FOLLOWING THE MONEY

Exploring Residency Funding through the Lens of Economics

Bank Street
College of Education

April 2018

This is a legacy resource that predates our new brand.

In July 2023, *Prepared To Teach* transitioned to be a national organization, independent of our first home at Bank Street College of Education. We are keeping all of our materials available for partners who may find them helpful, but we encourage you to use our **searchable resource hub** to find newer materials that may include updated information.

For the latest updates from *Prepared To Teach*, please visit our website, preparedtoteach.org. There, you can find new resources, see current events, and subscribe to our monthly update.

PREPARED TO TEACH

PREPARED TO TEACH

SUSTAINABLE FUNDING FOR QUALITY TEACHER PREPARATION

ACKNOWLEDGMENTS

The PREPARED TO TEACH team extends its thanks to our colleagues at Bank Street College and across the country for their continued support and partnership. Special thanks to Jeremy Golubcow-Teglasi for his excellent conceptual and editorial support and to Josh Thomases for his leadership since the project's inception.

Gretchen Mills led the graphic design.

Suggested citation: DeMoss, Karen. *Following the Money: Exploring Residency Funding through the Lens of Economics.* New York, NY: Bank Street College, PREPARED TO TEACH, April 2018.

This publication was made possible through a grant from the Joyce Foundation. The statements made and views expressed are solely the responsibility of the authors.

TABLE OF CONTENTS

FIGURES

EXECUTIVE SUMMARY

Ensuring high-quality teacher preparation is not simply a matter of mandating standards for programs. Individual candidates from diverse backgrounds must be able to access high-quality preparation opportunities ***on an equitable and affordable basis*** *if the nation wants diverse, well-qualified teachers for every classroom.*

In our research, PREPARED TO TEACH staff (formerly the Sustainable Funding Project, or SFP) have spoken with both traditional and alternative teacher education programs across the country that embrace high standards for teacher preparation, using residency-style co-teaching placements where candidates work alongside accomplished teachers in P-12 classrooms.

These programs offer promising models for teacher preparation, but often the costs to candidates for their living expenses are not incorporated into program design considerations. Residents often go from co-teaching all day to night shift work to make ends meet; essentially, they work two full-time jobs. The superhuman effort to work nights and double shifts on weekends on top of full-time teaching every day, in addition to coursework, seems a widely accepted rite of passage. We question the wisdom of expecting aspiring teachers—or any professional—to prepare for their career under such circumstances.

Teachers are no different from other professionals who must master the complex interplay between an expanding disciplinary knowledge base and the application of that knowledge to address nuanced situations, no two of which are ever precisely the same. Experiential learning requirements, from 1,500 hours to several years, are part of the licensure process for architects, civil engineers, hairdressers, doctors, and pharmacists. All these fields require candidates to complete substantial experiential learning before being licensed to practice independently.[1] To our knowledge, teaching is the only profession in the United States that allows aspiring entrants to practice independently without full certification and with as little as 15 hours' experience in a classroom.[2]

Without financial supports for experiential learning, economic incentives favor candidates entering the field through fast-track programs that offer immediate employment as teachers of record with full salaries and benefits before individuals are fully certified. Most graduates from these programs teach diverse, high-need, or low-income students; they also leave the field more quickly than teachers entering through other routes, creating a revolving door of new teachers for these students.[3]

Research shows that novice teachers are less effective than their more veteran counterparts,[4] so programs that do not foster retention in the profession contribute to educational inequity and reduce the efficacy of districts' efforts to provide professional development and school improvement initiatives that last beyond a school year. In effect, the nation has an institutionally embedded inequitable distribution of novice and underprepared teachers, directly connected, we believe, to our economic models for teacher preparation.

Among those working to address these issues through residency-style preparation, we have found four types of programs, each carrying a distinct set of economic implications:

> Specialized district programs,
> in which most costs are sustained by the district to design and deliver programs that meet district hiring needs;
>
> Grant incentivized programs,
> in which programs are developed in response to state, federal, and philanthropic funding opportunities;
>
> Unfunded residencies,
> in which higher education redesigns programs using internal resources, but candidates receive no financial support for living expenses; and
>
> Teacher preparation redesign partnerships,
> in which districts and programs work together to more tightly align programs to district needs to be able to fund candidates while they pursue residency work.

Across these models, preparation programs in general seem able to redesign their work in ways that can sustainably support program delivery costs, but candidates' living expenses are rarely addressed through preparation program redesign. Programs make efforts to reduce candidates' financial burdens, particularly for the most financially needy, by piecing together revenue streams from local, state, federal, philanthropic, and institutional sources, including aggressive fundraising to support candidate scholarships. They also often discount tuition and revamp or reduce coursework expectations to relieve debt and scheduling burdens. In district-embedded programs, grants, legislative supports, and internal commitments to fund priority licensure areas or populations often support candidates but are unable to scale because the burden of costs lies in central offices that often face fiscal constraints.

If the nation could remove cost barriers, as alternative certification routes do, the teacher labor market could change dramatically by allowing potentially strong individuals to enter the profession without undue financial stress. Paid, high quality residencies aligned to district staffing needs would solve three core problems in our teacher preparation system:

> Instead of paying to practice, aspiring teachers would be paid to practice.
> Aspiring teachers' debt and work burdens would not have to increase as systems moved to require appropriate clinical practice of all teachers.
>
> Instead of being irrelevant to core school functions, residents would be integral to school staffing.
> Residency preparation sites would become models for effective education, with dedicated aspiring professionals bringing new capacities to help schools improve.
>
> Instead of graduating unprepared to teach, as many new teachers confess they are, new teachers would be well prepared to lead a classroom.
> As with other professions, receiving a license would signal that teachers had the professional capacity to succeed on their own, without "sink or swim" years while learning to teach on the job.

Policymakers can and should prioritize developing funding streams to support candidates in residencies. Funding every newly certified teacher at the modest rate of $20,000 would only cost $3.4 billion, a third of what we spend on Head Start, and less than an a fifth of what we spend on NASA or on farm subsidies.[5] Creating a more tightly linked labor market by incentivizing redesigns of programs to prepare teachers for specific hiring needs could result in fewer teachers needing to be prepared; funding the numbers of new teachers actually hired annually could cost as little as $2 billion a year. These are manageable costs, especially in light of economic analyses that predict replacing low-quality teachers would both save education dollars and generate trillions in the national economy.[6]

Absent new funding streams, policymakers should be more strategic in their uses of existing dollars for teacher preparation and school improvement. Rather than funding "pilot" programs, which typically are developed as add-ons to existing programs, resulting in duplicative structures and costs, dollars should incentivize restructuring resources to maximize efficient use of existing dollars. Such efforts can realize significant cost savings. States could also invest in efforts that develop human capital across the system, such as leading robust networks to learn about promising, sustainable models, creating task forces to strengthen partnerships, and incentivizing resources for candidates to matriculate at high-quality programs that help shift the labor market. All these efforts could support a shift towards high-quality, sustainably funded residencies.

Our nation's children and youth deserve no less than well-prepared teachers, no matter what classroom they enter or what preparation pathway they pursue. To ensure children have the teachers they deserve, aspiring teachers will need economic resources to engage in high-quality preparation programs that include the kind of extended experiential learning that residencies offer.

THE GENESIS OF *FOLLOWING THE MONEY*

Bank Street College established Prepared To Teach (formerly the Sustainable Funding Project, or SFP) to ensure every aspiring teacher can enter the field through high-quality pathways, including financially supported year-long experiential placements, often called "residencies," where teacher candidates work alongside accomplished teachers to build their understanding of and skills for teaching.

Since our founding just two years ago, we have followed national and international research and engaged with teacher preparation programs and districts across the nation to articulate the case for every child having teachers who are certified through high-quality programs that include year-long co-teaching before being hired to teach.[7] We have explored the barriers to entry into quality programs for individual teacher candidates and opportunities for existing dollars to remove those barriers.[8] We have shown how individual principals can creatively use existing school building resources to reap the benefits of comprehensive school improvement, *and* offer a pathway towards transformed teacher preparation.[9]

The intent of our work has been to understand what it might take for systems to adequately finance high-quality preparation for every teacher. Ensuring high-quality preparation is not simply a matter of mandating standards. Individual candidates from diverse backgrounds must be able to access, on an equitable and affordable basis, high-quality programs. The economics of teacher preparation matter if the nation wants diverse, well-qualified teachers for every classroom.[i]

In the United States, though, the system is designed so that costs for teacher preparation are borne almost entirely by those who want to teach. As a result, many candidates cannot afford to enter the field. High-profile residencies recognize that preparation costs impose significant barriers to entering the profession, so their programs offer free or reduced tuition, living stipends, or even full salaries and benefits for aspiring teachers.

It turns out that when cost barriers are removed, the teacher labor market changes dramatically, whether by attracting more candidates into the profession through fast-track programs with salaries and benefits, or by giving candidates the financial supports they need to enroll in strong programs that prepare them to succeed and remain in the profession.[10] Scaling and even maintaining such programs, though, has been considered impossible. Philanthropic and grant dollars don't exist for every aspiring teacher in the nation to cover the $40,000 to $60,000 per-candidate recurring costs these programs typically incur.[11]

[i] The economics of *being* a teacher also matter for the profession, as activism in West Virginia, Kentucky, Oklahoma, and Arizona have once again brought to public consciousness. Though focused on pre-service funding issues, Prepared To Teach wholeheartedly supports efforts to close gender and pay gaps for the educator workforce. Teacher attrition rates and lowered standards for entering the profession are linked to pay disparities. To have a quality education system across the nation, both pre-service and in-service financial issues will need to have cost and benefit structures that make the profession viable
For example, see Desiree Carver-Thomas and Linda Darling-Hammond, "Teacher Turnover: Why It Matters and What We Can Do about It" (Palo Alto, CA: Learning Policy Institute, August 2017), http://bit.ly/2w691jU; Alexia Fernández Campbell, "The West Virginia Teachers Strike Is over. But Oklahoma and Arizona May Be Next.," Vox, March 7, 2018, http://bit.ly/2IqhdOp; E. J. Dionne, "What Striking Teachers Teach Us," Washington Post, April 4, 2018, sec. Opinions, https://www.washingtonpost.com/opinions/what-striking-teachers-teach-us/2018/04/04/92e7446e-3842-11e8-8fd2-49fe3c675a89_story.html.

Prepared To Teach encountered residency programs that appeared to have more sustainable and, potentially, scalable funding models. The genesis of *Following the Money* was our desire to better understand whether their financial approaches might allow quality residencies to scale. We visited eight such programs to learn how they funded their residencies, anticipating we would uncover promising financial practices that would support the spread of quality preparation, including financially supported residencies. Their stories are inspiring in many ways; case studies on the sites we visited will be available later in 2018.

Lessons from these pioneering programs inform the content of this report, but the major takeaway of a cross-site analysis is this: Making more progress on sustainably funding quality teacher preparation will require a better understanding of the economics of teacher preparation. Both programs and aspiring teachers work with a web of costs and resource streams, all of which interact in complicated ways that merit a more nuanced discussion of what it takes to understand how to adequately fund teacher preparation. *Following the Money* offers our first take on this challenge.

What We Know—and Don't Know—about High-Quality Teacher Preparation

The current empirical research on the impact of teacher preparation on teacher quality is inconclusive. Several challenges prevent definitive statements about which teacher preparation programs or practices might be preferable. For example, some studies rely on non-standardized achievement outcomes; others use standardized achievement scores, which are not available for every grade and subject; still others include teachers' evaluations, survey responses, or longevity in the field as outcome measures. When studies use multiple measures, positive effects in one domain are not necessarily borne out in other domains.[12] When studies find statistically significant differences, the practical importance of those differences are often negligible.[13]

In addition, variability in school contexts, student demographics and achievement, and state and district policies can compromise the generalizability of individual studies. Because sample sizes are often small, and because many studies are focused on specialized programs, both selection effects and large standard errors can make interpretations tenuous. In fact, as is the case with most education research, variation within programs is often larger than variation between programs.[14] Because most quantitative teacher preparation research uses program type—alternative or traditional—as the basis for analytic comparisons, the vast differences within these program types can confound findings.[15]

The complicated nature of teacher preparation research affects debates about optimal program designs. For example, alternative preparation pathways include programs such as Teach for America (TFA), which has a highly selective admissions process, and hundreds of other programs that might or might not have any selection processes beyond candidates' holding a degree and passing background checks. If studies include TFA programs along with other alternative models, the TFA outcomes, which are difficult to separate from selection effects, can buoy effects from other alternative programs.[16] Similarly, the wide range of both within- and between-program differences in traditional pathways can mask both positive and negative impacts of individual traditional programs.[17] In sum, causal inferences on teacher preparation are, by and large, unwarranted given our current knowledge base.[18]

When outcomes of interest are test scores, claims for residency-based teacher preparation are open to the same kind of scrutiny that other teacher preparation research faces. While most rigorous studies have documented positive achievement impacts of residencies, with some exceptions in STEM subjects, achievement findings do not point conclusively to residencies. Beyond achievement, however, residencies are universally documented to increase retention of teachers, in particular in high-need schools and districts.[19] Because teacher experience is associated with improved teacher quality, retention is a valuable outcome measure, offering directional guidance for teacher preparation policy to facilitate residencies where possible.[20] New teachers, principals, and education faculty all recommend more clinical practice as a way to improve teacher preparation.[21] Lessons from other countries and professions also indicate the likely value of increased clinical practice before leading a classroom.[22] For these reasons, Prepared To Teach works to find ways to address the economic disincentives for longer clinical practice before teachers take on the responsibility of their own classrooms.

THE ECONOMICS OF BECOMING A PROFESSIONAL

Across the globe, those who enter professions anticipate economic stability and respectable social standing in comparison to many others in their communities. In return, professionals pledge to serve society with integrity, holding themselves to high standards for practice, learning, and reflection to enable them to better support those whom they serve.[23]

For individuals pursuing professions in the United States, costs to enter a chosen field can be high. Both costs for degrees and opportunity costs of time spent in supervised practice affect the economics of entering a field.

