridges for our printers to print this.*

*I know people who have worked gas stations at night, and teach all day. [I]f I didn't coach those three sports and get extra money from that, I'd have to go work another job.*

*I don't [see myself here in five years or in the profession]...because we're a household of two teachers. It's just not feasible money-wise for both of us to teach.*

When recruitment is difficult, many children are taught by individuals who have not completed – or often even started – preparation for teaching. Study after study finds that children from lower income families and students of color are the most likely to be taught by inexperienced and underprepared teachers (Betts et al., 2000; Boyd et al. 2008; Goldhaber et al., 2015; Sass et al., 2012), and these are the children who rely most upon schools for their success (Clotfelter et al., 2006; Rivkin et al., 2005; Rockoff, 2004).

These inequities are, in part, a function of how public education is funded in the United States. In most cases, education costs are supported primarily by local property taxes, along with state grants-in-aid that are somewhat equalizing but typically not sufficient to close the gaps caused by differences in local property values. In many states, the wealthiest districts spend two to three times what the poorest districts can spend per pupil, differentials that translate into dramatically different salaries for educators, as well as different learning conditions for students (Adamson & Darling-Hammond, 2012).

Furthermore, the wealthiest states spend about three times what the poorer states spend (Baker et al., 2017). So the advantages available to children in the wealthiest communities of high-spending and high-achieving states such as Connecticut, Massachusetts, New Jersey, and Vermont are dramatically different than the schooling experiences of those in the poorest communities of low-spending states such as Arizona, Nevada, and North Carolina, where buildings are often crumbling, classes are overcrowded, instructional materials are often absent, and staff are often transient.

This variability suggests another key aspect of the landscape: As this [interactive map](#) shows, some states and communities with strong financial commitments to education, reasonable salaries, and good working conditions experience little turnover and encounter much less difficulty in filling vacancies. Thus, they rarely hire teachers who are inexperienced and untrained. However, even high-achieving states differ in their ability or willingness to create conditions that will distribute teachers equitably across districts serving different kinds of students.

## This Special Issue

The goal of this special issue is to provide an empirical understanding of the current state of the supply, demand, and distribution of America's public school teachers. Together, the articles in this volume identify the key contributors to teacher supply, demand, and shortages of qualified teachers; the subject areas and locations in need of teachers; the determinants of high turnover for particular types of teachers; promising policies to recruit and keep teachers; and states' attention to these policies. These articles primarily rely on nationally representative data collected by the U.S. Department of Education. In addition, they synthesize relevant literature and review examples of state and local policies aimed at influencing teachers' career decisions.

This research is critical in light of debates about the prevalence of teacher shortages and the multitude of policies aimed at alleviating shortages. While most states and districts report struggling to find qualified teachers, some commentators claim that shortages are overblown (see, e.g., Biggs, 2015; Malkus, 2015; Walsh, 2016). Others worry that concerns about widespread teacher shortages and turnover could lead to what they view as short-sighted policy solutions, such as "too many ... generic efforts to boost teacher retention, like districtwide pay increases," rather than more targeted bonuses only to teachers in certain fields (Aldeman, 2017). In an opinion piece in *The 74*, Mike Antonucci (2017) suggested that publicizing teacher turnover rates is a "frightening" scare tactic and protested "generic solutions" such as general pay raises for teachers. Antonucci also pointed to the National Council on Teaching Quality's (NCTQ) efforts to rebut teacher shortages. NCTQ at one point claimed the shortages must be a fiction, largely because the size of the teaching force is growing again (NCTQ, 2017). Indeed it is because the teaching force is growing again and qualified individuals cannot be found to fill the new positions that we are experiencing shortages.

Answers to these kinds of questions require evidence both about the facts of supply and demand and about the previous success of different kinds of strategies for addressing recruitment and retention in different contexts. The lack of empirical grounding in policy conversations often contributes to often ill-informed solutions that do little to stem teacher churn or to improve student learning and achievement in the long run.