Direct Costs to the Individual for Higher Education

Paying for college in the United States is increasingly difficult for all but the most privileged. Student debt, largely accepted as a necessity to earn a college degree, reached such a crisis level that President Obama in 2015 proposed free community college across the nation. Senator Bernie Sanders stumped heavily on college costs during his presidential run in 2016. Now, what not long ago seemed a dream is increasingly a reality: Over a dozen states offer free community college tuition, and New York has tuition-free undergraduate degrees, reclaiming a tradition that City University of New York and California's public universities historically embraced but gave up decades ago.[24]

Lowering tuition burdens will doubtless ease the financial struggles of future graduates, but undergraduate tuition is only part of the financial picture. Living expenses while in school account for more than half the price of getting a degree.[25] Despite pressures to do well academically, 70% of college students work to defray their costs, with 40% of undergraduates and 76% of graduate students clocking more than 30 hours a week, largely in low-wage jobs.[26] Making ends meet is still difficult. Half of community college students have tenuous housing situations and insufficient food; college students nationwide are increasingly eligible for food stamps.[27] Still, in general, the economic returns to college prove worthwhile. Lifetime earnings more than compensate for the costs of most undergraduate degrees.[ii]

Not all college majors are equally sound economic investments, though. Teaching is a regrettable exception to the rule. Both early childhood and childhood education majors, licensed to teach the nation's youth for the first nine to twelve years of children's lives, are expected to earn less over their lifetimes than a typical graduate from an associate's degree program. Other education majors don't fare much better.[28]

Further, because undergraduate tuition costs are roughly equivalent regardless of one's major, educators are likely to have the same debt burden as peers from their graduating classes. Compared to other fields, since teachers are paid far less, their loan payments require a much higher proportion of their salaries compared to other professionals' take-home pay.[29] Many careers, including teaching, can require graduate study. Additional graduate debt load compounds teachers' disproportionate financial burden.[30]

[ii] Even considering these general positive returns to higher education, student debt remains a national issue that requires better policy solutions. For example, individuals enrolled in for-profit higher education institutions do not have the same patterns of positive returns to their college investments, and they are much more likely to have crippling levels of debt. Also, loan repayment structures require high proportions of graduates' salaries early in their careers, when income levels are typically lower. New graduates with loan debt thus have less financial security. See, e.g., Stephenie Reigg Cellini and Rajeev Darolia, "Different Degrees of Debt: Student Borrowing in the for-Profit, Nonprofit, and Public Sectors" (Brown Center on Education Policy: Brookings, 2016); Jennie H. Woo, "Repayment of Student Loans as of 2015 among 1995–96 and 2003–04 First-Time Beginning Students: First Look," 2015, 91.

What Makes a Career a "Profession"?

Whether teaching is a profession, or even whether "professionalization" of teaching is desirable, is a long-running debate in the United States.

On one side, experts call for teaching to become a more "professionalized" field, with less variability in practice across contexts, more codification of "best practices," and an agreed-upon knowledge base that all teachers should master.[31] Others argue that the contextualized nature of classroom teaching requires individualized relationship-building and decision-making processes, making it impossible to develop strong teachers through training in specialized techniques and practices. They link professionalism to autonomy, arguing for supportive environments where teachers with a deep knowledge and practice base in education can work collaboratively with professional autonomy.[32]

These positions are not mutually exclusive. Educators could easily embrace building a stronger shared knowledge base and more professional autonomy, for example. Other countries do, and they organize teaching in ways that both honor autonomy and support systemic learning and improvement. Their preparation programs require aspiring teachers to have a deep knowledge base and to apply their knowledge in systematic ways through practice alongside accomplished teachers and leaders. Teachers have time each day for collaborative learning and problem-solving, and they are compensated comparable to other professionals. The public trusts educators to bring their professional wisdom to bear on the work of designing policy and improving schools.[33]

In summer of 2005, the American Academy of Arts and Sciences dedicated its journal *Daedelus* to exploring the professions in the United States. The opening article highlighted six principles that separate "professions" from other livelihoods, incorporating aspects of both sides of our national debate on the teaching profession.[34] Teaching aligns with these principles, offering a possible view of the field as a profession that allows for both autonomy and identification of a core body of knowledge, as we attempt to show here:

Service to individuals and society
Educators teach their students so they can contribute to, flourish in, and positively influence society.

A body of knowledge necessary for success
General, content, and culturally-specific and supportive pedagogy; human development; and learning sciences are indispensable for a successful teaching career.

Skills and practices unique to the field
Fostering critical thinking, knowledge development, and interpersonal skills across groups and individuals throughout a developmental trajectory are among a host of skills and practices unique to teaching.

Integrity and adaptability in technical and professional judgments
The changing developmental nature of students in relation to others in a class, coupled with interpersonal and societal opportunities and challenges for making sense of a complex world, requires professional decision-making each moment of every day.

Commitment to learning from practice
Educators regularly explore their practice—through advanced degrees, engaging in learning communities and professional development, and attending conferences.

A professional community responsible for oversight of the field
This principle is perhaps the least representative of teaching in the United States, given that regulatory responsibility for education rests in each of the states, some of which tightly adhere to states' rights to define parameters for the education.[35] In addition, philanthropy has a strong influence on education, as do religion and politics.[36] Still, for teacher preparation in particular, the professional community has embraced responsibility for the field. The American Association of Colleges for Teacher Education (AACTE) fully supports and promotes adoption of teacher candidate performance standards and a unified national accreditation system.[37]

Experiential Requirements, Costs, and Supports for Licensure

The negative economic incentives for attracting and retaining strong teachers generally focus on salaries, whether compared to other professions or in relationship to debt levels. These metrics are important, since compensation affects districts' ability to attract and retain strong teachers.[38]

Another piece of the economic picture is less visible but also crucial for teacher quality: The costs associated with required field-based experiences for becoming a teacher.

Professions such as architecture, civil engineering, pharmacy, teaching, and medicine share a common feature: Their practitioners are expected to use professional judgment to assess unique, complex situations and make ethical, appropriate decisions about the best course of action.[39] To meet that standard, candidates in these fields receive supervised, hands-on experience in a range of settings before being approved to practice on their own. Only through practice can they master the complex interplay between an expanding disciplinary knowledge base and the application of that knowledge to address nuanced situations, no two of which are ever precisely the same. For that reason, licensure requirements for experiential components such as internships or residencies are standard across many professions.

Increasing the intensity, duration, and focus of clinical practice experiences in teacher education has been a goal for decades, and expectations for integrated fieldwork throughout a program of study and for longer full-time, supervised clinical practice continue to rise.[40] Many programs have embraced even higher bars for clinical practice than their states and professional associations require, using residencies to prepare their teachers. Paid residencies, which are common in other nations with strong education systems, have been shown to increase the diversity of the workforce, improve teacher retention, and boost student outcomes, both in residency training sites and in residency-prepared teachers' own classes.[41]

While the profession has been moving towards extended clinical practice, policymakers have proliferated pathways that incentivize entry into teaching with "on-the-job" training. These fast-track programs have a comparatively poor track record of retention, and the students they serve are disproportionately those from low-income or special needs backgrounds, meaning students repeatedly experience the negative effects of having novice teachers. Nevertheless, fast-track programs across the nation allow individuals to receive full salaries and benefits as teachers with as little as 15 hours' observing an actual classroom.[42]

No other field allows aspirants to take on the responsibilities of its profession before having completed all components, including experiential requirements, for their licensure. Under supervision of more senior professionals, architects work for two years and engineers for four before being able to sit for their licensure exams.[43] Pharmacists complete roughly 1,500 hours of internships before they can take certification exams.[44] Physicians, after completing four years of post-baccalaureate medical school, sit for exams in order to qualify for entry into three to seven years of supervised residency practice before being allowed to practice independently.[45] Hairdressers complete 1,500 hours of supervised training on average before being able to sit for licensure exams.[46]

Of course, costs come along with these experiential components. If there is no financial support provided, an aspiring professional could expect an increase in loan debt or a need to take on extra work during full-time experiential placements—both unattractive options. Pressure from mounting debt and reduced capacity to learn because of exhaustion from outside work can lead to negative associations with the profession and less positive outcomes for those the profession serves.

Architecture and civil engineering address the challenge of experiential costs by having an extensive post-baccalaureate system requiring paid work in supervised professional settings, with salaries averaging $45,000-$55,000 a year.[47] Pharmacists average over $14 an hour during their clinical practice.[48] Undergraduate internship salaries on average top $17 an hour.[49] Other fields have found ways to address the costs to enter their professions; education must also.

What do we mean when we say Teacher Residency?

Rethinking How We Use "Residency"

The term "residency" has been applied to clinical practice models that often share no resemblance.

For example, some programs use the term "residency" to signify a quick entry alternative program with strong coaching supports. At the other extreme, we know of schools that hire fully certified teachers as "residents" to co-teach for two years in order to facilitate their induction into the profession. Undergraduate, graduate, alternative, and traditional programs with year-long clinical practice are often called residencies. At the same time, some say that any tradtional program, by definition, cannot be a residency.

Our Working Definition of Residency

From our study of programs across the nation, we believe that quality residency-style preparation generally follows these principles, whether through undergraduate, graduate, alternative, or traditional preparation:

Responsibility for candidates' development as novice professionals is shared by school, district, and program partners.

Candidates develop rich foundational knowledge in content, educational theory and pedagogy as part of their programs.

Candidates do not serve as teachers of record. Rather, they work as co-teachers with an accomplished teacher who has mentoring skills.

Candidates follow the P-12 calendar for full-time clinical placements, generally at least four days a week, experiencing the arc of the school year with a consistent set of students.

Candidates' instructional practice is grounded in research-based principles of learning, such as constructivism and motivation theory, not simply in mastery of techniques.

Candidates' roles in their classrooms are substantive. They help plan, deliver, assess, and reflect on their and their co-teachers' impact on student growth and learning.

Figure 1: A Working Definition of Residencies

Medicine, as far away as it may seem from teaching, offers an instructive example for how teacher preparation might address costs for experiential learning so all new teachers complete clinical practice before being hired to teach. At the beginning of the 20th century, routes to become a physician ranged widely in quality and expectations, just as in teacher preparation today. At the high-quality end was a then-unique medical residency at Johns Hopkins, where aspiring doctors slept in administrative offices of the hospital for years while learning to become expert physicians.[50] At the other extreme were pay-for-certification degrees that functioned as revenue streams for colleges across the nation, much like certificate programs such as border security and wedding planning do today.[51] The patchwork system in medical preparation meant most citizens had underqualified doctors, widely disparaged as "quacks."

Concerted efforts to professionalize medical education became the focus of state and federal policy reforms in the early 20th century. As a result, the nation embraced a set of standards for aspiring doctors, including the medical residency model, creating the most widely adopted physician training approach in the world.[52]

Scaling medical residencies without financial supports would have been impossible, but lowering standards for the profession to address the cost barriers would have defeated the goals of improving medical training. So the field developed residency systems that linked tightly to the

provision of quality medical care. Medical teaching hospitals developed, where aspiring physicians learned to apply their medical knowledge to "bedside" cases as part of care-giving teams. Their roles in hospital care were formally designed into staffing models, allowing them to receive stipends while working full-time under expert supervision.

Over time, stipends for medical interns and residents became part of state and federal support for public health in general. Medical education has developed into a crucial component of the country's medical delivery system, and today the public supports new physicians at the rate of $11.5 billion a year, or nearly half a million dollars for each new doctor who enters the profession.[53]

Obviously, preparing the nation's 20,000 new physicians each year at half a million dollars per new doctor, while expensive, is more manageable than budgeting the same per-candidate cost for the roughly 100,000 new teachers who are hired each year—let alone the many more who train to become teachers but do not pursue careers inside the classroom.

The costs of supporting residency-style teacher preparation, though, would actually be a fraction of the cost for medical preparation, despite the larger numbers of teachers. Public schools do not need the expensive investments in equipment that medical hospitals do. Most one-year residency programs cost between $20,000 and $60,000 per candidate.[iii] In 2015, the number of newly-certified teachers in the nation was 170,000. Funding every one of those potential new teachers would have cost between $3.4 and $10.2 billion.

Not all those individuals became teachers, though. By selecting candidates who are most likely to be committed to teaching and finding ways to link programs more closely to districts' hiring needs, fewer candidates would need to be supported. In the same year, 100,000 of the nation's teacher hires were new teachers, newly certified. At the low end, supporting these future hires would have cost just over $2 billion a year; at the high end, the price tag would have been just over $6 billion.[54] To put such potential expenditures in perspective, the federal government now spends nearly $20 billion a year each for NASA and farm subsidies and half that for Head Start.[55]

Even at the high end, these dollars would be an important investment in the nation's future, given the impact of good teachers on individual children and the economy as a whole. Every additional high school graduate resulting from better teachers would save taxpayers nearly a quarter of a million dollars over his or her lifetime, and ridding the system of the least effective teachers—who also are those most likely to leave the profession quickly and to serve students with the greatest needs, compounding educational inequities—could bring trillions into the economy.[56]

[iii] Although no systematic, public comparable data on expenditures for residency-style preparation exist, Prepared To Teach has worked with programs across the country, providing the project insight into the range of expenditures for residency-style preparation. High-end models we have seen cite service prices at around $60,000 per candidate, including supports for tuition. More common, modestly priced models that only offer living stipend supports range from $10,000 to $20,000 per candidate. Our analyses of funded programs through national grants suggest costs of roughly $48,000 per candidate.

COST AND QUALITY DRIVERS IN TEACHER PREPARATION

The costs behind the price tag for teacher preparation historically have been related to personnel connected to four common certification expectations for candidates:

- Subject area knowledge
- Knowledge of education
- Field-based experiences
- Culminating clinical placements

Most teachers still pursue certification through "traditional" college and university programs that include all four of these components. Coursework costs incorporate field-based and culminating clinical experiences as part of degree programs that lead to certification. Undergraduate education candidates receive bachelor's degrees that include the major components of certification, paid for with undergraduate tuition and fees. Many graduate certification programs also lead to master's degrees, where tuition and fees operate largely as they do for undergraduate programs, though coursework is more tightly focused on knowledge and practice in education, with little to no direct cost for coursework related to subject area knowledge.

Alongside traditional models, individuals today have a range of alternative routes to become certified to teach, with options in higher education, districts, for-profits and non-profits. Cost models can differ widely from traditional course-based approaches. For example, programs might accept standardized test scores as evidence of meeting content or education knowledge expectations rather than providing coursework. Self-paced online modules with automated grading can greatly reduce costs for coursework. Experiential costs can be trimmed, too. Fieldwork, traditionally designed to allow aspiring teachers to develop solid foundations of practice before entering more intensive clinical placements, can be reduced or eliminated. As Figure 2 notes, 21 states allow experiential learning to be waived completely in alternative routes, replacing the traditional requirement with on-the-job training. (See Appendix 1 for state-by-state information.)

How a program chooses to meet certification expectations directly affects costs and can intersect with quality. For example, a program that focuses narrowly on techniques to drive achievement scores in tested areas might be able to more rapidly assess candidates as having mastered a set of techniques and hence certify them more quickly, reducing costs through fewer courses and field experiences. But the absence of broader research

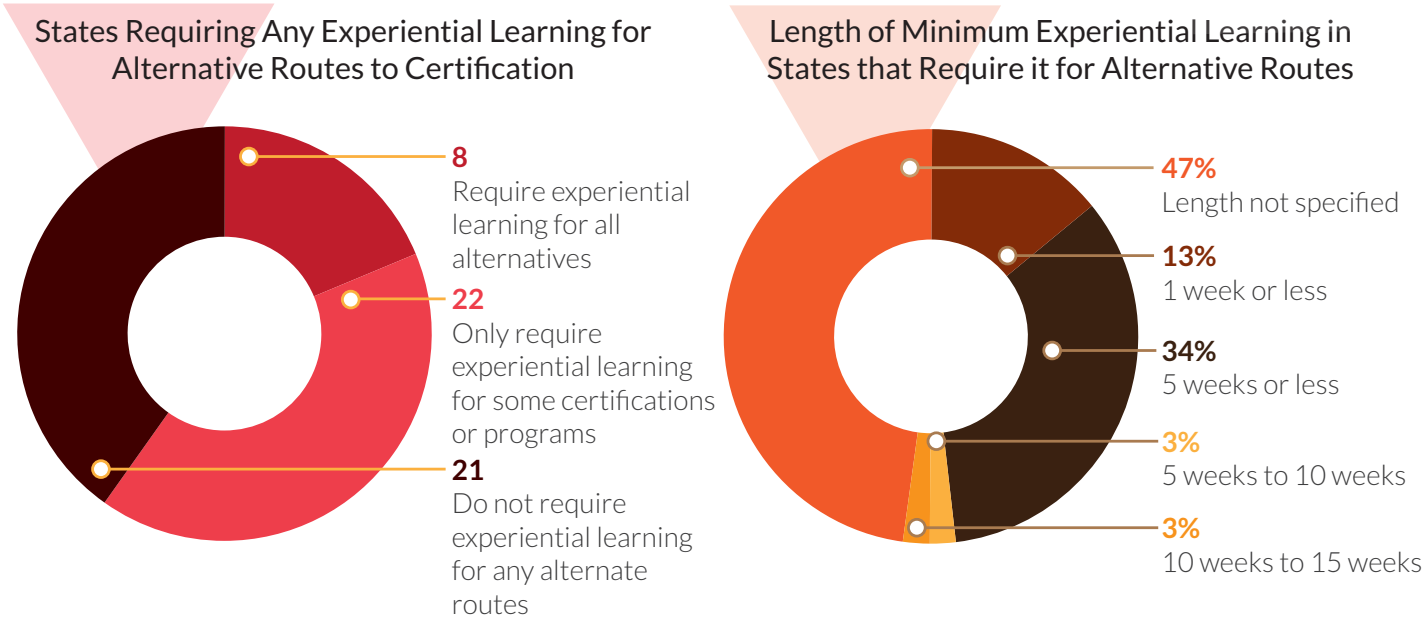


Figure 2: Alternative Licensure and Experiential Learning

Analysis of data from United States Department of Education, Title II Data, https://title2.ed.gov/Public/Home.aspx. "States include the District of Columbia.

and theory on education and how people learn might hinder these candidates' understanding of how to foster students' development. Programs that opt to incorporate the highest-quality knowledge and experiential base might take longer for candidates to complete and, as a result, cost more.

Figure 3 compares four certification options—actual programs from across the nation that represent different pathways candidates might choose to become teachers. Model 1, an undergraduate program, includes certification as part of a degree and only requires one semester of unpaid student teaching instead of a full year of residency. The two master's degree models add $10,000 to $13,000 in additional education debt for a candidate compared to the undergraduate degree; one program also requires an additional year of study. The final model, a fast-track program, allows a candidate to enter the classroom without accruing additional debt before receiving an undergraduate degree and minimal living expenses before earning a full salary.

Absent financial supports from family, scholarships, stipends, or loans, aspiring teachers would have strong economic incentives to opt for model 4 after earning a bachelor's degree, despite possible preferences to earn a degree from a particular institution or to experience a more deliberate and thorough course of study to enter their profession. Undergraduates would have financial incentives to pursue bachelors' programs that might offer alternative employment opportunities with higher pay, knowing they could enter model 4 later if they wanted to teach. In these ways, the economics of teacher preparation link tightly to questions of cost and quality, affecting the preparedness of teachers in classrooms across the nation.

CHOOSING A PATH

Program requirements for different components of preparation vary across models, represented by the charts below.

MODEL 1

Large Public University in the South | Bachelor's degree

$46,000	$74,000	$27,000	4 years
published tuition rate	estimated living expenses	average debt	duration

This traditional undergraduate preparation program admits students during their second year at the university. Admitted students enroll in 4 semesters of professional coursework, including one semester of student teaching.

MODEL 2

Mid-Size Public College in the Mid-Atlantic | Bachelor's & Master's degrees

$81,000	$91,000	$37,000	5 years
published tuition rate	estimated living expenses	average debt	duration

This dual degree program requires admission in the second year of undergraduate studies. Students complete two semesters of student teaching: one for the Bachelor's degree and another for the Master's degree.

MODEL 3

Large Public University in the Pacific Northwest | Master's degree

$34,000	$38,874	$13,000	2 years
published tuition rate	estimated living expenses	additional debt	duration

Students in this program take courses over three semesters, with a single semester student teaching placement. The program works with partner schools to embed some summer courses in a local elementary school.

MODEL 4

Fast-Track in a Southern City | Optional Master's degree

$600	$3,000	$0	6 weeks
total start-up fees	estimated living expenses	additional debt	duration

Aspiring teachers with a degree in any subject area can apply to this fast-track program to become teachers of record the following fall. Preparation consists of six weeks of training in a school with practice-focused workshops, after which teachers start earning a full salary.

Figure 3: Preparation Models

WHO PAYS FOR WHAT IN TEACHER RESIDENCIES

Since residencies require candidates to engage in experiential learning for even longer than traditional student teaching, revenue sources that defray candidates' costs are of particular importance if the nation is going to grow this promising preparation approach and attract strong individuals into teaching.

Beyond funding for candidates, which not every residency provides, instructional costs for courses, mentoring, supervision of field experiences, and a host of other operational features—including everything from leadership to building space to accreditation to recruitment—exist in every program. How those costs get paid and what the dollars buy, though, varies tremendously by program, possibly helping explain conflicting claims we have heard that residencies do not cost more than traditional preparation and that residencies cost much, much more than traditional programs.

We have found that residencies generally fall into four types, each with distinct funding principles.

Specialized district programs

Since at least the 1970s, urban districts have used residency programs to help address hiring needs. These programs typically prepare a few candidates from targeted populations each year for specialized licensure areas or hard-to-staff schools. Candidates are selected to ensure they are a strong match for districts' labor market needs. Funds from districts' budgets, whether from state or local taxes or federal or philanthropic dollars, often sustain the programs. Districts regularly provide tuition for candidates' required certification coursework, raising district expenses for these programs. While many districts have identified some sustainable funding streams, finding enough dollars to grow programs to serve larger populations has proved a challenge.

Incentivized programs

States, districts, the federal government, and foundations have provided hundreds of millions of dollars in grant funds to support the development of residencies. These initiatives are typically constructed outside of existing preparation structures, with separate staffing and program expectations for the cohorts served by the grants. As a result, costs can be high, and programs struggle to remain open after funding is gone.

Unfunded residencies

Some higher education institutions require unpaid residencies in their degree programs, usually at the undergraduate level. Teacher candidates rely on family resources, take out loans, and/or work additional jobs on top of their full-time residencies and coursework to cover living expenses. Extended clinical practice under the guidance of an experienced mentor teacher is valued, but candidates' ability to focus on their learning can be compromised, and those from lower socioeconomic backgrounds can find themselves precluded from the opportunity for residency-style preparation. Leaders of such programs have found ways to fund program delivery, but not candidate stipends, by shifting how the entire college uses resources.

Teacher preparation redesign partnerships

Across the country, often with the support of staff at Prepared To Teach, preparation programs and district partners have begun to adapt design principles used in medical training. Programs are redesigning coursework and certification offerings to more closely meet district hiring needs and school improvement goals, resulting in cost savings for districts through embedded professional development, improved teacher retention, and reduction in student remediation costs. Districts are redesigning staffing to support resident stipends. Start-up dollars often help fund the change initiatives, but sustainable funding can be built into planning from the start.

Where the Money Comes From

Understanding what the whole cost of a residency program might be requires more than budget sheets. Many revenue streams that support residencies are not accounted for as part of residency programs' official budgets. While programs can produce expenditure records for grants and stand-alone residencies, those figures rarely capture the full picture of program expenses and candidate supports. For example, scholarships almost never show up as connected to the residency but are common for many candidates. Cost centers like fundraising and public relations, which can be quite large for some programs, are generally seen as separate from program delivery and are frequently funded through revenue streams not attached to the program budget. Such realities make understanding the true set of resources that support a residency program a challenge—and comparing across programs even more difficult.

Regardless of the program type, though, residencies have a common set of revenue streams from donors and taxpayers that support the costs of their programs. Each source offers benefits for program development and/or continuation; some also carry inherent challenges for program stability and overall costs.

Discretionary governmental grants

State and federal grants targeted for residencies are widespread but usually designed as short-term dollars. Some discretionary grants, such as AmeriCorps, are not specifically targeted for teacher preparation, but residencies have been able to draw on the dollars to support candidates.[57]

Governmental grants can be large, but funding is anything but guaranteed, both for individual programs and of the funding streams themselves.[58] Programs developed through these sources often face closure at the end of the grant period. Sometimes, programs attempt to re-brand themselves as grants are ending so they are eligible to apply for a new round of funding for a slightly revised residency—perhaps, for example, focused on a different licensure area.

Grants are often conceived of and written by one "side" of a partnership, whether higher education or districts. As a result, initial proposals might inadvertently privilege one group over another, such as funding either candidates or mentors through the grant—but not both. How original grants are

written can influence the vision for residency possibilities, with ramifications for program design lasting years after the grant ends.

Philanthropic supports

Philanthropic gifts have had a strong impact on residency development, with funds flowing to districts, traditional programs, and alternative providers in the sector. Often carrying fewer constraints than state or federal sources, philanthropic dollars have enabled many programs to open—and keep open—their doors.

Some philanthropic donors seek broader sector change, hoping to shift "business as usual" in teacher preparation. Residencies with such funding can find themselves dedicating resources to help realize funders' understanding of where the field should move, adding organizational and infrastructure costs. Simultaneously, programs may face pressure to develop new funding streams, adding to their responsibilities.

Some residencies have benefactors, funders with ties to the local community, who support programs with recurring dollars, usually designated to support students. Building a pool of good teachers in their localities fits their mission, resulting in modest but stable candidate supports.

Resource reallocation from education budgets

The largest pool of dollars to support residencies comes through reallocation of public dollars already in the education system. The U.S. spends $630 billion annually on P-12 education, over $11,000 per student on average, with around 10 percent coming from the federal government and the remainder split between state and local revenues.[59] Any dollars intended for instructional supports can be reallocated towards residencies.[60]

Federal formula grants, such as the Every Student Succeeds Act (ESSA) and Individuals with Disabilities Education Act (IDEA), distribute dollars through per-student formulae to nearly every school district in the nation to target instructional supports and improvements for specific students. Because residencies are designed in ways that provide personalized instructional supports for students, well-designed programs can access these dollars to support resident stipends, mentor stipends, and even coursework.[61] States and localities also receive dollars distributed through formulae for specific purposes, for example, funds to provide mentoring to novice educators or professional development for teachers. Residency programs have been able to design approaches that braid those resources into their efforts.

Public higher education institutions also receive non-tuition dollars from state governments, and portions of those dollars become part of the budgets for their schools of education. Though state funding formula approaches vary, as do internal college and university budget processes, and state appropriations to higher education have declined dramatically in recent years,[62] deans have been able to design creative course offerings to support district professional development. They also often re-deploy human capital resources so that the goals of stronger preparation meet the staffing and instructional needs of districts. When programs are in public institutions, state tax dollars help fund those efforts.

Since nearly 80% of education budgets are spent on personnel,[63] programs that can tap into existing resources to support residencies often restructure positions—mentors, faculty, substitute teachers, instructional coaches—so that they are part of overall residency program designs. Deeper partnerships and more focused improvements for schools are potential benefits of redesigning how staff work, but partnerships need to share strong visions across all stakeholders to achieve the significant staffing shifts that allow for sustainable funding.