### Teacher Supply & Demand

The first article in this volume, "Understanding Teacher Shortages: An Analysis of Teacher Supply and Demand in the United States," by Leib Sutchter, Linda Darling-Hammond, and Desiree Carver-Thomas provides a comprehensive overview of U.S. teacher supply and demand, modeling trends using a set of national data bases providing data on teacher education enrollments, entry rates, teacher turnover, and qualifications of those hired. The authors find that the demand for new teachers has significantly increased due to: (1) increases in student enrollments, (2) efforts to return to pre-recession course offerings and class sizes, and (3) high teacher attrition, which is the largest component of annual demand. Meanwhile, supply of teachers has declined due to declines in teacher preparation enrollments as well as lower re-entry rates of those who have left the profession. They estimate the size of the current shortages at about 100,000 annually—a number that has since been confirmed by collection of teacher workforce data from individual states about the numbers of teachers uncertified for the positions they are filling – and illustrate the potential size of the shortage in future years, absent policy changes that could redirect current trends. Their analysis shows that teacher shortages vary by subject, location, and student population, and therefore require tailored policies to address the unique needs of each context.

## **Teacher Attrition**

In the next article, “The Trouble with Teacher Turnover: How Teacher Attrition Affects Students and Schools,” Desiree Carver-Thomas and Linda Darling-Hammond closely examine a major contributor to shortages of teachers: the attrition of approximately 8% of America’s public school teachers who leave the profession every year, while another 8% of teachers move between schools annually, which is disruptive to the students and schools they leave behind. Attrition from the profession currently accounts for about 90% of the annual demand for teachers, and is about double the teacher leaving rates of countries like Canada, Finland, and Singapore. The authors show that more than two-thirds of teachers leave for reasons other than retirement, most of them citing dissatisfaction with different aspects of teaching that are amenable to policy intervention, including accountability policies, lack of administrative support, and lack of opportunity for decision making input and collaboration.

U.S. teachers did not always leave the profession at such high rates: In 1992, only 5.1% of teachers left the profession. This was at a time when teachers’ salaries were most closely comparable to those of other professions. Attrition rates below 5% still pertain in some states, largely in New England, where salaries and working conditions remain strong, while teachers in the south and southwest leave the profession at much higher rates. Teachers who enter the profession through alternative certification pathways leave at rates about 25% higher than traditionally prepared teachers, even after the characteristics of their schools and students are controlled.

Teachers also leave schools with higher proportions of students of color and lower-income students, which tend to have lower salaries and poorer working conditions. In addition, teachers of color are more likely to leave the profession early, in part because they disproportionately teach in high-minority, lower-income schools, and they are more likely to enter teaching without having completed training. Higher turnover is also found among teachers in shortage areas, such as mathematics, science, special education, English language development, and world languages.

Failure to effectively address teacher turnover is costly, both in terms of dollars and student learning. Teacher turnover is expensive, with estimates that it can cost an urban school district over \$20,000 to replace a teacher who leaves. And importantly, high rates of turnover at the school level reduce student achievement while preventing the gains in effectiveness that can accompany teacher experience, especially when a collegial workplace supports ongoing teacher learning (Kini & Podolsky, 2016).

## **Recruitment and Retention of Minority Teachers**

Richard Ingersoll, Henry May, and Gregory Collins focus specifically on the supply and demand of minority teachers, because of the persistent gap between the percent of minority students and the percent of minority teachers in the US. This gap is important because minority teachers provide role models for all students and they have been shown to positively influence the achievement of both minority and non-minority students. Using data from the 1980s to 2013, the authors find that the teaching workforce has grown more diverse since the 1990s, with the number of minority teachers recruited into the teaching force in the U.S. doubling. However, the growth in the minority teaching force has been undermined by high rates of turnover, which are tied to the poorer working conditions and lower salaries in the high-poverty schools in which two-thirds of minority teachers work. In short, creating a diverse teacher workforce requires solving the problems of minority teacher retention as well as recruitment.



## Recruitment and Retention Strategies

Anne Podolsky, Tara Kini, Linda Darling-Hammond, and Joseph Bishop build on the analyses of the teacher labor market from the first three articles in the volume by analyzing additional data on teachers' reasons for quitting their jobs and by summarizing the broader literature on factors that influence teacher recruitment and retention, especially for teachers in hard-to-staff schools—typically schools with high proportions of students from lower-income families and students of color. In addition, the authors review the policy literature to identify district, state, and federal strategies that have been effective at addressing the factors affecting teachers' professional decisions.

They outline strategies that influence teachers' decisions about whether to remain in or leave the classroom, including: increasing compensation through wages and allocations for such costs as housing and college loan forgiveness; improving hiring and school management practices so that teachers are expeditiously evaluated and hired and appropriately assigned; ensuring comprehensive preparation so that teachers are both more effective and more likely to stay in the profession (as well-prepared teachers are two to three times less likely to leave than unprepared teachers); strengthening professional support for early mentoring (which can also double retention rates for beginners) as well as ongoing learning and collegial problem solving; and improving working conditions. Important working conditions supporting retention include opportunities for teachers to professionally collaborate and contribute to decisions, school leadership that supports teachers individually and collectively, providing a collegial environment, and providing sufficient resources for teaching and learning.