Other governmental dollars

State and federal dollars occasionally support programs through other mechanisms. Earmarks from the legislature for specific programs are not uncommon at state levels, especially for programs that prepare diverse candidates or candidates in high-need areas.[64] The federal government has also provided direct earmarks for teacher preparation in the past.[65] Once an earmark exists, programs have a strong likelihood of continued funding. However, as with discretionary grants, earmarks are not guaranteed, and programs often must dedicate resources to advocate for continued funding.

Discretionary budgets

Although the amounts are generally minimal in comparison with residency program expenditures overall, higher education and districts do find dollars to support portions of the residency program, from cash for students facing transportation emergencies to funds for lunches and snacks. Sources of discretionary budgets vary but can include unrestricted dollars from prior grants or donations, interest on investments, or saved dollars when universities use approaches that allow tuition dollars generated through enrollment to serve as the budget allocation that deans can independently manage.

Tuition

Every residency program we have encountered has some kind of tuition costs, paid for by individuals with personal finances, scholarships, or loans; program grants whether through districts or higher education; district budgets; higher education budgets; or a combination of these sources. How much individual candidates pay for tuition depends on a combination of programmatic supports and personal financial aid packages, which can bring tuition costs down substantially.[66] (Appendix 3 offers a brief discussion of methodological considerations around tuition analyses.) Although critics have sometimes viewed teacher preparation tuition as a "cash cow" for higher education,[67] recent empirical studies from a national sample and from the State of Florida demonstrate that costs to "produce" education majors are in the middle of lists ranking majors by their expense.[68] By way of comparison, engineering is among the high-cost majors that benefit from other programs' tuition, and business is low-cost major that helps support other majors in college.

Colleges often attempt to address tuition cost barriers by "discounting," offering institutional aid that effectively lowers costs to attract strong, diverse candidates to campus. On average, private institutions discount tuition to roughly 55% of their published rates; public institutions discount at a rate of roughly 25%.[69] Institutions often also discount tuition for groups and programs, which is a common practice for residency cohorts, whether the program is an alternative or a traditional pathway. Cohort models create stable enrollment numbers, so institutions are willing to consider reducing tuition for cohorts with cost-effective sizes, generally somewhere between 10 and 20. Programs also regularly offer tuition discounts for district personnel and school staff who support candidates, and they regularly provide free and reduced cost professional development courses for partner schools. District partners also frequently support tuition for specialized programs, and grant-funded programs often provide tuition.

OPPORTUNITIES FOR POLICY AND ACTION

How we define policy problems matters, since those definitions imply the range of policy solutions.[70] *By excluding the cost burden of experiential learning from the definition of the problem of quality teacher preparation, the nation has not addressed the most basic policy needs for the sector.*

Students' financial burdens are a key driver of challenges in improving teacher preparation. Without financial means to support candidates, programs are reluctant to require the kind of high-quality residencies that would ensure every new teacher is well-prepared to teach. The hesitation is understandable. Requiring unpaid residencies would mean more aspiring teachers would respond to the financial incentives of entering teaching through fast-track programs. The high opportunity costs for unpaid residency practice would also likely reduce the diversity of future teachers.

Those who do enroll in unpaid residency programs are often stretched too thin to benefit fully from their experiences. We have heard stories about residents living in their cars or sleeping on friends' couches. Still others literally work themselves sick, ending up in hospitals from exhaustion. We have spoken with residents whose work-school-teaching schedules were so tight that they had only a few minutes to eat each meal and no space in their lives for exercise or recreation. We have heard about aspiring teachers, often those from diverse and non-traditional backgrounds, who had to quit their programs because they could not afford to complete a residency.

From the perspective of those we have spoken with, these are not tales of woe, distressing as they are. They are simply accepted realities of entering teaching through a high-quality professional pathway that includes an unpaid or underpaid residency. The superhuman effort to work nights and double shifts on weekends, on top of full-time teaching every day, with coursework in addition, seems to be widely accepted as a kind of rite of passage. We should not expect aspiring teachers—or any professional—to prepare for their career under such circumstances.

Implications for Funding

While there is much still to learn about the role residencies can play in improving teaching and learning, the emergent knowledge base clearly indicates their promise.[71] As policymakers explore possibilities for growing residencies, they should directly address economic burdens of candidates and incentivize partnerships to use existing resources in new ways that build sustainably fundable residency models.

Strategic Use of Grants to Spur Long-Term Change

Grants have enabled the growth of residency programs, but the tenuous—and often generous—nature of grant funding can create incentives to design expensive, unsustainable programs. The perception that residencies are too expensive to scale is at least partly a function of residencies having developed through grant funding.

Temporary funding is inherently challenging for new program planning since existing programs need to continue if permanent funding does not materialize. As a result, grant-funded residencies often are designed as add-ons, separate from existing structures. To avoid cannibalizing existing programs, residencies often have duplicative costs in personnel, management, and infrastructure. In addition, their typically small size inhibits cost savings from economies of scale.

Grants also often fund pilot program development and delivery rather than long-term systems change. Although grantors may ask applicants how they will sustain the pilots, the bar for sustainability is low. An expressed intent to seek additional dollars from other sources often suffices.

Without focused efforts to rethink current structures, not just to design new programs, grantees cannot engage broader organizational changes needed to create reasonably priced, financially sustainable residencies.

Grantors can support a shift towards sustainable funding by requiring and supporting more intentional planning for sustainability of high-quality residency programs. Prepared To Teach has successfully brought sustainability principles into grant applications by supporting partnerships in longer-term strategic thinking about resource reallocation. Figure 4 illustrates how a consortium of nine higher education institutions across 22 urban and rural districts reduced its projected per-resident cost, including mentor supports, from the national average of $48,000 across the Teacher Quality Partnership grant program, to just over $20,000 in 5 years. By providing sustainability workshops and technical support, and by having higher bars for evidence of sustainability plans, grantors could incentivize resource reallocation planning, building a set of funding models that could be more broadly disseminated.

Create Stable Funding Streams for Quality Residencies

State and federal funding for candidates to pursue certification through strong residency programs should be a priority. Underprepared teachers have high turnover rates. High turnover weakens schools. Weak schools fail students. Human costs to our nation's youth for being undereducated are incalculable. Economic benefits of having effective teachers are estimated to be in the trillions. Reducing the financial burden for learning to teach could change the system.[72]

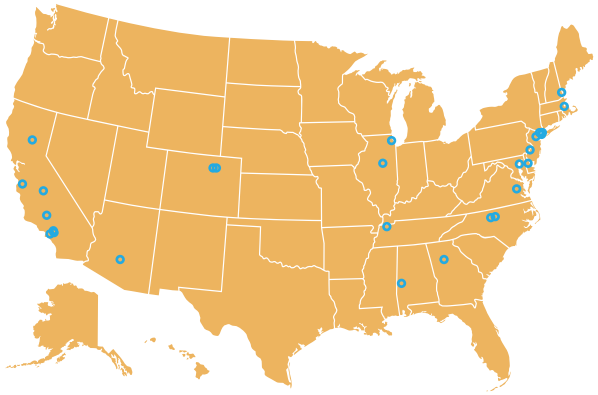
Annual costs of preparing every newly certified and hired teacher through a residency, on the higher side of current residency expenditures with costs per resident around $60,000, would be just over $6 billion a year. Considering the return on investment in the trillions of dollars to the economy that strong teachers provide, that cost would be a defensible federal investment.

It would not, however, cost that much. Costs are more likely to be in the $20,000 to $30,000 range, and district and program redesigns can contribute existing dollars to the residency. Programs that are more tightly linked to hiring needs reduce the numbers of teachers who need to be prepared. Increased retention from graduates of these programs would, over time, reduce the number of teachers needing to be hired. Prepared To Teach has calculated that increased retention could

Funding Quality Programs

Since 2009, the Teacher Quality Partnership (TQP) grant program has funded 68 projects with a total of $560,000,000 for 5-year initiatives to create model urban & rural teacher preparation programs. 22 TQP awards granted in 2014 and 2016 will fund 3,219 new teachers nationwide over five years, averaging $48,196 per resident.

2014 & 2016 Teacher Quality Partnership Award Locations



But estimated costs per resident for these programs vary widely.

Total requests range from $15,000 to $120,000 per resident.

Prepared To Teach worked on a recent federal grant that proposed residency programs at nine different institutes of higher education in eight states. All sites worked with one or more local districts to develop a fully- funded, year-long, pre-service residency for teacher candidates, including training, mentor development, stipends, and tuition considerations. Each site committed to decreasing costs over the five-year grant period and sustaining the program beyond the funding term. The following analysis is drawn from the grant proposal's budget and narrative.

9 institutes of higher education

10 urban school districts

11 rural school districts

74 participating schools

74 average percent FRPL-eligible

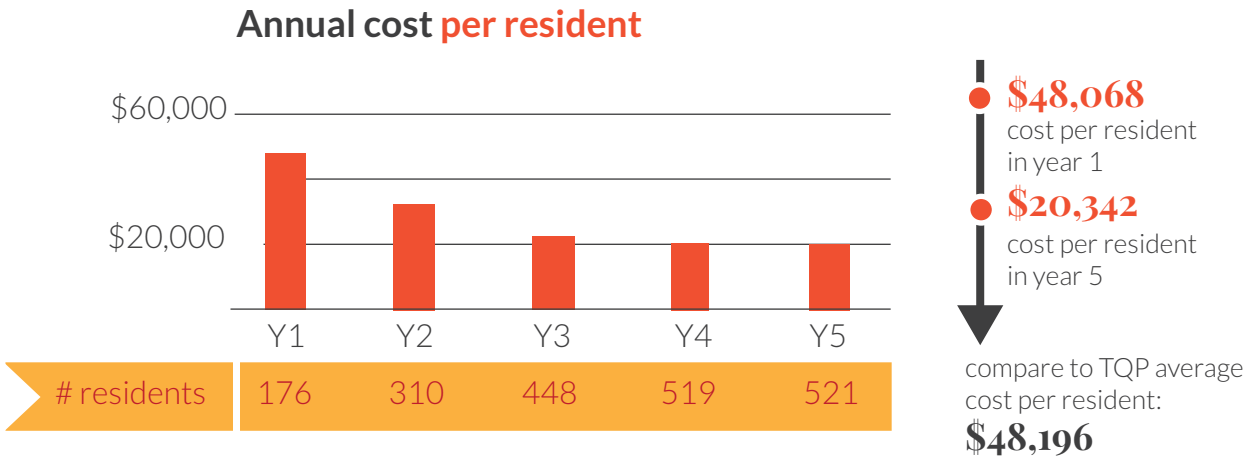


Figure 4: Reducing Costs for Residencies through Program Redesign

reduce annual hiring needs for districts with high turnover by two-thirds. Since fewer teachers would need to be prepared, costs for preparation would be reduced significantly within a few years (See Appendix 1).

Ultimately, policymakers will need to assess whether the right amount of money is being spent on teacher preparation to ensure a quality, diverse teaching force. To answer that question, our preparation systems will need to first guarantee that all candidates have the opportunity to learn to teach through high-quality programs that include strong clinical experiences so teachers are adequately prepared and more likely to stay in the profession. Candidates' financial burdens currently prohibit reaching such a goal.

Government has the power to stop the cycle of candidates pursuing fast-track routes that result in excessive teacher turnover. State and federal policies could define quality preparation in partnership with professionals and commit dollars to funding candidates who matriculate through quality programs.

All candidates could receive living stipends. Those who commit to teaching in high-need certification areas and hard-to-staff schools could also receive forgivable loans, housing vouchers, and other financial incentives, helping mitigate the low economic returns to teaching during crucial early years in the career. Such investments would yield significant returns to communities, states, and the nation.

Opportunities to Encourage System Shifts

Teacher preparation in the U.S. is highly decentralized, and therefore complicated to change. States have legal authority to regulate education within their borders, offering some degree of influence over the sector. In recent years, many have embraced solutions that "disrupt" the traditional system, simultaneously proliferating loosely regulated alternatives to entering the profession while more tightly regulating traditional programs.[73]

In 2002, in the wake of the passage of the No Child Left Behind Act (NCLB), Secretary of Education Rod Paige hailed alternate routes as the "solution" for the nation's "broken system" of teacher preparation, asking states to "seize upon alternate routes to certification as a mechanism for increasing the supply of teachers while maintaining (or improving) their quality. Such routes can also serve as models for the certification system as a whole."[74] Since then, states have seized that opportunity. In 2002, only 8% of all programs were alternatives. Today more than a third are, whether housed in higher education, non-profits, for-profits, or districts.[75] But over the same period of time, alternative routes have lowered requirements for practice before becoming a teacher. Before NCLB, 23% of teachers entering through alternative routes had no practice teaching experience; by 2011, that proportion had reached 40%.[76] In addition to creating a less stable teacher work force because of high turnover from alternatively prepared teachers,[77] the sector is also more fragmented than it has ever been, compounding challenges for lawmakers to create coherent policies that can ensure every student has teachers who are well prepared before they take over a classroom.

Internationally over the same span of time, other nations that developed high-performing education systems, including leaders such as Finland, Singapore, Canada, Shanghai, and Australia, took a dramatically different approach. They worked with educators to create professional standards that embody principles of human development and continuous learning, and they created more rigorous, uniform and well-supported systems for teacher preparation that raised expectations for *every* aspiring teacher, not just those in certain programs.[78]

The National Conference of State Legislatures in *No Time to Lose: How to Build a World-Class Education System State-by-State*, has argued that states can and should take lessons from these international systems.[79] Many countries have education systems of a scale and complexity that resemble individual states, and states hold legal responsibility for providing education to their residents, as is the case in other countries. Beyond investing dollars directly to fund teacher residency planning and candidate supports, states have the power and authority to build vision, change regulations, and create coalitions and supports to forward an agenda for more systemic, high-quality teacher preparation.

Networked Learning to Build the Vision

Building new approaches within our current system will require shifts in culture, knowledge, and practice. To build momentum, disseminate ideas, and learn what works, states should support systematic learning and diffusion of innovation across the P-20 education system.

Networked learning shows promise for residency development. Louisiana held regular statewide conferences to share and learn about residency pilots; two years later, they created new regulations for residency-style preparation for undergraduate education in the state.[80] The California State University (CSU) system, through the New Generation of Educators Initiative, supports residency pilot programs with a similar networked learning model, with a goal of ensuring all CSU graduates experience rich clinical practice.[81] The Colorado Coalition of Residency Educators (CO-CORE) works together to learn together across a range of program models how to scale high-quality teacher residencies.[82]

Supporting such efforts from a state level would not only help disseminate strong innovations but would also offer a window into strong bets for effective policy levers moving forward. States across the nation have residencies, some longstanding, some new. Learning networks, whether structured as professional learning communities, communities of practice, or more formal Networked Improvement Communities (NICs), would help move the field forward through uncharted territory.[83]

Statewide Task Forces on Residencies

Commissions, work groups, and Blue Ribbon Panels that include a range of stakeholder participation have the capacity to help design ways to build sustainably funded teacher residencies. Groups might be tasked with exploring how to address candidates' financial challenges, to develop more authentic P-20 partnerships, or to improve quality across alternative and traditional programs.

When states signal their intention to commit to seriously studying and addressing an issue, reports and recommendations can become change drivers. Maryland has used two Commissions to develop its strategic vision, which helped the state reach top ranking in the nation.[84] New York now regularly uses a professional work group process to recommend state regulatory changes in education.[85] Such groups have the added benefit of creating a network that can help implement changes in the system once recommendations are adopted.

A Linked Labor Market

Residencies are a worthwhile investment for schools and districts regardless of hiring needs. Additional educators in classrooms can improve student outcomes.[86] Elite prep schools regularly employ assistant teachers who offer the kind of full-time classroom support that residents provide.

For most districts, though, funding residencies will require a more tightly linked labor market. If residents intend to work in the district, reflect the communities they serve, and certify in high-need fields, districts have strong incentives to support them financially. Better understandings of certification pathways and hiring patterns could support partnerships in designing more aligned programs; states could facilitate that work through improved data and analytics.

The returns to tightening the labor market could transform education. Prepared To Teach has run cost models exploring whether tighter labor market linkages between preparation programs and districts might allow for full funding of residents. Our analyses indicate that, within 5 years, reallocation of small portions of existing substitute teaching, professional development, and paraprofessional dollars could pay for half of a $15,000 stipend; savings from reduced turnover could pay for the other half (see Appendix 2). Every student could learn with a well-prepared teacher committed to the profession.

When teachers understand how to create safe, supportive, and engaging climates, children and youth build a sense of belonging in the world. When instruction is grounded in pedagogies that challenge and encourage creativity, young minds flourish and develop identities with a sense of curiosity and possibility. When schools understand and respect their communities, parents are partners with their children's educators, reinforcing mindsets and expectations that help their offspring thrive.[87]

The formal study and practical experience needed for teachers to learn how to realize the potential for this broader vision of quality education cannot be sidestepped if we want quality schools. Funded teacher residencies can help us achieve that goal.

We know almost nothing of the impact of financial burdens on teaching, but it is possible, perhaps even likely, that such burdens correlate with individuals' performance as aspiring and practicing teachers. A robust financial burden indicator might explain some of the observed variation within and between teacher preparation programs' quality as measured by graduates' impact on student learning. [88] If this were true, financial supports could have a positive effect on the entire education system by reducing financial stress.

States have legal responsibility for and economic interest in ensuring every child has a quality teacher. To improve teacher preparation, states could frame the role of preparation in the profession broadly, including both costs and more multidimensional learning and behavioral outcomes to understand the benefits that better prepared teachers might bring to students.[89]

Other nations have embraced these kinds of values, to good ends. State leadership seeking to deeply understand how best to use dollars for the public good would doubtless attract the support and interest of educators and researchers, helping build a coalition committed to transformation of the teacher preparation ecosystem.

Appendix 1: State Alternative Certification Policies

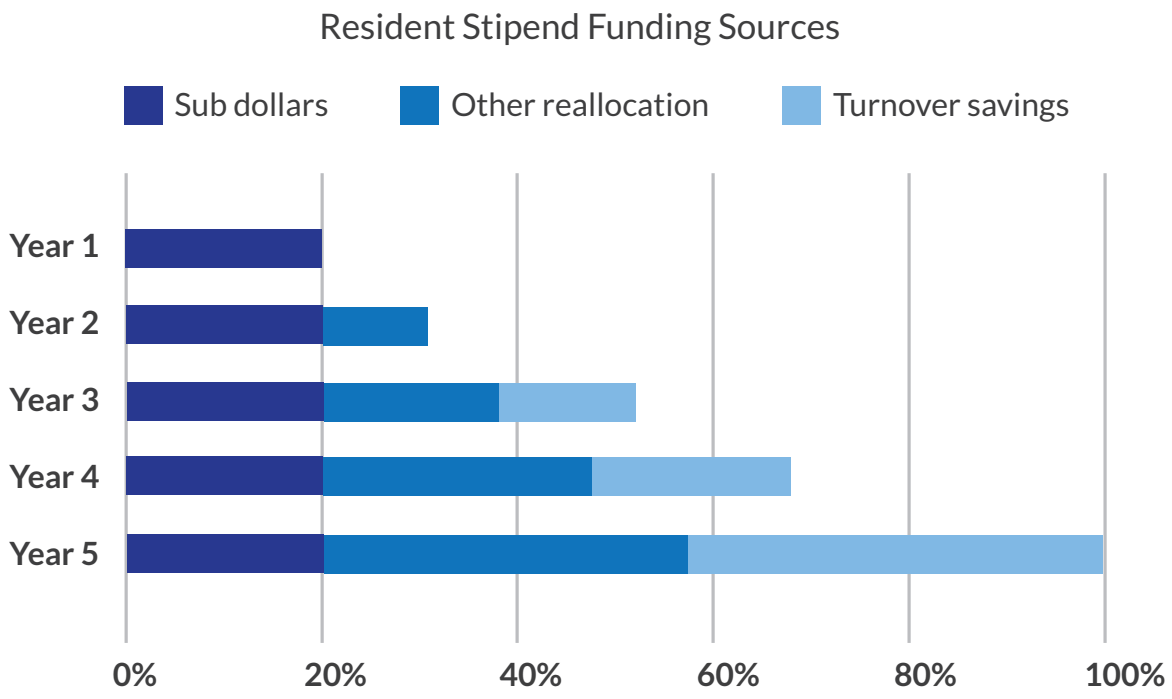
State	Required experiential learning	Minimum when required
Alabama	Partially Required	1 week or less
Alaska	Partially Required	Length not specified
Arizona	Not Required	Not required
Arkansas	Partially Required	1 - 5 weeks
California	Not Required	Not required
Colorado	Not Required	Not required
Connecticut	Partially Required	5 - 10 weeks
Delaware	Required for all	Length not specified
District of Columbia	Partially Required	Length not specified
Florida	Not Required	Not required
Georgia	Not Required	Not required
Hawaii	Partially Required	1 - 5 weeks
Idaho	Partially Required	1 - 5 weeks
Illinois	Not Required	Not required
Indiana	Partially Required	1 - 5 weeks
Iowa	Required for all	1 week or less
Kansas	Required for all	Length not specified
Kentucky	Partially Required	1 - 5 weeks
Louisiana	Not Required	Not required
Maine	Not Required	Not required
Maryland	Required for all	Length not specified
Massachusetts	Required for all	1 - 5 weeks
Michigan	Required for all	Length not specified
Minnesota	Not Required	Not required
Mississippi	Not Required	Not required
Missouri	Not Required	Not required
Montana	Not Required	Not required
Nebraska	Partially Required	Length not specified
Nevada	Not Required	Not required
New Hampshire	Not Required	Not required
New Jersey	Required for all	1 week or less
New Mexico	Partially Required	Length not specified
New York	Partially Required	Length not specified
North Carolina	Partially Required	1 week or less
North Dakota	Not Required	Not required
Ohio	Not Required	Not required
Oklahoma	Not Required	Not required
Oregon	Partially Required	Length not specified
Pennsylvania	Not Required	Not required
Rhode Island	Partially Required	1 - 5 weeks
South Carolina	Partially Required	1 - 5 weeks
South Dakota	Partially Required	1 - 5 weeks
Tennessee	Partially Required	Length not specified
Texas	Not Required	Not required
Utah	Not Required	Not required
Vermont	Partially Required	10 - 15 weeks
Virginia	Partially Required	1 - 5 weeks
Washington	Partially Required	Length not specified
West Virginia	Not Required	Not required
Wisconsin	Required for all	Length not specified
Wyoming	Partially Required	Length not specified

Not required: State does not require experiential learning for any alternate routes
Partially required: Requires experiential learning but only for some alternate routes
Required for all: Requires some form of experiential learning, while the length may not be specified

Appendix 2: Projection Analyses for Retention Trends

PREPARED TO TEACH has explored the potential impact of residency pipelines on the hiring needs of urban districts if programs used residencies to prepare candidates to fill vacancies created by high rates of novice teacher turnover. We developed and applied a model for program growth and funding to six urban districts of varying sizes and geographies, using a combination of national and district data. In each district, our modeling predicted turnover to be reduced by approximately 66% over the course of five years as an increasing number of residents were prepared to meet districts' recurring hiring needs.

Attrition within the districts declines in our modeling because residency-prepared teachers with higher retention rates fill vacancies created by other novice teachers who leave the profession early in their careers. As a result, districts would be able to redirect cost savings from reduced turnover to cover up to about 50% of resident stipends within five to seven years. Districts could even enjoy net savings by using strategic resource reallocation approaches to fund large portions of the stipend costs. Such reallocation methods include the use of substitute teaching dollars and other instructional support and supervision resources, including portions of dollars normally spent on professional development, paraprofessional positions, and tutoring or other supplemental instructional approaches. We have explored some of these resource reallocation methods in depth in our prior reports, *Clearing the Path: Redesigning Teacher Preparation for the Public Good* and *Investing in Residencies, Improving Schools: How Principals Can Fund Better Teaching & Learning.*



Model Overview: Assumptions & Estimates

- **In the first year of the residency program, teacher turnover in a district was estimated at 18%** based on national data reported by NCES for teachers in urban communities;[90] other reported attrition rates range from 12-22%, with turnover in urban districts or in those with high levels of poverty at the higher end of that range.[91]
    - **An inaugural program year would prepare 80 residents, growing the residency by preparing enough new teachers to meet an additional 20% of a district's total needed hires each year.** Over the course of 5 years, the residency program would be projected to meet the vast majority of district hiring needs.

- **Annual early-career (first five years) teacher turnover rate for non-residency prepared teachers was estimated at 22%.**
    - According to a survey of teachers conducted by the U.S. Department of Education, almost a quarter of new public school teachers leave the profession within the first three years.[92] Other research shows that between 40% and 50% of new teachers leave within their first five years.[93] Our assumption draws from the more conservative estimate.

- **Residency programs would target districts' priority hiring areas, where high rates of novice teacher turnover contribute to recurring hiring needs, and 85% of residency-prepared teachers would be assumed to remain in their positions at least five years.**
    - Evaluations of individual residency programs point to their success in raising teacher retention rates, including in urban schools. While data from existing residency programs show retention rates of about 80 – 95% over three years, and 70 – 80% after five years, our model assumes a relatively high rate of 85% given the program model's explicit collaborative approach and focus on school improvement.[94] While higher than the retention outcomes for some residencies, it is more conservative than outcome data from New Visions' residency program in New York City, which found 93% of its completers were still teaching after five years.[95] This model, which shares an explicit focus on partnership and school improvement, is similar to our proposed residency model.
    - Over the course of these 5 years, staff in the district would be more stable and hiring needs from *early career turnover* would be diminished to negligible levels. Vacancies instead would come from standard retirement and relatively low sector turnover due to personal circumstances.
    - After five years, our model indicates that district hiring needs would have declined by approximately two-thirds compared to their recurring vacancies prior to the residency program.
    - In addition, cost savings for reduced turnover accrue as a result of the growing number of residency-prepared teachers replacing underprepared novice teachers.

- **Our estimates of potential turnover savings that would accrue for each resident that replaces a novice teacher begins from an estimated $20,000 turnover cost to schools and districts.[96] Our model, however, takes into consideration that not all of the costs associated with teacher turnover are immediately fungible, scaling up the actual turnover savings over several years, ultimately reaching $17,000 per person after five years.**
    - This estimate includes a range of costs including those associated with separation, recruitment and hiring new teachers, and training replacements. The Learning Policy Institute recently developed and launched a teacher turnover calculator that helps estimate district costs and cites the relevant research on which we also base our models.

Appendix 3: Methodological Considerations Around Tuition

Tuition matters in the economics of teacher preparation. Students now bear a larger portion of the costs of attending college than in years past.[97] Twenty years ago, the average net annual tuition costs in a public institution were 3.2% of the national median salary; today they are 6.8%.[98]

Those costs, though, are not always direct, predictable amounts that candidates pay. Tuition is highly variable within institutions, and tuition sources are an amalgam of funding from individuals, philanthropy, districts, programs, and governments at every level. Tuition also "buys" a range of benefits beyond a teaching certificate, raising several challenges for understanding how to calculate the true tuition costs for any particular teacher preparation program. Our discussions with programs have surfaced a set of methodological questions that merit more exploration as the field grapples with questions of the economics of teacher preparation, in particular as related to tuition.

- Being certified through a master's degree program requires a bachelor's degree.

  Since most states allow undergraduate certification options, should economic analyses of masters-level programs incorporate the prerequisite tuition costs of a bachelor's degree?

- A degree in education provides more than certification. Undergraduates benefit from coursework in electives, liberal arts and sciences, and other disciplines; they are provided counseling, health, and wellness services; they have library privileges; and they enjoy campus life activities. Students at the graduate level also access many services.