## State Policies Supporting Teacher Recruitment and Retention.

Gary Sykes and Kacy Martin look forward at the prospects for change through their review of state plans to address the inequitable distribution of qualified teachers, which were submitted to the U.S. Department of Education in 2015 as required under the Every Student Succeeds Act. Through their analysis of 31 state plans, they find that many state strategies are not targeted to ensure that teachers work in the subject areas, schools, and communities with persistent shortages of qualified teachers. After ranking the quality of state plans and conducting case studies of three high quality plans (in Delaware, Minnesota, and Nevada), they find that higher quality plans seek to address the root causes of the inequitable distribution of teachers. For example, higher quality plans try to remedy inequitable funding schemes that allow wealthier districts to offer higher salaries. Higher quality plans also focus on ways to improve the quality of school leaders in hard-to-staff schools due to principals' significant influence on teachers' working conditions. High-quality state plans also include other evidence-based policies mentioned throughout this volume, like incentivizing teachers to work in high-need schools and subjects by providing increased compensation, such as through scholarships, to teachers who commit to teach in these areas.

## Conclusion

Together, the articles in this special issue provide a starting-off point for policy analysts, policymakers, and practitioners who want to stabilize and strengthen the teacher workforce. They illustrate that addressing teacher shortages is about more than funneling warm bodies into classrooms. Instead, teachers must be recruited, trained, and supported to teach successfully in the specific subject areas, schools, and communities that experience shortages. The persistent shortages in math, science, special education, and world languages that have existed since the 1950s demonstrate that the market does not necessarily resolve these challenges by itself. Instead,



evidence-based policies, like those raised in this volume, are required to alleviate the dearth of qualified teachers in some areas.

That solving shortages is possible is demonstrated by the experiences of high-achieving nations that provide a skilled, stable teaching force in all of their schools—in several cases turning around earlier challenges that they had experienced.<sup>1</sup> In a recent study of five such nations (Darling-Hammond, et al., 2017), the common policies they shared included:

- Equitable funding of schools
- Teacher compensation competitive with other college-educated professions
- High-quality preparation available at little or no cost to entering teachers
- Careful recruitment of candidates with the commitment and dispositions for teaching, as well as academic background
- Readily available support from trained mentors for beginning teachers
- Ongoing time and support for professional learning and collaboration.

A number of these conditions have also been achieved at various points in time in high-achieving states like Connecticut, Massachusetts, New Jersey, and Vermont. The variation in the challenges within the teacher labor market documented in this volume illustrate that the path to strengthening the teacher workforce varies by state, district, and even school. After diagnosing the source of teacher turnover and shortages, state and local policymakers can consider the comprehensive set of policies needed to ensure that every child in every community is taught by a competent, committed teacher. The policies pursued can influence the quality as well as quantity of America's teachers and have long-term impacts on student learning and the future of our nation.

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<sup>1</sup> The nations studied and documented in *Empowered Educators: How High-Performing Systems Shape Teaching Quality Around the World* include: Australia, with a focus on New South Wales and Victoria; Canada, with a focus on Alberta and Ontario; China, with a focus on Shanghai; Finland; and Singapore.

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## About the Authors/Editors

### Linda Darling-Hammond

Learning Policy Institute

[ldh@learningpolicyinstitute.org](mailto:ldh@learningpolicyinstitute.org)

Dr. Linda Darling-Hammond is President of the Learning Policy Institute and Charles E. Ducommun Professor of Education Emeritus at Stanford University. She has conducted extensive research on issues of educator supply, demand, and quality. Among her award-winning publications in this area are *What Matters Most: Teaching for America's Future*; *Teaching as the Learning Profession*; *Powerful Teacher Education*; and *Preparing Teachers for a Changing World: What Teachers Should Learn and Be Able to Do*.

### Anne Podolsky

Learning Policy Institute

[apodolsky@learningpolicyinstitute.org](mailto:apodolsky@learningpolicyinstitute.org)

Anne Podolsky is a Researcher and Policy Analyst at the Learning Policy Institute. Her research focuses on improving educational opportunities and outcomes, especially for students from underserved communities.

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