  How should broader benefits that tuition provides be parsed out?

- In addition, college degrees confer societal benefits beyond any specific major, with respect to both employment and stature.

  To what degree are tuition dollars buying degrees, not certifications; and how should the benefits of holding higher education degrees be accounted for in terms of tuition costs?

- Some areas of the country are more expensive; their tuition costs are higher. Public institutions can cost a fraction of private institutions' tuition, partly because of state subsidies that private colleges do not receive.

  What controls for economic cost analyses might make the most sense to be able compare program costs across different economic contexts and institutional types?

- A decision to attend a particular college is influenced by perceived quality and actual costs. Candidates who have financial means might choose to attend a high cost school for reasons beyond the residency program.

  How might economic analyses control for individual choices to attend more expensive institutions?

Endnotes

[1] "Hairstylist Training & Education, Program Cost and Licensing," accessed February 27, 2018, https://www.beautyschoolsdirectory.com/faq/hair-stylist#node; "The Basics," NCARB - National Council of Architectural Registration Boards, January 23, 2017, https://www.ncarb.org/become-architect/basics; American Society of Civil Engineers, "Engineer's Guide to Pre-Licensure Experience," n.d.; "Pharmacist Licensing Requirements by State," n.d., https://ilw.com/seminars/june2005_citation3c.pdf; Catherine Dower et al., "Health Policy Brief: Graduate Medical Education" (Health Affairs, August 16, 2012).

[2] Kate Taylor, "Some Charter Schools Can Certify Their Own Teachers, Board Says," *The New York Times*, October 11, 2017, sec. N.Y. / Region, https://www.nytimes.com/2017/10/11/nyregion/suny-charter-schools-teacher-training.html; Leib Sutcher, Linda Darling-Hammond, and Desiree Carver-Thomas, "A Coming Crisis in Teaching? Teacher Supply, Demand, and Shortages in the U.S." (Palo Alto, CA: Learning Policy Institute, September 2016), https://learningpolicyinstitute.org/sites/default/files/product-files/A_Coming_Crisis_in_Teaching_REPORT.pdf; "Texas Teachers | How to Become a Teacher - Houston, San Antonio, Dallas, Fort Worth," accessed September 21, 2017, http://www.texasteachers.org/how-it-works/; Jameson Brewer, *Teach for America Counter-Narratives: Alumni Speak up and Speak Out*, ed. deMarrais (New York: Peter Lang Publishing Inc., 2015); Valerie Strauss, "In Arizona, Teachers Can Now Be Hired with Absolutely No Training in How to Teach," *Washington Post*, May 14, 2017, https://www.washingtonpost.com/news/answer-sheet/wp/2017/05/14/in-arizona-teachers-can-now-be-hired-with-absolutely-no-training-in-how-to-teach/.

[3] Pam Grossman and Susanna Loeb, *Alternative Routes to Teaching: Mapping the New Landscape of Teacher Education* (Harvard Education Press, 2008); Albert Shanker Institute, "The State of Teacher Diversity" (Washington, DC: Albert Shanker Institute, September 2015).

[4] Tara Kini and Anne Podolsky, "Does Teaching Experience Increase Teacher Effectiveness? A Review of the Research" (Palo Alto: Learning Policy Institute, 2016), https://learningpolicyinstitute.org/our-work/publications-resources/does-teaching-experience-increase-teacher-effectiveness-review-research/.

[5] Calculations from Assistant Secretary for Financial Resources (ASFR) Office of Budget (OB), "President's HHS FY 2017 Budget Factsheet," Text, HHS.gov, February 9, 2016, https://www.hhs.gov/about/budget/fy2017/budget-factsheet/index.html; "NASA_FY_2016_Budget_Estimates.Pdf," accessed February 20, 2018, https://www.nasa.gov/sites/default/files/files/NASA_FY_2016_Budget_Estimates.pdf; Calculations from Lucinda Gray et al., "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" (National Center for Education Statistics, April 2015), http://nces.ed.gov/pubs2015/2015337.pdf; "Milking Taxpayers," *The Economist*, February 12, 2015, http://econ.st/2mXanHp.

[6] Eric Hanushek, "Valuing Teachers: How Much Is a Good Teacher Worth?," accessed January 9, 2018, http://hanushek.stanford.edu/publications/valuing-teachers-how-much-good-teacher-worth; Henry M. Levin et al., "The Costs and Benefits of an Excellent Education for All of America's Children" (New York: Columbia University, January 2007), http://cbcse.org/wordpress/wp-content/uploads/2013/03/2007-Levin.Excellent-educatin-for-all-of-america%C2%B4s-children.pdf.

[7] The Sustainable Funding Project, "For the Public Good: Quality Preparation for Every Teacher" (New York, NY: Bank Street College, Sustainable Funding Project, June 2016).

[8] Karen DeMoss et al., "Clearing the Path: Redesigning Teacher Preparation for the Public Good" (New York: Bank Street College, Sustainable Funding Project, September 2017).

[9] Brigid Fallon, "Investing in Residencies, Improving Schools: How Principals Can Fund Better Teaching and Learning" (New York, NY: Bank Street College, Sustainable Funding Project, September 2017).

[10] Teach for America, "TFA FY16 Annual Report" (Washington, D.C.: Teach for America, 2016), https://teachforamerica.app.box.com/s/7dyl01c13ztt6cv4joxy18stxerc4rit; National Center for Teacher Residencies, "Teacher Residency Impact & Results," NCTR, April 17, 2017, http://nctresidencies.org/about/impact-results/; Jay Fitzgerald and 2013, "Alternative Routes to a Teaching Career - The Boston Globe," BostonGlobe.com, July 14, 2013, https://www.bostonglobe.com/business/2013/07/13/alternative-routes-teaching-career/ieEpVtNp9UQCqa76pgLRsJ/story.html.

[11] Based on discussions with programs and internal analyses of federal residency grants, U.S. Department of Education, "Teacher Quality Partnership Grant Program Awards," Programs; Abstracts, October 27, 2016, https://www2.ed.gov/programs/tqpartnership/awards.html.

[12] see, e.g., Denise K. Whitford, Dake Zhang, and Antonis Katsiyannis, "Traditional vs. Alternative Teacher Preparation Programs: A Meta-Analysis," *Journal of Child and Family Studies* 27, no. 3 (March 2018): 671–85, https://doi.org/10.1007/s10826-017-0932-0; Kay Sloan and Juliane Blazevski, "New Visions Hunter College Urban Teacher Residency: Measures of Success" (San Francisco, CA: Rockman et al, March 2015), https://b.3cdn.net/nvps/d1725192f4cb60167f_qsm6vz3qx.pdf; Meryle Weinstein and Sumaya Bouadi, "AMNH Master of the Arts in Teaching Urban Residency Program: Final Report" (New York, NY: Institute for Education and Social Policy, August 2017); Papy, John P. et al., "Does an Urban Teacher Residency Increase Student Achievement? Early Evidence from Boston," *Educational Evaluation & Policy Analysis* 34, no. 4 (December 2012): 413–34; Ryan Eisner et al., "Examining the Impact of Denver Teacher Residency on Teacher Retention, Teacher Effectiveness, and Student Achievement" (Association for Education Finance Policy, Washington, D.C., March 16, 2017), http://www.chalkbeat.org/wp-content/uploads/2017/06/DTR_AEFP-Slides_2017.pdf.

[13] Whitford, Zhang, and Katsiyannis, "Traditional vs. Alternative Teacher Preparation Programs."

[14] Anthony S Bryk et al., *Learning to Improve: How America's Schools Can Get Better at Getting Better*, 2015; Henry M. Levin, "Empirical Puzzles on Effective Teachers: U.S. Research," *Royal Academy of Sciences & Wenner-Gren Foundations*, n.d.; Whitford, Zhang, and Katsiyannis, "Traditional vs. Alternative Teacher Preparation Programs"; Jill Constantine et al., "An Evaluation of Teachers Trained through Different Routes to Certification" (Washington, D.C.: Institute for Education Sciences, February 2009), https://ies.ed.gov/ncee/pubs/20094043/pdf/20094043.pdf.

[15] Pam Grossman and Susanna Loeb, *Alternative Routes to Teaching: Mapping the New Landscape of Teacher Education* (Harvard Education Press, 2008); Whitford, Zhang, and Katsiyannis, "Traditional vs. Alternative Teacher Preparation Programs."

[16] Liana Loewus, "TFA, Alternative Programs Marginally Better Than Traditional Teacher Prep, Study Finds," Education Week - Teacher Beat, accessed April 3, 2018, http://blogs.edweek.org/edweek/teacherbeat/2017/11/tfa_alternative_programs_marginally_better_than_traditional_prep_study.html?cmp=SOC-SHR-FB; Whitford, Zhang, and Katsiyannis, "Traditional vs. Alternative Teacher Preparation Programs"; Melissa A. Clark et al., "Impacts of the Teach for America Investing in Innovation Scale-Up" (Princeton, NJ: Mathematica Policy Research, March 4, 2015).

[17] Thomas J. Kane, Jonah Rockoff, and Douglas O. Staiger, "What Does Certification Tell Us about Teacher Effectiveness? Evidence from New York City," *Economics of Education Review* 27, no. 6 (2008): 615–31; Donald J. Boyd et al., "Teacher Preparation and Student Achievement," *Educational Evaluation and Policy Analysis* 31, no. 4 (December 2009): 416–40, https://doi.org/10.3102/0162373709353129.

[18] Lauren M. Anderson and Jamy A. Stillman, "Student Teaching's Contribution to Preservice Teacher Development: A Review of Research Focused on the Preparation of Teachers for Urban and High-Needs Contexts," *Review of Educational Research* 83, no. 1 (March 1, 2013): 3–69.

[19] Sloan and Blazevski, "New Visions Hunter College Urban Teacher Residency: Measures of Success"; Papy, John P. et al., "Does an Urban Teacher Residency Increase Student Achievement? Early Evidence from Boston"; Eisner et al., "Examining the Impact of Denver Teacher Residency on Teacher Retention, Teacher Effectiveness, and Stu-

dent Achievement"; Tennessee State Board of Education, "2016 Report Card on the Effectiveness of Teacher Training Programs" (Tennessee: State Department of Education, 2016), https://s3.amazonaws.com/tn-pdfs/9906_Memphis_Teacher_Residency.pdf; Weinstein and Bouadi, "AMNH Master of the Arts in Teaching Urban Residency Program: Final Report"; Roneeta Guha, Maria E. Hyler, and Linda Darling-Hammond, "The Teacher Residency: An Innovative Model for Preparing Teachers" (Palo Alto, CA: Learning Policy Institute, 2016), http://bit.ly/2paAlYG; Tim Silva, Allison McKie, and Philip Gleason, "New Findings on the Retention of Novice Teachers from Teaching Residency Programs," NCEE Evaluation Brief (Washington, D.C.: Institution for Education Sciences, August 2015).

20 Tara Kini and Anne Podolsky, "Does Teaching Experience Increase Teacher Effectiveness? A Review of the Research" (Palo Alto: Learning Policy Institute, 2016), https://learningpolicyinstitute.org/our-work/publications-resources/does-teaching-experience-increase-teacher-effectiveness-review-research/; Roneeta Guha and Tara Kini, "Teacher Residencies: Building a High-Quality, Sustainable Workforce" (Palo Alto, CA: Learning Policy Institute, 2016), http://bit.ly/2phcQwi.

21 Arthur Levine, "Educating School Teachers" (Education Schools Project, September 1, 2006), http://www.edschools.org/pdf/Educating_Teachers_Report.pdf.

22 Linda Darling-Hammond et al., *Empowered Educators: How High-Performing Systems Shape Teaching Quality around the World*, 1 edition (San Francisco, CA: Jossey-Bass, 2017).

23 Howard Gardner and Lee S. Shulman, "The Professions in America Today: Crucial but Fragile," *Daedalus* 134, no. 3 (2005): 13–18; Nel Noddings, "The Caring Professional," in *Caregiving: Readings in Knowledge, Practice, Ethics, and Politics* (University of Pennsylvania Press, 1996), 160–72.

24 Stateline, "Why Free College Tuition Is Spreading From Cities To States," *Huffington Post* (blog), January 5, 2018, https://www.huffingtonpost.com/entry/why-free-college-tuition-is-spreading-from-cities-to_us_5a4f943fe4b0f9b24bf31692; Jon Queally, "Sanders: To Lift 'outrageous' Burden of Student Debt, Time for Tuition-Free College for All," *Common Dreams*, October 10, 2017, https://www.commondreams.org/news/2017/10/10/sanders-lift-outrageous-burden-student-debt-time-tuition-free-college-all; "Student Debt Crisis," Student Debt Crisis, accessed February 16, 2018, http://studentdebtcrisis.org/about/; James B. Steele and Lance Williams, "Who Got Rich off the Student Debt Crisis," *Reveal* (blog), June 28, 2016, https://www.revealnews.org/article/who-got-rich-off-the-student-debt-crisis/; Katie Lobosco, "Tuition-Free College Is Getting Bigger. Here's Where It's Offered," CNNMoney, May 16, 2017, http://money.cnn.com/2017/05/16/pf/college/states-tuition-free-college/index.html; Katie Lobosco, "The First New Yorkers Go to College Tuition-Free," CNNMoney, September 7, 2017, http://money.cnn.com/2017/09/07/pf/college/new-york-excelsior-scholarship-free-tuition/index.html; Kenneth W. Warren and Samir Sonti, "Nobody Should Have to Pay to Go to College," *The Chronicle of Higher Education*, December 16, 2015, https://www.chronicle.com/article/Nobody-Should-Have-to-Pay-to/234612; Judith Scott-Clayton, "The Looming Student Loan Default Crisis Is Worse than We Thought," Evidence Speaks Reports (Washington, D.C.: Brookings, 2018), https://www.brookings.edu/wp-content/uploads/2018/01/scott-clayton-report.pdf.

25 The College Board, "Trends in College Pricing 2017" (New York: The College Board, 2017), https://bit.ly/2G71eaJ.

26 Anthony P. Carnevale et al., "Learning While Earning" (Washington, D.C.: Georgetown University Center on Education and the Workforce, 2015), https://assets.documentcloud.org/documents/2494478/working-learners.pdf.

27 "Student Food Stamp Use Doubled over 10 Years," USA TODAY, accessed February 17, 2018, https://www.usatoday.com/story/news/nation/2013/09/25/student-usage-snap/2867479/; Sara Golddrick-Rab, Jed Richardson, and Anthony Hernandez, "Hungry and Homeless in College" (Madison, WI: University of Wisconsin Hope Lab, 2017), https://bit.ly/2nrqNWV.

28 Brad Hershbein and Melissa Kearney, "Major Decisions: What Graduates Earn over Their Lifetimes" (Washington, D.C.: The Hamilton Project, 2014).

29 Hershbein and Kearney; "The Teacher Pay Gap Is Wider than Ever: Teachers' Pay Continues to Fall Further behind Pay of Comparable Workers," *Economic Policy Institute* (blog), accessed February 18, 2018, http://www.epi.org/publication/the-teacher-pay-gap-is-wider-than-ever-teachers-pay-continues-to-fall-further-behind-pay-of-comparable-workers/; Brad Hershbein, Benjamin Harris, and Melissa Kearney, "Major Decisions: Graduates' Earnings Growth and Debt Repayment" (Washington, D.C.: The Hamilton Project, 2014), http://bit.ly/2FFV7G1.

30 Jason Delisle, "Graduate Student Debt" (Washington, D.C.: New America Education Policy Program, 2014).

31 For discussions of some of these perspectives and approaches, see, e.g., Anthony S Bryk et al., *Learning to Improve: How America's Schools Can Get Better at Getting Better*, 2015; Doug Lemov and Norman Atkins, *Teach Like a Champion 2.0: 62 Techniques That Put Students on the Path to College*, 2 edition (San Francisco: Jossey-Bass, 2014); "The Relay Approach To Special Education | Relay Graduate School of Education," accessed March 8, 2018, https://www.relay.edu/news/2017/05/01/relay-approach-special-education; Darrel Drury, Justin Baer, and Judith Warren Little, *The American Public School Teacher: Past, Present, and Future* (Cambridge, Mass: Harvard Education Press, 2011).

32 For examples of arguments relying more on individual teachers' expertise, see, e.g., Richard M. Ingersoll and David Perda, "The Status of Teaching as a Profession," *Schools and Society: A Sociological Approach to Education*, 2008, 106–118; James Hiebert, Ronald Gallimore, and James W. Stigler, "A Knowledge Base for the Teaching Profession: What Would It Look like and How Can We Get One?," *Educational Researcher* 31, no. 5 (2002): 3–15; Nel Noddings, "The Caring Professional," in *Caregiving: Readings in Knowledge, Practice, Ethics, and Politics* (University of Pennsylvania Press, 1996), 160–72.

33 OECD, "Lessons from PISA for the United States," Strong Performers and Successful Reformers in Education (OECD Publishing, 2011), http://www.oecd.org/pisa/46623978.pdf; Linda Darling-Hammond et al., *Empowered Educators: How High-Performing Systems Shape Teaching Quality around the World*, 1 edition (San Francisco, CA: Jossey-Bass, 2017); Pasi Sahlberg, *Finnish Lessons: What Can the World Learn from Educational Change in Finland?* (Teachers College Press, 2011).

34 Howard Gardner and Lee S. Shulman, "The Professions in America Today: Crucial but Fragile," *Daedalus* 134, no. 3 (2005): 13–18.

35 R. Freeman Butts, "Our Tradition of States' Rights and Education," *History of Education Journal*, 1959, 29–46; Don Smart, "Fraser & Reagan 'New Federalism': Politics of Education in Times of Economic Recession.," January 1, 1985, eric.

36 Sarah Reckhow and Jeffrey W. Snyder, "The Expanding Role of Philanthropy in Education Politics.," *Educational Researcher* 43, no. 4 (May 2014): 186–95; Ken Zeichner and César Peña-Sandoval, "Venture Philanthropy and Teacher Education Policy in the U.S.: The Role of the New Schools Venture Fund.," *Teachers College Record* 117, no. 5 (May 2015): 1–44; Pauline Lipman, "Capitalizing on Crisis: Venture Philanthropy's Colonial Project to Remake Urban Education.," *Critical Studies in Education* 56, no. 2 (June 2015): 241–58; Ian Swanson, "New Wave of Anti-Evolution Bills Hit States," Text, TheHill, January 27, 2017, http://thehill.com/homenews/state-watch/316487-new-wave-of-anti-evolution-bills-hit-states; "Mary Lou Bruner," *Wikipedia*, February 3, 2018, https://en.wikipedia.org/w/index.php?title=Mary_Lou_Bruner&oldid=823782014; Valerie Strauss, "Texas GOP Rejects 'Critical Thinking' Skills. Really.," *Washington Post* (blog), July 9, 2012, https://www.washingtonpost.com/blogs/answer-sheet/post/texas-gop-rejects-critical-thinking-skills-really/2012/07/08/gJQAHNpFXW_blog.html.

37 Clinical Practice Commission, "A Pivot toward Clinical Practice, Its Lexicon, and Renewing the Profession of Teaching" (Washington, D.C.: American Association of Colleges for Teacher Education, 2017), https://secure.aacte.org/apps/rl/res_get.php?fid=3235&ref=rl; AACTE Board of Directors, "AACTE Principles for National Accreditation in Educator Preparation" (American Association of Colleges for Teacher Preparation, 2016), https://bit.ly/2ulVKDj.

38 Joseph G. Altonji and Seth D Zimmerman, "The Costs of and Net Returns to College Major" (National Bureau of Economic Research, January 2017), http://www.nber.org/papers/w23029; Michael F. Middaugh, Rosalinda Graham, and Abdus Shahid, "A Study of Higher Education Instructional Expenditures: The Delaware Study of Instructional Costs and Productivity. Research and Development Report." (United States Department of Education, National Center for Education Statis-

tics, 2003); Desiree Carver-Thomas and Linda Darling-Hammond, "Teacher Turnover: Why It Matters and What We Can Do about It" (Palo Alto, CA: Learning Policy Institute, August 2017), http://bit.ly/2w691jU; Alexia Fernández Campbell, "The West Virginia Teachers Strike Is over. But Oklahoma and Arizona May Be Next.," Vox, March 7, 2018, https://www.vox.com/policy-and-politics/2018/3/7/17081826/teacher-strike-west-virginia-oklahoma-arizona.

[39] Gardner and Shulman, "The Professions in America Today," 14; Jamie Alter and Jane G Coggshall, "Teaching as a Clinical Practice Profession: Implications for Teacher Preparation and State Policy" (Washington, D.C.: National Comprehensive Center for Teacher Quality, March 2009).

[40] Holmes Group, "Tomorrow's Teachers: A Report of the Holmes Group" (East Lansing, MI: Holmes Group, Inc., 1986); American Association of Colleges for Teacher Education, "The Changing Teacher Preparation Profession" (Washington, DC: American Association of Colleges for Teacher Education, 2013); Alter and Coggshall, "Teaching as a Clinical Practice Profession: Implications for Teacher Preparation and State Policy"; Clinical Practice Commission, "A Pivot toward Clinical Practice, Its Lexicon, and Renewing the Profession of Teaching"; Louisiana Department of Education, "Believe and Prepare," March 8, 2016, http://www.louisianabelieves.com/teaching/believe-and-prepare; New York State Education Department, "Clinical Practice Work Group Draft Recommendations," February 2019, http://www.nysed.gov/common/nysed/files/cpc-draft-recommendations-accessible.pdf; "New Jersey Increases Student Teaching Requirements," New Brunswick, NJ Patch, November 5, 2015, https://patch.com/new-jersey/newbrunswick/new-jersey-increases-student-teaching-requirements; Alter and Coggshall, "Teaching as a Clinical Practice Profession: Implications for Teacher Preparation and State Policy."

[41] National Center for Teacher Residencies, "Teacher Residency Impact & Results," NCTR, April 17, 2017, http://nctresidencies.org/about/impact-results/; Roneeta Guha, Maria E. Hyler, and Linda Darling-Hammond, "The Teacher Residency: An Innovative Model for Preparing Teachers" (Palo Alto, CA: Learning Policy Institute, 2016), http://bit.ly/2paAlYG; National Center for Teacher Residencies, "Teacher Residency Impact & Results"; Darling-Hammond et al., *Empowered Educators*; Marc S. Tucker and Linda Darling-Hammond, *Surpassing Shanghai: An Agenda for American Education Built on the World's Leading Systems* (Cambridge, MA: Harvard Education Press, 2011); Nancy Bacharach, Teresa Washut Heck, and Kathryn Dahlberg, "Changing the Face of Student Teaching through Coteaching," *Action in Teacher Education* 32, no. 1 (2010): 3–14; Kay Sloan and Juliane Blazevski, "New Vision Hunter College Urban Teacher Residency: Measures of Success" (San Francisco, CA: Rockman et al, March 2015), https://b.3cdn.net/nvps/d1725192f4cb60167f_qsm6vz3qx.pdf; John P. Papay et al., "Does an Urban Teacher Residency Increase Student Achievement? Early Evidence from Boston," *Educational Evaluation and Policy Analysis* 34, no. 4 (2012): 413–34; Ryan Eisner et al., "Examining the Impact of Denver Teacher Residency on Teacher Retention, Teacher Effectiveness, and Student Achievement" (Association for Education Finance Policy, Washington, D.C., March 16, 2017), http://www.chalkbeat.org/wp-content/uploads/2017/06/DTR_AEFP-Slides_2017.pdf.

[42] Pam Grossman and Susanna Loeb, *Alternative Routes to Teaching: Mapping the New Landscape of Teacher Education* (Harvard Education Press, 2008); Leib Sutcher, Linda Darling-Hammond, and Desiree Carver-Thomas, "A Coming Crisis in Teaching? Teacher Supply, Demand, and Shortages in the U.S." (Palo Alto, CA: Learning Policy Institute, September 2016), https://learningpolicyinstitute.org/sites/default/files/product-files/A_Coming_Crisis_in_Teaching_REPORT.pdf; Jameson Brewer, *Teach for America Counter-Narratives: Alumni Speak up and Speak Out*, ed. deMarrais (New York: Peter Lang Publishing Inc., 2015); Valerie Strauss, "In Arizona, Teachers Can Now Be Hired with Absolutely No Training in How to Teach," *Washington Post*, May 14, 2017, https://www.washingtonpost.com/news/answer-sheet/wp/2017/05/14/in-arizona-teachers-can-now-be-hired-with-absolutely-no-training-in-how-to-teach/; "Texas Teachers | How to Become a Teacher," accessed September 21, 2017, http://www.texasteachers.org/how-it-works/; Kate Taylor, "Some Charter Schools Can Certify Their Own Teachers, Board Says," *The New York Times*, October 11, 2017, sec. N.Y. / Region, https://www.nytimes.com/2017/10/11/nyregion/suny-charter-schools-teacher-training.html.

[43] "The Basics," NCARB - National Council of Architectural Registration Boards, January 23, 2017, https://www.ncarb.org/become-architect/basics; American Society of Civil Engineers, "Engineer's Guide to Pre-Licensure Experience," n.d.

[44] "Pharmacist Licensing Requirements by State," n.d., https://ilw.com/seminars/june2005_citation3c.pdf.

[45] Catherine Dower et al., "Health Policy Brief: Graduate Medical Education" (Health Affairs, August 16, 2012).

[46] "Hairstylist Training & Education, Program Cost and Licensing," accessed February 27, 2018, https://www.beautyschoolsdirectory.com/faq/hair-stylist#node.

[47] "The Basics," January 23, 2017; American Society of Civil Engineers, "Engineer's Guide to Pre-Licensure Experience."

[48] Dana Severson, "How Much Is a Pharmacy Intern's Pay?," accessed February 25, 2018, http://work.chron.com/much-pharmacy-interns-pay-16876.html.

[49] National Association of Colleges and Employers, "2015 Internship & Co-Op Survey: Executive Summary" (Bethlehem, PA: National Association of Colleges and Employers, 2015).

[50] Kimberly A. Fisher, "History of The Johns Hopkins Hospital," accessed February 18, 2018, https://www.hopkinsmedicine.org/Medicine/education/hstrainingprogram/overview/hx_jhh.html.

[51] Jon Marcus, "The 'Cash Cow' of U.S. Universities: Professional Certificates Instead of Degrees," *Time*, April 9, 2012, http://business.time.com/2012/04/09/the-cash-cow-of-u-s-universities-professional-certificates-instead-of-degrees/; Abraham Flexner, *Medical Education in the United States and Canada: A Report to The Carnegie Foundation for the Advancement of Teaching* (New York City: The Carnegie Foundation for the Advancement of Teaching, 1910).

[52] Kenneth M. Ludmerer, *Let Me Heal: The Opportunity to Preserve Excellence in American Medicine* (New York: Oxford University Press, 2014); Paul Starr, *The Social Transformation of American Medicine* (New York, NY: Basic Books, 1983).

[53] Catherine Dower et al., "Health Policy Brief: Graduate Medical Education" (Health Affairs, August 16, 2012).

[54] Calculations using data from Catharine Warner-Griffin, Amber Noel, and Chrystine Tadler, "Sources of Newly Hired Teachers in the United States: Results from the Schools and Staffing Survey, 1987-88 to 2011-12. NCES 2016-876." (Washington, D.C.: National Center for Education Statistics, 2016), https://eric.ed.gov/?id=ED569202 and; United States Department of Education, "Higher Education Act Title II Reporting System - 2015 Title II Reports," United States Department of Education, 2015, https://title2.ed.gov/Public/Home.aspx.

[55] Assistant Secretary for Financial Resources (ASFR) Office of Budget (OB), "President's HHS FY 2017 Budget Factsheet," Text, HHS.gov, February 9, 2016, https://www.hhs.gov/about/budget/fy2017/budget-factsheet/index.html; "NASA_FY_2016_Budget_Estimates.Pdf," accessed February 20, 2018, https://www.nasa.gov/sites/default/files/files/NASA_FY_2016_Budget_Estimates.pdf; "Milking Taxpayers," *The Economist*, February 12, 2015, http://econ.st/2mXanHp.

[56] Eric Hanushek, "Valuing Teachers: How Much Is a Good Teacher Worth?," accessed January 9, 2018, http://hanushek.stanford.edu/publications/valuing-teachers-how-much-good-teacher-worth; Henry M. Levin et al., "The Costs and Benefits of an Excellent Education for All of America's Children" (New York: Columbia University, January 2007), http://cbcse.org/wordpress/wp-content/uploads/2013/03/2007-Levin.Excellent-educatin-for-all-of-america%C2%B4s-children.pdf.

[57] Relay Graduate School of Education, "Relay Reaffirms Need for Federal Funding," accessed February 22, 2018, https://www.relay.edu/news/2017/10/05/relay-reaffirms-need-federal-funding.

[58] For example, the Teacher Quality Partnership grants in the Higher Education Act have funded nearly 70 programs and thousands of residents, but the program was re-

moved from the proposed 2018 reauthorization. See The CAP Postsecondary Education Team, "What You Need to Know about the House Higher Education Act Bill," *Center for American Progress* (blog), December 7, 2017, http://ampr.gs/2iDertM.

[59] Calculations from: U.S. Department of Education, National Center for Education Statistics, Common Core of Data (CCD), "National Public Education Financial Survey" (Washington, D.C.: U.S. Department of Education, 2014), http://nces.ed.gov/ccd/elsi/ Note: national data mask wide variation both within and between states. For example, per-pupil spending currently ranges between just under $7,000 and nearly $20,000, while reliance on local tax revenues to pay for school ranges from 2% to 66%.

[60] Karen DeMoss et al., "Clearing the Path: Redesigning Teacher Preparation for the Public Good" (New York: Bank Street College, Sustainable Funding Project, September 2017); Brigid Fallon, "Investing in Residencies, Improving Schools: How Principals Can Fund Better Teaching and Learning" (New York, NY: Bank Street College, Sustainable Funding Project, September 2017).

[61] The Sustainable Funding Project, "The ESSA Opportunity" (Bank Street, 2017), http://bit.ly/29YOAbq.

[62] "Higher Education Appropriations," accessed February 22, 2018, http://www.ncsl.org/research/education/higher-education-appropriations.aspx; Sarah Leiseca The Pew Charitable Trusts Manager, "Federal and State Funding of Higher Education: A Changing Landscape," accessed February 22, 2018, http://bit.ly/1G94lXI.

[63] Joel McFarland et al., "The Condition of Education 2017," 2017, 149.

[64] See, e.g., The Coalition to Increase Teachers of Color and American Indian Teachers in Minnesota, "2017 Legislative Report Related to Increasing Teachers of Color and American Indian Teachers (TOCAIT) in Minnesota" (Minnesota, 2017), https://docs.wixstatic.com/ugd/53ce2e_473496a3bc2f461e85df23574cb66dcc.pdf; "Governor's Budget Summary—2018-19" (Sacramento, CA: Office of the Governor, January 2018), http://www.ebudget.ca.gov/2018-19/pdf/BudgetSummary/K-12Education.pdf.

[65] "Teach for America - Earmarks Received - LegiStorm," accessed November 19, 2016, https://www.legistorm.com/earmarks/details/organization/2175/Teach_for_America/page/1/sort/amount/type/desc.html; Relay Graduate School of Education, "Relay Reaffirms Need for Federal Funding."

[66] Anne Podolsky and Tara Kini, "How Effective Are Loan Forgiveness and Service Scholarships for Recruiting Teachers," *Palo Alto, CA: Learning Policy Institute*, 2016, https://bit.ly/2pLSJb1; L. Feng and T. Sass, "The Impact of Incentives to Recruit and Retain Teachers in 'Hard-to-Staff' Subjects," *Journal of Policy Analysis and Management*, 2017, https://doi.org/10.1002/pam.22037; Jason Delisle and Alexander Holt, "The Tangled World of Teacher Debt," *Education Next* 17, no. 4 (Fall 2017): 42–48.

[67] Arthur Levine, "Educating School Teachers" (Education Schools Project, September 1, 2006), http://www.edschools.org/pdf/Educating_Teachers_Report.pdf; Bruce Baker, "Ed Schools as Cash Cows in the University," *School Finance 101* (blog), October 22, 2009, https://schoolfinance101.wordpress.com/2009/10/22/ed-schools-as-cash-cows-in-the-university/.

[68] Altonji and Zimmerman, "The Costs of and Net Returns to College Major"; Middaugh, Graham, and Shahid, "A Study of Higher Education Instructional Expenditures."

[69] The College Board, "Trends in College Pricing 2017" (New York: The College Board, 2017), https://bit.ly/2G71eaJ; Sandy Baum and Lucie Lapovsky, "Tuition Discounting: Not Just a Private College Practice" (New York: The College Board, 2006), https://bit.ly/2GbmFr1.

[70] Deborah A. Stone, "Causal Stories and the Formation of Policy Agendas," *Political Science Quarterly*, no. 2 (1989): 281–300.

[71] The Sustainable Funding Project, "For the Public Good: Quality Preparation for Every Teacher" (New York, NY: Bank Street College, Sustainable Funding Project, June 2016); Learning Policy Institute, "Teacher Residencies: Building a High-Quality, Sustainable Workforce" (Palo Alto, CA: Learning Policy Institute, 2016), https://learningpolicyinstitute.org/wp-content/uploads/2016/01/LPI-Brief-TeacherResidencies.pdf.

[72] Hanushek, "Valuing Teachers: How Much Is a Good Teacher Worth?"; DeMoss et al., "Clearing the Path: Redesigning Teacher Preparation for the Public Good."

[73] Dana Goldstein, *The Teacher Wars: A History of America's Most Embattled Profession* (New York: Doubleday, 2014); American Association of Colleges for Teacher Education, "Changing Teacher Preparation," 2013; Since the publication of Levine's white paper in 2006, when he identified 1206 teacher preparation programs, current Title II data indicate 2140 now programs exist. Levine, "Educating School Teachers," September 1, 2006; Clayton M. Christensen, Michael B. Horn, and Curtis W. Johnson, *Disrupting Class, Expanded Edition: How Disruptive Innovation Will Change the Way the World Learns*, 2 edition (McGraw-Hill Education, 2016); Jonathan Schorr, "A Revolution Begins in Teacher Prep," *Stanford Social Innovation Review*, 2013; Wendy Kopp, *One Day, All Children...: The Unlikely Triumph Of Teach For America And What I Learned Along The Way*, 1st Ed (New York: PublicAffairs, 2003); American Association of Colleges for Teacher Education, "The Changing Teacher Preparation Profession" (Washington, DC: American Association of Colleges for Teacher Education, 2013); Arthur Levine, "Educating School Teachers" (Education Schools Project, September 1, 2006), http://www.edschools.org/pdf/Educating_Teachers_Report.pdf.

[74] Rod Paige, "Meeting the Highly Qualified Teachers Challenge: The Secretary's Annual Report on Teacher Quality," *US Department of Education*, 2002.

[75] United States Department of Education, "Title II Reporting System."

[76] Christopher Redding and Thomas M. Smith, "Easy in, Easy out: Are Alternatively Certified Teachers Turning Over at Increased Rates?," *American Educational Research Journal* 53, no. 4 (August 2016): 1086–1125, https://doi.org/10.3102/0002831216653206.

[77] Grossman and Loeb, *Alternative Routes to Teaching*.

[78] Darling-Hammond et al., *Empowered Educators*.

[79] National Conference of State Legislatures, "No Time to Lose: How to Build a World-Class Education System State by State" (Washington, D.C.: National Conference of State Legislatures, August 2016), http://www.ncsl.org/documents/educ/Edu_International_FinaI_V2.pdf.

[80] Louisiana Department of Education, "Believe and Prepare."

[81] "CSU New Generation of Educators Community: Project," accessed September 18, 2017, http://teachingcommons.cdl.edu/CSUNewGen/new_gen_project/.

[82] "Quality Counts: Building Capacity to Research Quality in Colorado's Residency Preparation Programs," accessed March 29, 2018, https://ies.ed.gov/funding/grantsearch/details.asp?ID=2003.

[83] For more information about these different models of networked learning, see Etienne Wenger, *Communities of Practice: Learning, Meaning, and Identity* (Cambridge University Press, 1878); DuFour Richard and Fullan Michael, *Cultures Built to Last: Systemic PLCs at Work TM*, 1 edition (Solution Tree Press, 2013); Bryk et al., *Learning to improve*.

[84] NCEE, "Maryland Takes a Big Step toward Adapting Lessons from Top Systems," *National Center on Education and the Economy* (blog), accessed February 23, 2018, http://ncee.org/2018/02/maryland-takes-a-big-step-toward-adapting-lessons-from-top-systems/.

[85] see, e.g., New York State Education Department, "Clinical Practice Work Group Draft Recommendations."

[86] Nancy Bacharach, Teresa Washut Heck, and Kathryn Dahlberg, "Changing the Face of Student Teaching through Coteaching," *Action in Teacher Education* 32, no. 1 (2010):

3–14.

[87] Linda Darling-Hammond et al., "Science of Learning and Development: Implications for Educational Practice" Fall 2017.

[88] see, e.g, Thomas J. Kane, Jonah Rockoff, and Douglas O. Staiger, "What Does Certification Tell Us about Teacher Effectiveness? Evidence from New York City," *Economics of Education Review* 27, no. 6 (2008): 615–31; Donald J. Boyd et al., "Teacher Preparation and Student Achievement," *Educational Evaluation and Policy Analysis* 31, no. 4 (December 2009): 416–40, https://doi.org/10.3102/0162373709353129.

[89] Matthew A. Kraft, "Teacher Effects on Complex Cognitive Skills and Social-Emotional Competencies," *Journal of Human Resources*, in press, https://scholar.harvard.edu/files/mkraft/files/kraft_-_teacher_effects_jhr.pdf.

[90] Rebecca Goldring, Soheyla Taie, and Minsun Riddles, "Teacher Attrition and Mobility: Results from the 2012-13 Teacher Follow-up Survey" (Washington, DC: U.S. Department of Education, September 2014).

[91] Gary Barnes, Edward Crowe, and Benjamin Schaefer, "The Cost of Teacher Turnover in Five School Districts: A Pilot Study" (Washington, DC: National Commission on Teaching and America's Future, 2007), https://eric.ed.gov/?id=ED497176.

[92] Goldring, Taie, and Riddles, "Teacher Attrition and Mobility."

[93] Kate Taylor, "Some Charter Schools Can Certify Their Own Teachers, Board Says," *The New York Times*, October 11, 2017, sec. N.Y. / Region, https://www.nytimes.com/2017/10/11/nyregion/suny-charter-schools-teacher-training.html; Papay et al., "Does an Urban Teacher Residency Increase Student Achievement? Early Evidence from Boston."

[94] Guha, Hyler, and Darling-Hammond, "The Teacher Residency: An Innovative Model for Preparing Teachers."

[95] Sloan and Blazevski, "New Vision Hunter College Urban Teacher Residency: Measures of Success."

[96] Barnes, Crowe, and Schaefer, "The Cost of Teacher Turnover in Five School Districts"; Learning Policy Institute, "What's the Cost of Teacher Turnover?," Learning Policy Institute, September 13, 2017, https://learningpolicyinstitute.org/product/the-cost-of-teacher-turnover.

[97] Jon Marcus, "The Paradox of New Buildings on Campus," *The Atlantic*, July 25, 2016, http://theatln.tc/2Gt87jk; Paul F. Campos, "Opinion | The Real Reason College Tuition Costs So Much," *The New York Times*, April 4, 2015, sec. Opinion, https://nyti.ms/2yFFwCq; Jeffrey J. Selingo, "Perspective | Who Is to Blame for Rising Tuition Prices at Public Colleges?," *Washington Post*, October 20, 2017, http://wapo.st/2gX5XNz.

[98] Calculated from median income and net cost data in U.S. Bureau of the Census, "Real Median Household Income in the United States," FRED, Federal Reserve Bank of St. Louis, January 1, 1984, https://fred.stlouisfed.org/series/MEHOINUSA672N and ; The College Board, "Trends in College Pricing 2017" Dollars calculated from 2016 constant dollars.

About Bank Street

Bank Street College is a leader in progressive education, a pioneer in improving the quality of classroom practice, and a national advocate for children and their families.

Since its beginnings in 1916, Bank Street has been at the forefront of understanding how children learn and grow. In early childhood centers and schools, in hospitals and museums, Bank Street has built a national reputation on the simple fact that our graduates know how to do the work that is right for children and youth.

Through Bank Street's Graduate School of Education, Children's Programs, and the Bank Street Education Center, the College has helped to transform the way teachers and children engage in learning. At the Graduate School, students are trained in a model we have honed for a century by combining the study of human development and learning theory with sustained clinical practice that promotes significant development as a teacher prior to graduation. At Bank Street's School for Children, Family Center, Head Start, and Liberty LEADS, the College fosters children's development in the broadest sense by providing diverse opportunities for physical, social, emotional, and cognitive growth. The College further supports and influences positive outcomes for children, educators, and families through professional development programs, research projects, and other key efforts at the district, state, and federal levels.

In 2015, Bank Street launched Prepared To Teach (formerly the Sustainable Funding Project). The project's mission is to address a significant problem in public education: how to ensure all aspiring teachers matriculate through affordable, high-quality programs so that every teacher enters the profession prepared for the demands of 21st century classrooms.

For more information, please visit www.bankstreet.edu.